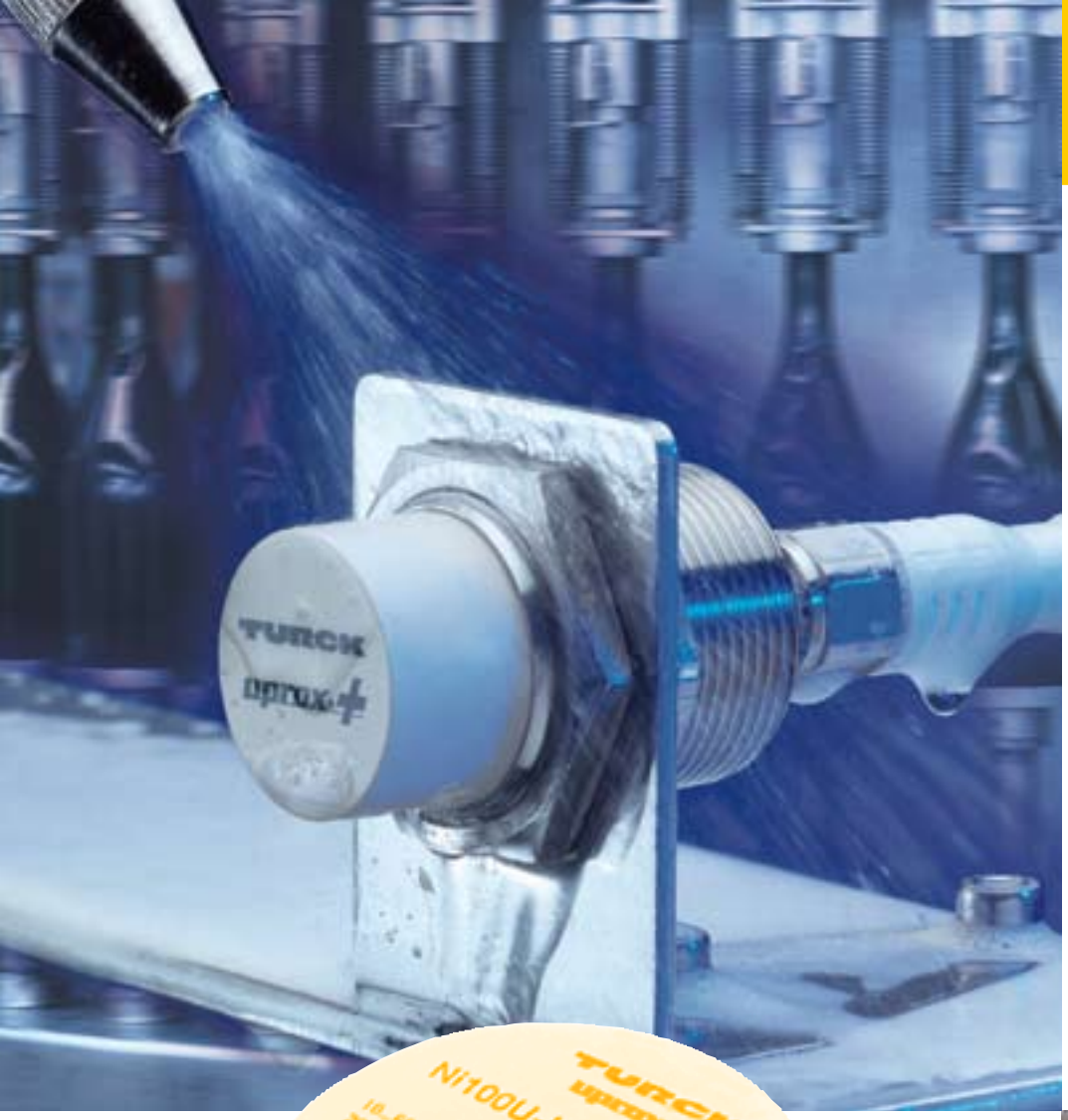
TURCK

Industrial
Automation

INDUCTIVE SENSORS



Sense it! Connect it! Bus it! Solve it!

S1633/01

THE COMPANY

Turck is one of the world leading manufacturers in the industrial automation sector. With more than 2.700 employees working in 25 countries and exclusive agencies in 60 countries, Turck turns over a total revenue of over 330 million Euro.
TURCK has been continuously setting the standards for more than 40 years with superior products and tailor-made solutions in manufacturing and process automation.
The international orientation of the company started in 1975 with the foundation of TURCK Inc. in Minneapolis, USA.

Today TURCK is in a position to adapt world-wide to the conditions which are prevalent on the local markets with its modern manufacturing facilities in Germany, Switzerland, the USA, Mexico and China. Irrespective of the international orientation, the core competency and central manufacturing facilities of the company are located in Germany and will remain there in the future.

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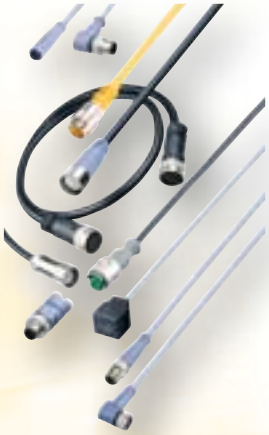
TURCK

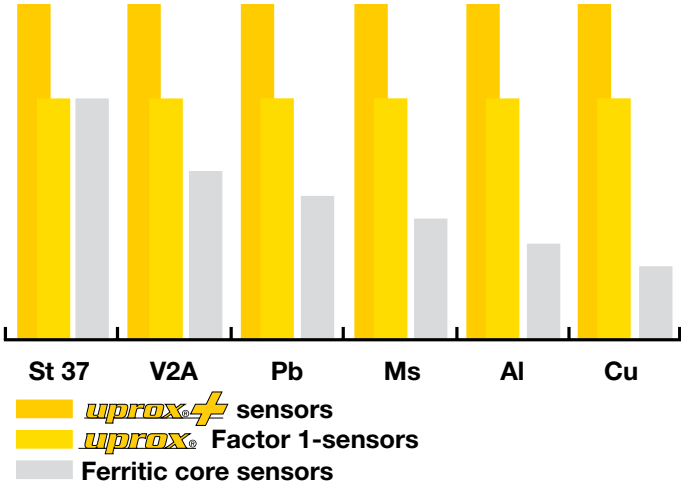
Industrial Automation

THE PRODUCT RANGE

TURCK offers a full range for manufacturing and process automation with more than 13,000 products from the sensor, interface, connector and fieldbus technology fields.
Examples of the exceptional innovative leadership of the company are the inductive factor 1 sensor *uprox*®+, the modular IP67 I/O system BL67 as well as *excom*®, the compact remote I/O system for the explosion hazardous area. Whether in the fields of mechanical or system engineering, in the automotive, transport & handling, food & beverage or in the chemical and pharmaceutical industries: TURCK products enhance the availability of your systems through the use of absolutely reliable technology. Furthermore, they purposefully reduce your costs for procurement, stock keeping, installation and operational safety through the use of effective standardisation.



Inductive sensors



Inductive proximity switches are designed for wear-free and non-contact detection of metal objects. For this purpose they use a high-frequency electro-magnetic AC field that interacts with the target. With conventional inductive sensors, this field is generated by an LC resonant circuit with ferrite core coil.

Eddy currents are induced in metallic target materials, which draw off energy from the electromagnetic field and which accordingly reduce the level of oscillation amplitude. This change can be detected and evaluated by inductive sensors. Further fundamental information about inductive sensors can be found in the general information from page 312 or in the section Factor 1 sensors from page 162.

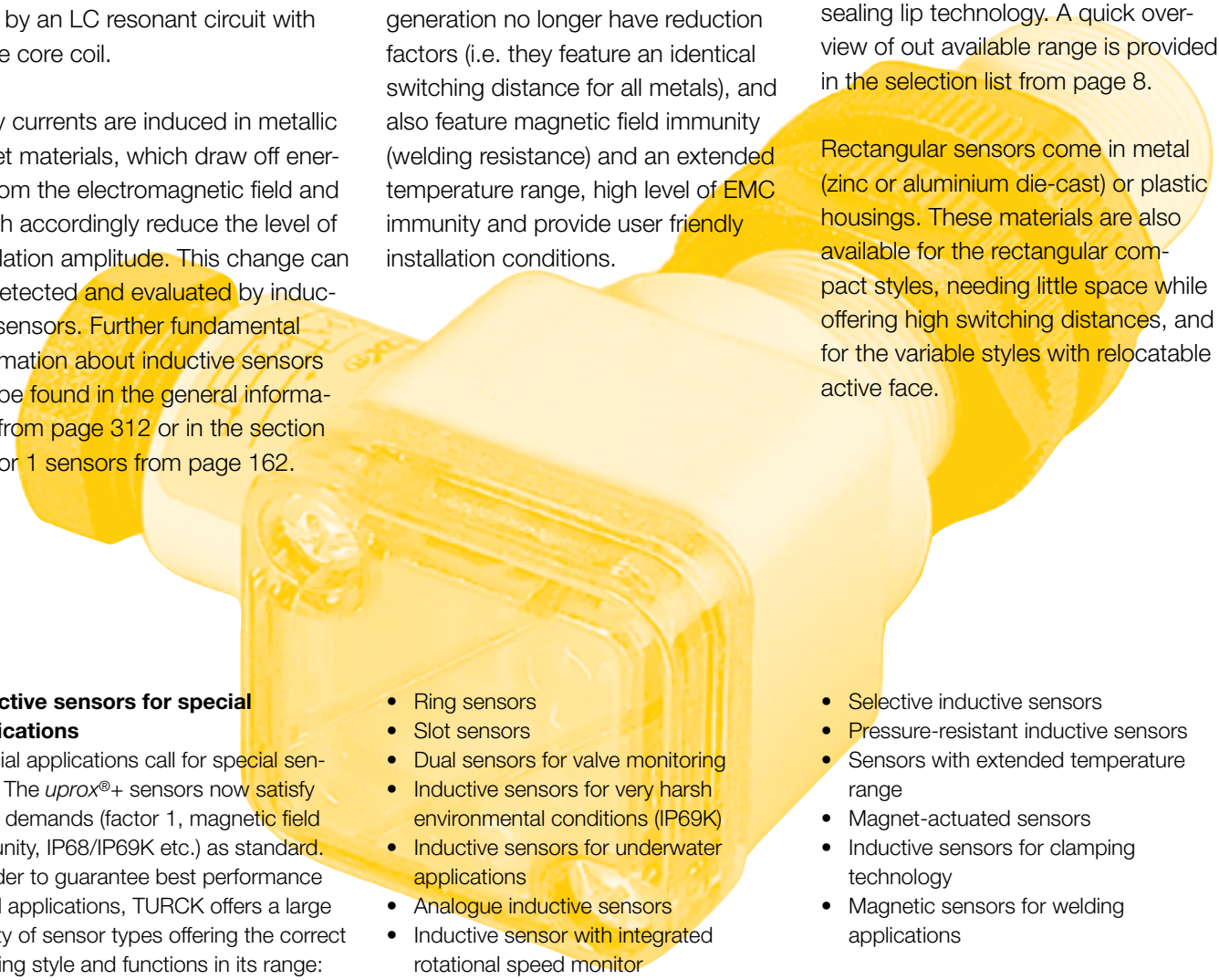
uprox®+ factor 1 sensors

The _uprox_® sensor developed by TURCK and its further development to the _uprox_®+ combines innovative coils and manufacturing technology to form a product with many highlights. All inductive sensors of the new generation no longer have reduction factors (i.e. they feature an identical switching distance for all metals), and also feature magnetic field immunity (welding resistance) and an extended temperature range, high level of EMC immunity and provide user friendly installation conditions.

Housing materials

Alongside the standard chrome-plated brass barrel versions, there are the following threaded barrel housing styles:
For applications requiring enhanced resistance against chemicals and sudden temperature variations (e.g. during cleaning processes in the food and beverage industry), stainless steel and plastic barrel sensors are the ideal choice. The Teflon-coated brass versions offer extra protection against sparks and weld splatter as experienced in the automotive industry during car body welding. The best protection against chemical and mechanical strain, as for example, frequently occurring in the tooling industry, is provided by our sensors with an LCP front cap or special twin sealing lip technology. A quick overview of out available range is provided in the selection list from page 8.

Rectangular sensors come in metal (zinc or aluminium die-cast) or plastic housings. These materials are also available for the rectangular compact styles, needing little space while offering high switching distances, and for the variable styles with relocatable active face.



Inductive sensors for special applications

Special applications call for special sensors. The _uprox_®+ sensors now satisfy most demands (factor 1, magnetic field immunity, IP68/IP69K etc.) as standard. In order to guarantee best performance for all applications, TURCK offers a large variety of sensor types offering the correct housing style and functions in its range:

- Ring sensors
- Slot sensors
- Dual sensors for valve monitoring
- Inductive sensors for very harsh environmental conditions (IP69K)
- Inductive sensors for underwater applications
- Analogue inductive sensors
- Inductive sensor with integrated rotational speed monitor
- Selective inductive sensors
- Pressure-resistant inductive sensors
- Sensors with extended temperature range
- Magnet-actuated sensors
- Inductive sensors for clamping technology
- Magnetic sensors for welding applications

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TURCK
Industrial Automation

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Index of types 342

Inductive sensors – Type code

Only for identification of existing type designations

Bi.2. – M12. – AP6X – H1141 / S...

Special functions:
- **F** Active sensing face (Sensor Q26)
- **FE** Selective performance
- **NF** Selective performance
- **R** Ring sensor
- **S** Rectangular plastic housing side sensing face (Sensor Q26)
- **U** *uprox*®+ or *uprox*® factor 1 sensor

Rated switching distance [mm]

Special features
- **D** for high pressures

Function principle
- **i** inductive
- **iM** magnet inductive

Mounting
- **B** flush
- **N** non-flush
- **S** slot-type sensor
- **W** linear transducer

AP6X

Fuction display:
- **X** LED
- **X ...** several LEDs

Voltage range:
- **3** [1]) 20…250 VAC, 10…300 VDC
- **30** 20…250 VAC Ⓚ, 10…300 VDC Ⓚ
- **31** 20…250 VAC, 10…300 VDC
- **4** 10…65 VDC Ⓚ
- **41** 10…55 VDC
- **44** 10…55 VDC Ⓚ
- **6** 10…30 VDC Ⓚ
- **7** 10…30 VDC

Ausgang:
- **D** 2-wire DC, unpoled
- **DZ** 2-wire AC
- **G** 2-wire DC, poled
- **N** NPN output
- **P** PNP output
- **Z** two-wire AC/DC

Function:
- **A** normally open (N/O)
- **ASI** AS interface®
- **D** dynamic output
- **DNet** DeviceNet™
- **F** connection programmable
- **LF** analogue output (frequency)
- **LI** analogue output (current)
- **LU** analogue output (voltage)
- **S/LIU** analogue output (current and voltage)
- **R** normally closed (N/C)
- **V** complementary outputs
- **Y0** EN 60947-5-6 (NAMUR)
- **Y1** NAMUR ATEX approval

Special option code

Factory code:
- **1** standard wiring
- **0** special wiring

Number of contacts

Mechanical design:
- **1** straight
- **3** straight with adapter

Connector type:
- **B1** connector (7/8“)
- **B3** connector (1/2“)
- **H1** connector (M12 x 1)
- **V1** connector(M8 x 1)

M12.

Housing description:
- **CA25** housing (25 x 25)
- **CA40** housing (40 x 40)
- **CK40** housing (40 x 40)
- **CP40** housing (40 x 40)
- **CP80** housing (80 x 80)
- **DSU** dual sensor
- **EG** stainless steel barrel, fully threaded
- **EH** smooth stainless steel barrel
- **EM** stainless steel barrel, partly threaded
- **G** chrome-plated brass barrel, fully threaded
- **GS** metal barrel fully threaded, side sensing face
- **H** chrome-plated smooth barrel
- **HS** smooth barrel, side sensing face
- **K** smooth plastic barrel
- **M** chrome-plated brass barrel, partly threaded
- **MT** Teflon-coated brass barrel, partly threaded
- **P** plastic barrel, fully threaded
- **Q** rectangular housing
- **S** plastic barrel, partly threaded
- **TS** tube sensor, plastic housing
- **W** ring sensor

Additional housing information
- **D** climate-proof
- **E** long version
- **M** medium length
- **K** short
- **SR** terminal chamber with straight or right-angle cable exit
- **SK** terminal chamber with right angle cable exit
- **WD** for wash-down applications, resistant against aggressive cleaning products

[1]) … AZ3 ... S120 and ... NF ... AZ3 only 20…250 VAC

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How to select the right sensor?

Page 5 provides an overview of the entire contents of the catalogue.
The selection guide for standard devices (from page 8) indicates where in the catalogue inductive sensors with the right connection type and appropriate housing material can be found.

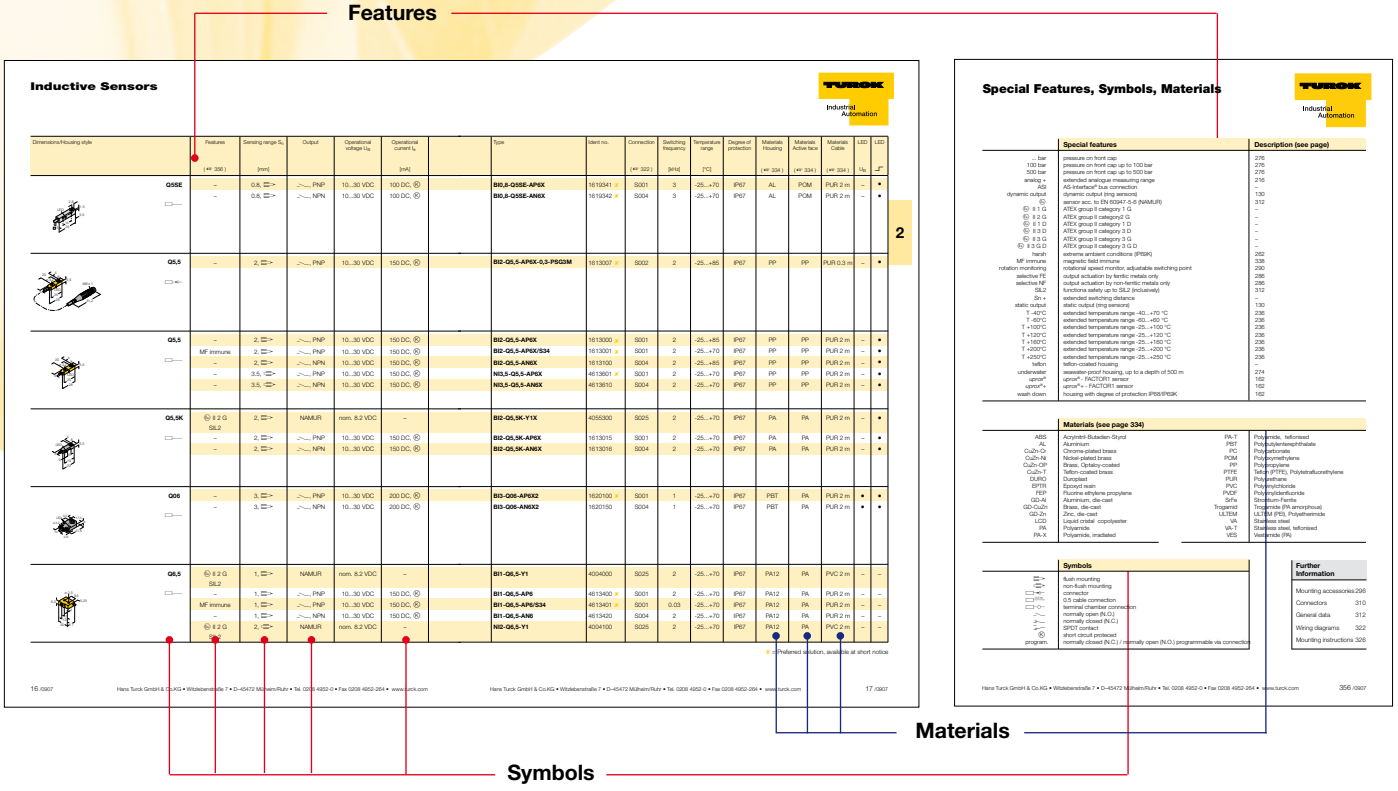
The selection guide for sensors with special features (from page 10) will help you quickly find the proper sensor fully matching your sensing needs.

Further details, such as wiring diagrams, general technical data, matching connectors and installation instructions are provided in the catalogue from page 310.

The sensors are always presented on double pages (see illustration below) based on the following sorting order:

- Housing style:
  - rectangular devices
  - threaded barrel devices
  - smooth barrel devices
- Housing size: from small to large
- Housing material: metal/plastic
- Connection:
  - connector (M8, M12, 1/2“, 7/8“)
  - cable
  - terminal chamber
- Mounting mode: flush/non-flush
- Length: from short to long
- Switching distances: from large to small
- Electrical connection:
  - NAMUR
  - PNP 3/4-wire
  - NPN 3/4-wire
  - DC 2-wire
  - AC/DC 2-wire
  - ASI-BUS
  - DeviceNet™

All symbols and abbreviations used are listed and explained on the fold-out page (back cover), additional notes and further technical data are also provided.
Should you know the type code of the sensor needed, the alphabetic type index (page 342) will facilitate selection of the right sensor.

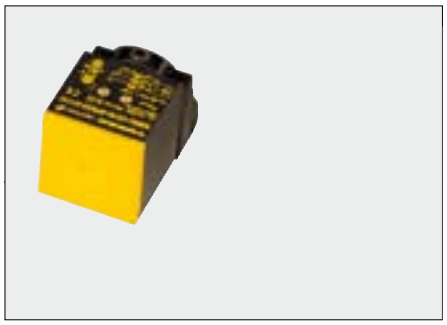


Selection guide - standard devices

Rectangular – compact, flat housing

Type	Height [mm]	Position of active face	S_n max [mm]		Metal housing: Device type with: Connector	Metal housing: Device type with: Cable	Metal housing: Device type with: Terminal chamber	Plastic housing: Device type with: Connector	Plastic housing: Device type with: Cable	Plastic housing: Device type with: Terminal chamber
					Page					
Q5SE	5	top	0.8	–		16				
Q5,5	5.5	top	2	3.5				16	16	
Q06	6	top	3	–					16	
Q6,5	6.5	side	1	2					16	
Q08	8	top	7	–	18	20				
Q8SE	8	side	2 *	4				18	18	
Q9,5	9.5	side	–	2					20	
Q10	10	top	8	–				20	20	
Q10S	10	side	2	–				22	22	
Q12	12	side	5	4				22	22	
TS12	12	rear	–	20				24		
Q14	14	top	10	20				24	24	
Q18	18	side	–	5					24	
Q20	20	top	15	25				26	26	
Q25	25	front	–	10					26	
Q26	26	front	10					30	26	
Q30	30	front	–	15					28	
Q40	40	top	–	22				28		
QF15	15	top	15	22				36		
Q80/ CP80	40	top	50	75				36	38	38
Q130	48	side	–	30				42	42	
K90SR	60	top	–	100				40		40

* Switching distance with flush mounting of the non-flush sensor



Rectangular – variable, relocatable active face

Type	Active face [mm]	S_n max [mm]		Metal housing: Device type with: Connector	Metal housing: Device type with: Cable	Metal housing: Device type with: Terminal chamber	Plastic housing: Device type with: Connector	Plastic housing: Device type with: Cable	Plastic housing: Device type with: Terminal chamber
				Page					
CA25	25 x 25	10	15	26					
CA40/CK40 CP40	40 x 40	30	50				28		32

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Sensors in threaded barrels

Type	S_n max [mm]			Metal housing			Plastic housing		
				Device type with:			Device type with:		
				Connector	Cable	Terminal chamber	Connector	Cable	Terminal chamber
				Page					
M5 x 0.5	1	–		42	42				
M8 x 1	2	6	78	42	46				
M12 x 1	4	10	90	50	60	68	56	62	68
M18 x 1	8	15		70	84	94	72	82	96
M30 x 1.5	15	30		96	106	114	100	104	114
PG36 (G47)	25	40		118	116				

Smooth barrel

Type	S_n max [mm]		Metal housing			Plastic housing		
			Device type with:			Device type with:		
			Connector	Cable	Terminal chamber	Connector	Cable	Terminal chamber
			Page					
∅ 3 mm	1	–		118				
∅ 4 mm	1	–	118	118				
∅ 6.5 mm	2	6	120	122				
∅ 11 mm	2	5					124	124
∅ 20 mm	5	12				124	126	126
∅ 34 mm	–	20					126	126
∅ 40 mm	15	30						126

Selection guide - sensors with special features

Inductive ring sensors

The compact and universally mountable housing with integral electronics is one of the distinctive features of TURCK ring sensors. The wide spectrum of application of these ring sensors includes use in automated assembly and parts feeding systems, for example in the detection of small metal parts in parts feeding tubes. The *uprox*®+ TS12 housing style is an innovative replacement for different ring sensors. Only a single sensor is necessary in order to provide solutions for applications with different tube diameters.

Page 130

Inductive sensors for rotary actuators

In the chemical, the petrochemical and the food industry, position control on rotary actuators is of great importance. TURCK dual sensors are capable of reliably detecting the end position of rotary actuators. Installation costs and effort are reduced significantly through the simple mounting and wiring technology of TURCK's dual sensors.

Page 142

Inductive slot sensors

The housing of the slot sensors is U shaped with the active face between the two arms. If the object being detected moves into the U shaped area, the sensor is actuated. Slot sensors are capable of securely detecting targets whose distance from the active face is not clearly defined upon side approach.

Page 148

Inductive sensors for clamping and gripping technology

The detection of OPEN and CLOSED positions on pneumatic clamping equipment can be comfortably implemented using special monitoring kits with two miniature sensors. The TURCK product line provides almost unlimited combination possibilities, comprising five different power blocks and over forty different modular sensor types.

Page 154

uprox®+ factor 1 sensors

The *uprox*® sensor developed by TURCK and its further development to the *uprox*®+ combines innovative coils and manufacturing technology to form a product with many highlights. The inductive sensors of this new generation no longer have reduction factors (they feature an identical switching distance for all metals). They also feature magnetic field immunity (welding resistance) and an extended temperature range, high level of EMC immunity and provide user-friendly installation conditions.

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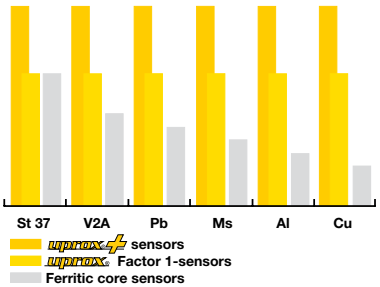

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Inductive sensors with analogue output

Simple control tasks can be accomplished using inductive sensors with analogue output. They provide a current, voltage or frequency signal that is proportional to the target's distance. With TURCK's analogue sensors, the output signal is linear to the distance of the target over the entire sensing range.

Page 216

Magnetic-inductive proximity sensors

Typical applications for magnet-inductive sensors include gate monitoring and „pig" detection. Since magnet-inductive sensors are actuated by external magnetic fields, they are capable of providing large operating distances despite a compact housing design. In combination with the actuation magnet DMR31-15-5, the M12 sensor series features a nominal switching distance of 90 mm.

Page 232

Sensors with extended temperature range

TURCK offers sensors for applications that withstand extreme temperatures of -60 °C or +250 °C. Typically, these TURCK sensors are used in extreme climatic areas, e.g. in deep freezing systems, outdoors, in metal foundries as well as in painting shops in the automotive industry or the glass industry.

Page 236

Inductive sensors for extreme environmental conditions (IP69K)

Whether it is the food industry or harsh processing conditions: The new *uprox*®+ wash-down sensors offer the perfect solution for all requirements. The sensors that are fully impermeable and resist cleaning agents and different liquids. The resistance to cleaning agents was tested according to the Henkel-Ecolab test method R&D-P3-E No. 37 in all respects. With the special double lip seal the inductive sensors for extreme environmental conditions from TURCK even exceed the demands of degree of protection IP68 and IP69K.

Page 262

Inductive sensors for underwater application

TURCK provides sensors in a fully pressure and seawater resistant housing for subsea applications. These sensors are ideally adapted to continuous use under water. The devices in a plastic M18 threaded barrel can be used at a water depth of up to 500 m. Also in the TURCK range are sensors of housing style CP40 which are mounted in the protective housing type SG40/2 and are fully encapsulated. The result is a sensor with a large switching distance which complies with degree of protection IP68 and can be used in a water depth up to 5 m. They can be used in applications such as locks, weirs and offshore areas.

Page 274

Selection guide - sensors with special features

Pressure-resistant inductive sensors

Optimised for the respective applications both pressure-resistant and high pressure-resistant devices are available. The pressure resistant *uprox*®+ wash-down sensors are designed for areas with pressures up to 20 bar and combine the unique *uprox*® benefits such as the highest switching distances and factor 1 with protection degree IP68/IP69K. The highly pressure-resistant sensors are installed in a stainless steel housing and ideally suited for use in hydraulic systems. Special seals protecting the device front and an additional seal via an O-ring fitting enable application in high-pressure installations up to 500 bar.

Page 276

Selective inductive sensors

TURCK's sensor series "NF" and "FE" with selective performance are particularly suited for applications in which ferritic metals have to be distinguished from non-ferritic metals. Possible applications are, for example, the distinction between tool and workpiece or between workpieces made of different materials as well as simple coding tasks.

Page 286

Inductive sensors with integrated rotational speed monitor

Inductive sensors with integrated rotational speed monitor combine sensors and processor in a compact housing. Underspeeds and overspeeds in a range from 0...3000 RPM can be detected. For this purpose the periodic attenuation of the sensor is detected – either with a metal target attached to the shaft or by direct detection of the cog – using an adjustable signal processor.

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The complete range

The entire range of inductive sensors in addition to factor 1 sensors *uprox*® and *uprox*®+ also includes devices with conventional ferrite core technology.

Different housing variants are available:

- Rectangular housings from the compact 5 x 5 x 25 mm version to the 90 x 130 x 60 mm version with extremely large switching distance
- Threaded barrel M4 to PG36
- Smooth barrel with Ø 3 mm to Ø 40 mm diameter

Almost all sensor housing designs are available with flush as well as non-flush mounting modes. Furthermore, there are “non-flush” sensors with particularly flexible installation possibilities which can be installed in a recessed or even a fully flush configuration.

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Only very resistant housing materials are used. Most devices are available in different materials in order to adapt to the special environmental conditions of the individual applications:

- Plastic, e.g. PA, PP, PBT or ABS
- Brass (threaded barrel), incl. chrome or Teflon coating
- Stainless steel in various qualities up to V4A, 1.4404

The following choice of conventionally available connector variants are available on the market:

- Connectors such as Ø 8 mm, M8, M12, 1/2“ and 7/8“
- Cables of different lengths (standard length 2 m)
- “Pigtail”, i.e. short cable fabricated with an M8 or M12 connector
- Terminal chambers

Inductive standard sensors are available in all standard world-wide electrical versions:

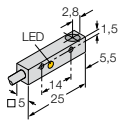
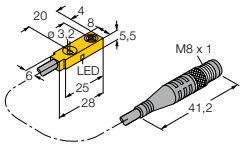
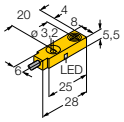
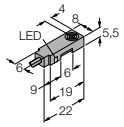
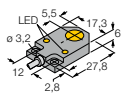
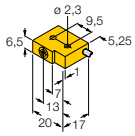
- NAMUR
- 2-, 3-, and 4-wire DC
- PNP/NPN output
- 2-wire AC/DC
- Fieldbus-ready dual sensors for DeviceNet™ or AS-Interface

Furthermore, TURCK sensors feature numerous internationally recognized approvals and are thus suitable for use world-wide:

- ATEX: all sensors with output identifier “Y1” (in the type code). These devices are also suitable for use in safety-relevant systems including SIL 2 compliance to IEC 61508
- ATEX, zone 2 and/or zone 22: all sensors with the identifier “3D” or “3GD”
- UL: all sensors with an operating voltage up to 30 VDC
- IEC-Ex: all sensors with output identifier “Y1”
- Gost-R
- Further approvals

TURCK provides its customers with a wide-ranging standard product range. You can find the perfect solution for your special application which is capable of fulfilling long-term increasing demands from a complete range of sensors and accessories. The devices are usually available as standard devices ex-stock. Products which are standard are marked in the catalogue with a yellow marking (✘) in the “Ident No.” column on double page tables.

Inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**Q5SE**	–	0.8,	_⌒_, PNP	10...30 VDC	100 DC, Ⓚ
		–	0.8,	_⌒_, NPN	10...30 VDC	100 DC, Ⓚ
	**Q5,5**	–	2,	_⌒_, PNP	10...30 VDC	150 DC, Ⓚ
	**Q5,5**	–	2,	_⌒_, PNP	10...30 VDC	150 DC, Ⓚ
		MF immune	2,	_⌒_, PNP	10...30 VDC	150 DC, Ⓚ
		–	2,	_⌒_, NPN	10...30 VDC	150 DC, Ⓚ
		–	3.5,	_⌒_, PNP	10...30 VDC	150 DC, Ⓚ
		–	3.5,	_⌒_, NPN	10...30 VDC	150 DC, Ⓚ
	**Q5,5K**	Ⓔx II 2 G SIL2	2,	NAMUR	nom. 8.2 VDC	–
		–	2,	_⌒_, PNP	10...30 VDC	150 DC, Ⓚ
		–	2,	_⌒_, NPN	10...30 VDC	150 DC, Ⓚ
	**Q06**	–	3,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		–	3,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ
	**Q6,5**	Ⓔx II 2 G SIL2	1,	NAMUR	nom. 8.2 VDC	–
		–	1,	_⌒_, PNP	10...30 VDC	150 DC, Ⓚ
		MF immune	1,	_⌒_, PNP	10...30 VDC	150 DC, Ⓚ
		–	1,	_⌒_, NPN	10...30 VDC	150 DC, Ⓚ
		Ⓔx II 2 G SIL2	2,	NAMUR	nom. 8.2 VDC	–

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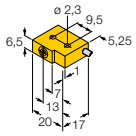
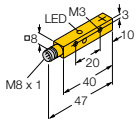
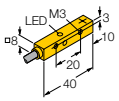
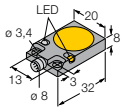
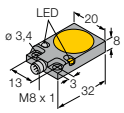
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI0,8-Q5SE-AP6X	1619341 ✘	S001	3	-25...+70	IP67	AL	POM	PUR 2 m	–	•
BI0,8-Q5SE-AN6X	1619342 ✘	S004	3	-25...+70	IP67	AL	POM	PUR 2 m	–	•
BI2-Q5,5-AP6X-0,3-PSG3M	1613007 ✘	S002	2	-25...+85	IP67	PP	PP	PUR 0.3 m	–	•
BI2-Q5,5-AP6X	1613000 ✘	S001	2	-25...+85	IP67	PP	PP	PUR 2 m	–	•
BI2-Q5,5-AP6X/S34	1613001 ✘	S001	2	-25...+70	IP67	PP	PP	PUR 2 m	–	•
BI2-Q5,5-AN6X	1613100	S004	2	-25...+85	IP67	PP	PP	PUR 2 m	–	•
NI3,5-Q5,5-AP6X	4613601 ✘	S001	2	-25...+70	IP67	PP	PP	PUR 2 m	–	•
NI3,5-Q5,5-AN6X	4613610	S004	2	-25...+70	IP67	PP	PP	PUR 2 m	–	•
BI2-Q5,5K-Y1X	4055300	S025	2	-25...+70	IP67	PA	PA	PUR 2 m	–	•
BI2-Q5,5K-AP6X	1613015	S001	2	-25...+70	IP67	PA	PA	PUR 2 m	–	•
BI2-Q5,5K-AN6X	1613016	S004	2	-25...+70	IP67	PA	PA	PUR 2 m	–	•
BI3-Q06-AP6X2	1620100 ✘	S001	1	-25...+70	IP67	PBT	PA	PUR 2 m	•	•
BI3-Q06-AN6X2	1620150	S004	1	-25...+70	IP67	PBT	PA	PUR 2 m	•	•
BI1-Q6,5-Y1	4004000	S025	2	-25...+70	IP67	PA12	PA	PVC 2 m	–	–
BI1-Q6,5-AP6	4613400 ✘	S001	2	-25...+70	IP67	PA12	PA	PUR 2 m	–	–
BI1-Q6,5-AP6/S34	4613401 ✘	S001	0.03	-25...+70	IP67	PA12	PA	PUR 2 m	–	–
BI1-Q6,5-AN6	4613420	S004	2	-25...+70	IP67	PA12	PA	PUR 2 m	–	–
NI2-Q6,5-Y1	4004100	S025	2	-25...+70	IP67	PA12	PA	PVC 2 m	–	–

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**Q6,5**	–	2,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		MF immune	2,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		–	2,	⎯⎽⎺, NPN	10...30 VDC	150 DC, Ⓚ
	**Q8SE**	*uprox*®+	4,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®+	4,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®+	4,	⎯⎽⎺, NPN	10...30 VDC	150 DC, Ⓚ
	**Q8SE**	*uprox*®+	4, /	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®+	4, /	⎯⎽⎺, NPN	10...30 VDC	150 DC, Ⓚ
	**Q08**	Sn +	7,	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ
		Sn +	7,	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®	5,	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	5,	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ
		–	5,	⎯⎽⎺, 2-wire	10...65 VDC	100 DC, Ⓚ
	**Q08**	*uprox*®	5,	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ

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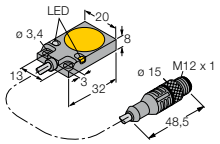
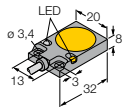
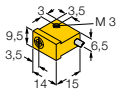
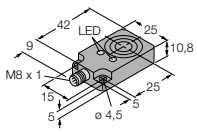
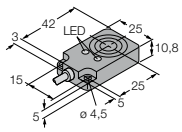
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI2-Q6,5-AP6	4613500 ✘	S001	2	-25...+70	IP67	PA12	PA	PUR 2 m	–	–
NI2-Q6,5-AP6/S34	1650023 ✘	S001	0.03	-25...+70	IP67	PA12	PA	PUR 2 m	–	–
NI2-Q6,5-AN6	4613520	S004	2	-25...+70	IP67	PA12	PA	PUR 2 m	–	–
NI4U-Q8SE-AP6X-V1131	4635808 ✘	S002	1	-30...+85	IP68	PP	PP	–	–	•
NI4U-Q8SE-RP6X-V1131	4635820 ✘	S175	1	-30...+85	IP68	PP	PP	–	–	•
NI4U-Q8SE-AN6X-V1131	4635810	S005	1	-30...+85	IP68	PP	PP	–	–	•
NI4U-Q8SE-AP6X	4635807 ✘	S001	1	-30...+85	IP68	PP	PP	PUR 2 m	–	•
NI4U-Q8SE-AN6X	4635809 ✘	S004	1	-30...+85	IP68	PP	PP	PUR 2 m	–	•
BI7-Q08-VP6X2-V1141	1600902	S008	0.5	-25...+70	IP67	GD-Zn	PA	–	•	•
BI7-Q08-VN6X2-V1141	1600922	S011	0.5	-25...+70	IP67	GD-Zn	PA	–	•	•
BI5U-Q08-AP6X2-V1131	1608900 ✘	S002	0.25	-30...+85	IP67	GD-Zn	LCP	–	•	•
BI5U-Q08-AN6X2-V1131	1608910 ✘	S005	0.25	-30...+85	IP67	GD-Zn	LCP	–	•	•
BI5-Q08-AD4X-V1130	4414551	S154	1	-25...+70	IP67	GD-Zn	PA	–	–	•
BI5U-Q08-AP6X2-V2131	1608905 ✘	S002	0.25	-30...+85	IP67	GD-Zn	LCP	–	•	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**Q08**	*uprox*®	5, ▭	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	5, ▭	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ
	**Q08**	Sn +	7, ▭	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ
		Sn +	7, ▭	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ
		Ⓔx II 2 G SIL2	5, ▭	NAMUR	nom. 8.2 VDC	–
		uprox®	5, ▭	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ
		–	5, ▭	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	5, ▭	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ
		–	5, ▭	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ
	**Q9,5**	–	2, ▭	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		MF immune	2, ▭	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
	**Q10**	*uprox*®	8, ▭	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	8, ▭	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ
	**Q10**	*uprox*®	8, ▭	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	8, ▭	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ

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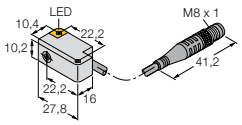
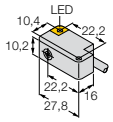
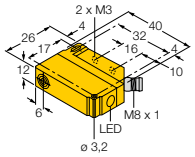
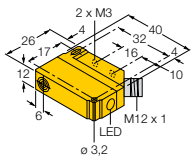
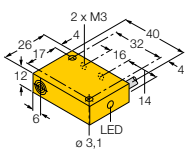
	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	BI5U-Q08-AP6X2-0,5X0R-RS4	1608925 ✘	S002	0.25	-30...+85	IP67	GD-Zn	LCP	PVC 0.5 m	•	•
	BI5U-Q08-AP6X2-1X0R-RS4	1608921 ✘	S002	0.25	-30...+85	IP67	GD-Zn	LCP	PVC 1 m	•	•
	BI7-Q08-VP6X2	1600900 ✘	S007	1	-25...+70	IP67	GD-Zn	PA	PUR 2 m	•	•
	BI7-Q08-VN6X2	1600920	S010	0.5	-25...+70	IP67	GD-Zn	PA	PUR 2 m	•	•
	BI5-Q08-Y1X	4054000 ✘	S025	1	-25...+70	IP67	GD-Zn	PA	PVC 2 m	–	•
	BI5U-Q08-AP6X2	1608901 ✘	S001	0.25	-30...+85	IP67	GD-Zn	LCP	PUR 2 m	•	•
	BI5-Q08-VP6X2	16001 ✘	S007	1	-25...+70	IP67	GD-Zn	PA	PUR 2 m	•	•
	BI5U-Q08-AN6X2	1608911 ✘	S004	0.25	-30...+85	IP67	GD-Zn	LCP	PUR 2 m	•	•
	BI5-Q08-VN6X2	16002 ✘	S010	1	-25...+70	IP67	GD-Zn	PA	PUR 2 m	•	•
	NI2-Q9,5-AP6	1650080	S001	2	-25...+70	IP67	PA	PA	PUR 2 m	–	–
	NI2-Q9,5-AP6/S34	1650077	S001	0.03	-25...+70	IP67	PA	PA	PUR 2 m	–	–
	BI8U-Q10-AP6X2-V1131	1662002 ✘	S002	0.25	-30...+85	IP67	PBT	PBT	–	•	•
	BI8U-Q10-AN6X2-V1131	1662004	S005	0.25	-30...+85	IP67	PBT	PBT	–	•	•
	BI8U-Q10-AP6X2	1662001 ✘	S001	0.25	-30...+85	IP67	PBT	PBT	PUR 2 m	•	•
	BI8U-Q10-AN6X2	1662003	S004	0.25	-30...+85	IP67	PBT	PBT	PUR 2 m	•	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**Q10S**	–	2,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
	**Q10S**	Ⓔx II 1 G Ⓔx II 1 D SIL2	2,	NAMUR	nom. 8.2 VDC	–
		–	2,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		–	2,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		–	2,	⎯⎽⎺, NPN	10...30 VDC	150 DC, Ⓚ
		–	2,	⎯⎽⎺, NPN	10...30 VDC	150 DC, Ⓚ
		–	2,	⎯⎽⎺	20...250 VAC 10...300 VDC	100 AC 100 DC
	**Q12**	*uprox*®+	5,	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®+	5,	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®+	5,	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ
	**Q12**	*uprox*®+	5,	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®+	5,	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ
	**Q12**	–	2,	⎯⎽⎺	20...250 VAC 10...300 VDC	100 AC 100 DC
		–	4,	⎯⎽⎺	20...250 VAC 10...300 VDC	100 AC 100 DC

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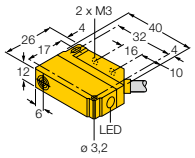
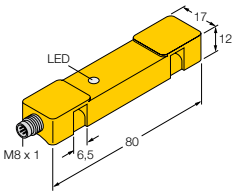
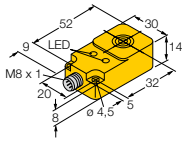
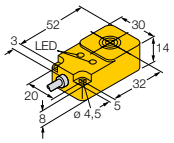
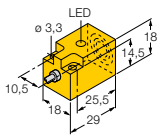
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI2-Q10S-AP6X-0,2-PSG3M	1609303 ✘	S002	2	-25...+70	IP67	PP	PP	PUR 0.2 m	–	•
BI2-Q10S-Y1X	4012130	S025	1	-25...+70	IP67	PP	PP	PVC 2 m	–	•
BI2-Q10S-AP6X	1609360 ✘	S001	2	-25...+70	IP67	PP	PP	PUR 2 m	–	•
BI2-Q10S-VP6X	1609340	S007	2	-25...+70	IP67	PP	PP	PUR 2 m	–	•
BI2-Q10S-AN6X	1619310	S004	2	-25...+70	IP67	PP	PP	PUR 2 m	–	•
BI2-Q10S-VN6X	1609341	S010	2	-25...+70	IP67	PP	PP	PUR 2 m	–	•
BI2-Q10S-AZ31X	1309100 ✘	S092	0.06	-25...+70	IP67	PP	PP	PUR 2 m	–	•
BI5U-Q12-AP6X2-V1131	1635524 ✘	S002	1	-25...+70	IP68	PA	PA	–	•	•
BI5U-Q12-AP6X2-V1131/F2	1635528 ✘	S002	1	-25...+70	IP68	PA	PA	–	•	•
BI5U-Q12-AN6X2-V1131	1635525 ✘	S005	1	-25...+70	IP68	PA	PA	–	•	•
BI5U-Q12-AP6X2-H1141	1635526 ✘	S002	1	-25...+70	IP68	PA	PA	–	•	•
BI5U-Q12-AN6X2-H1141	1635527	S005	1	-25...+70	IP68	PA	PA	–	•	•
BI2-Q12-AZ31X	13100 ✘	S092	0.02	-25...+70	IP67	PA	PA	PVC 2 m	–	•
NI4-Q12-AZ31X	13102 ✘	S092	0.02	-25...+70	IP67	PA	PA	PVC 2 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**Q12**	*uprox*®+	5,	_⌐‾, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®+	5,	‾⌐‾, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®+	5,	_⌐‾, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®+	5,	‾⌐‾, NPN	10...30 VDC	200 DC, Ⓚ
	**TS12**	*uprox*®+	20,	_⌐‾, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®+	20,	_⌐‾, NPN	10...30 VDC	200 DC, Ⓚ
	**Q14**	*uprox*®	10,	_⌐‾, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	10,	_⌐‾, NPN	10...30 VDC	200 DC, Ⓚ
		–	20,	_⌐‾, PNP	10...30 VDC	200 DC, Ⓚ
		–	20,	_⌐‾, NPN	10...30 VDC	200 DC, Ⓚ
	**Q14**	*uprox*®	10,	_⌐‾, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	10,	_⌐‾, NPN	10...30 VDC	200 DC, Ⓚ
		Ⓔx II 2 G SIL2	10,	NAMUR	nom. 8.2 VDC	–
		MF immune	10,	_⌐	20...250 VAC 10...300 VDC	100 AC 100 DC, Ⓚ
		–	10,	_⌐	20...250 VAC 10...300 VDC	100 AC 100 DC, Ⓚ
		–	20,	_⌐‾, PNP	10...30 VDC	200 DC, Ⓚ
		–	20,	_⌐‾, NPN	10...30 VDC	200 DC, Ⓚ
	**Q18**	–	5,	_⌐‾, PNP	10...30 VDC	200 DC, Ⓚ
		–	5,	_⌐‾, NPN	10...30 VDC	200 DC, Ⓚ

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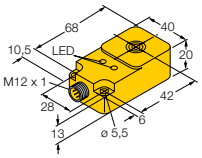
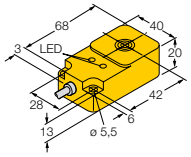
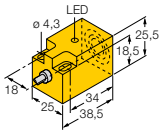
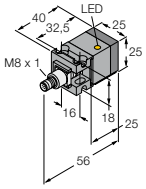
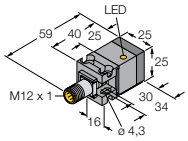
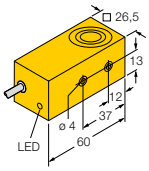
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI5U-Q12-AP6X2	1635522 ✘	S001	1	-25...+70	IP68	PA	PA	PUR	•	•
BI5U-Q12-VP6X2 7M	1635529	S007	1	-25...+70	IP68	PA	PA	PUR	•	•
BI5U-Q12-AN6X2	1635523	S004	1	-25...+70	IP68	PA	PA	PUR	•	•
BI5U-Q12-VN6X2 7M	1635531	S010	1	-25...+70	IP68	PA	PA	PUR	•	•
NI20U-TS12-AP6X2-V1131	1646640 ✘	S002	0.008	-25...+70	IP68	PBT	–	–	•	•
NI20U-TS12-AN6X2-V1131	1625822	S005	0.008	-25...+70	IP68	PBT	–	–	•	•
BI10U-Q14-AP6X2-V1131	1608500 ✘	S002	0.25	-30...+85	IP67	PBT	PBT	–	•	•
BI10U-Q14-AN6X2-V1131	1608510 ✘	S005	0.25	-30...+85	IP67	PBT	PBT	–	•	•
NI20-Q14-AP6X2-V1131	4690210 ✘	S002	0.25	-25...+70	IP67	PBT	PBT	–	•	•
NI20-Q14-AN6X2-V1131	4690221	S005	0.25	-25...+70	IP67	PBT	PBT	–	•	•
BI10U-Q14-AP6X2	1608700 ✘	S001	0.25	-30...+85	IP67	PBT	PBT	PUR 2 m	•	•
BI10U-Q14-AN6X2	1608710 ✘	S004	0.25	-30...+85	IP67	PBT	PBT	PUR 2 m	•	•
BI10-Q14-Y1X	1608730	S025	1	-25...+70	IP67	PBT	PBT	PUR 2 m	–	•
BI10-Q14-ADZ32X2/S34	4256225	S092	0.02	-25...+70	IP67	PBT	PBT	PUR 2 m	•	•
BI10-Q14-ADZ32X2	4256220	S092	0.02	-25...+70	IP67	PBT	PBT	PUR 2 m	•	•
NI20-Q14-AP6X2	4690205 ✘	S001	0.25	-25...+70	IP67	PBT	PBT	PUR 2 m	•	•
NI20-Q14-AN6X2	4690220	S004	0.25	-25...+70	IP67	PBT	PBT	PUR 2 m	•	•
NI5-Q18-AP6X	4614606 ✘	S001	0.5	-25...+70	IP67	PBT	PBT	PVC 2 m	–	•
NI5-Q18-AN6X	4614607	S004	0.5	-25...+70	IP67	PBT	PBT	PVC 2 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**Q20**	*uprox*®	15, ▭	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	15, ▭	⎯⎽⎯, NPN	10...30 VDC	200 DC, Ⓚ
		Ⓔx II 2 G SIL2	15, ▭	NAMUR	nom. 8.2 VDC	–
		–	25, ▭	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ
		–	25, ▭	⎯⎽⎯, NPN	10...30 VDC	200 DC, Ⓚ
	**Q20**	*uprox*®	15, ▭	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	15, ▭	⎯⎽⎯, NPN	10...30 VDC	200 DC, Ⓚ
		Ⓔx II 2 G SIL2	15, ▭	NAMUR	nom. 8.2 VDC	–
		–	25, ▭	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ
		–	25, ▭	⎯⎽⎯, NPN	10...30 VDC	200 DC, Ⓚ
	**Q25**	–	10, ▭	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ
		–	10, ▭	⎯⎽⎯, NPN	10...30 VDC	200 DC, Ⓚ
	**CA25**	harsh *uprox*®	10, ▭	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ
		harsh *uprox*®	15, ▭	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ
active face, variable orientation in 5 directions						
	**CA25**	harsh *uprox*®	10, ▭	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ
		harsh *uprox*®	15, ▭	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ
active face, variable orientation in 5 directions						
	**Q26**	MF immune	10, ▭	⎯⎽⎯, 2-wire	10...65 VDC	100 DC, Ⓚ

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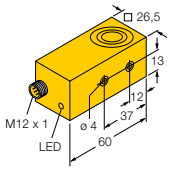
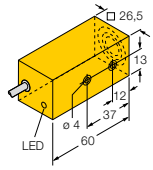
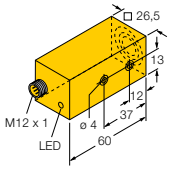
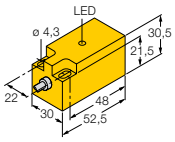
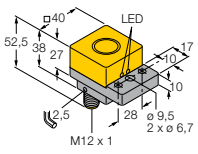
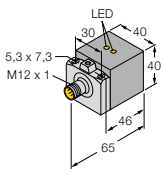
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI15U-Q20-AP6X2-H1141	1608600 ✘	S002	0.25	-30...+85	IP67	PBT	PBT	–	•	•
BI15U-Q20-AN6X2-H1141	1608610	S005	0.25	-30...+85	IP67	PBT	PBT	–	•	•
BI15-Q20-Y1X-H1141	1080025	S026	1	-25...+70	IP67	PBT	PBT	–	–	•
NI25-Q20-AP6X2-H1141	1602702 ✘	S002	0.25	-25...+70	IP67	PBT	PBT	–	•	•
NI25-Q20-AN6X2-H1141	1602802	S005	0.25	-25...+70	IP67	PBT	PBT	–	•	•
BI15U-Q20-AP6X2	1608800 ✘	S001	0.25	-30...+85	IP67	PBT	PBT	PUR 2 m	•	•
BI15U-Q20-AN6X2	1608810 ✘	S004	0.25	-30...+85	IP67	PBT	PBT	PUR 2 m	•	•
BI15-Q20-Y1X	1080020	S025	1	-25...+70	IP67	PBT	PBT	PUR 2 m	–	•
NI25-Q20-AP6X2	1602700 ✘	S001	0.25	-25...+70	IP67	PBT	PBT	PUR 2 m	•	•
NI25-Q20-AN6X2	1602800	S004	0.25	-25...+70	IP67	PBT	PBT	PUR 2 m	•	•
NI10-Q25-AP6X	4652225 ✘	S001	2	-25...+70	IP67	PBT	PBT	PVC 2 m	–	•
NI10-Q25-AN6X	4652330	S004	2	-25...+70	IP67	PBT	PBT	PVC 2 m	–	•
BI10U-CA25-AP6X2-V1131	1625632 ✘	S002	0.25	-30...+85	IP67	GD-CuZn	DURO	–	•	•
NI15U-CA25-AP6X2-V1131	1625642	S002	0.25	-30...+85	IP67	GD-CuZn	DURO	–	•	•
BI10U-CA25-AP6X2-H1141	1625631 ✘	S002	0.25	-30...+85	IP67	GD-CuZn	DURO	–	•	•
NI15U-CA25-AP6X2-H1141	1625641 ✘	S002	0.25	-30...+85	IP67	GD-CuZn	DURO	–	•	•
BI10S-Q26-AD4X/S34	44702 ✘	S013	0.03	-25...+70	IP67	PBT	PBT	PVC 2 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**Q26**	–	15, ▭	⎯◺⎯, PNP	10...65 VDC	200 DC, Ⓚ
		MF immune	10, ▭	⎯◺⎯, 2-wire	10...65 VDC	100 DC, Ⓚ
	**Q26**	MF immune	10, ▭	⎯◺⎯, 2-wire	10...65 VDC	100 DC, Ⓚ
	**Q26**	MF immune	10, ▭	⎯◺⎯, 2-wire	10...65 VDC	100 DC, Ⓚ
	**Q30**	–	15, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ
		–	15, ▭	⎯◺⎯, NPN	10...30 VDC	200 DC, Ⓚ
	**Q40**	*uprox*®+	22, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ
	**CA40**	harsh *uprox*®	20, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ
active face, variable orientation in 5 directions		harsh *uprox*®	20, ▭	⎯◺⎯, NPN	10...30 VDC	200 DC, Ⓚ

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	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	BI10S-Q26-AP4X-H1141/S34	15633 ✘	S002	0.2	-25...+70	IP67	PBT	PBT	–	–	•
	BI10S-Q26-AD4X-H1141/S34	44712 ✘	S014	0.03	-25...+70	IP67	PBT	PBT	–	–	•
	BI10F-Q26-AD4X/S34	44700 ✘	S013	0.03	-25...+70	IP67	PBT	PBT	PVC 2 m	–	•
	BI10F-Q26-AD4X-H1141/S34	44710 ✘	S014	0.03	-25...+70	IP67	PBT	PBT	–	–	•
	NI15-Q30-AP6X	4659325 ✘	S001	2	-25...+70	IP67	PBT	PBT	PVC 2 m	–	•
	NI15-Q30-AN6X	4659330	S004	2	-25...+70	IP67	PBT	PBT	PVC 2 m	–	•
	NI22U-Q40-AP6X2-H1141	4690229 ✘	S002	0.25	0...+70	IP68	PBT	PBT	–	•	•
	BI20U-CA40-AP6X2-H1141	1627200 ✘	S002	0.25	-30...+85	IP67	GD–Al	DURO	–	•	•
	BI20U-CA40-AN6X2-H1141	1627300	S005	0.25	-30...+85	IP67	GD–Al	DURO	–	•	•

✘ = Preferred solution, available at short notice

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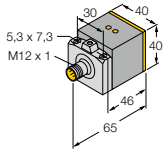
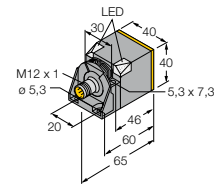
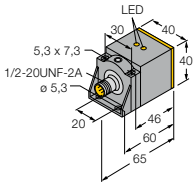
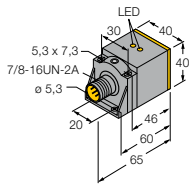
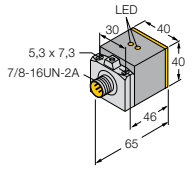
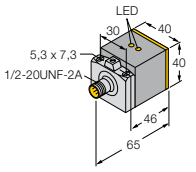
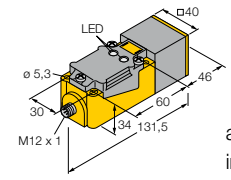
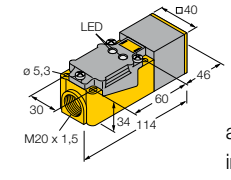
Inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**CK40**	*uprox*®+	20,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®+	20,	⎓, PNP	10...65 VDC	200 DC, Ⓚ
		uprox®+	20,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®+	20,	⎓, NPN	10...65 VDC	200 DC, Ⓚ
		uprox®	15,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	15,	⎓, PNP	10...65 VDC	200 DC, Ⓚ
		uprox®	15,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®	15,	⎓, NPN	10...65 VDC	200 DC, Ⓚ
		Ⓔx II 2 G SIL2	15,	NAMUR	nom. 8.2 VDC	–
		–	15,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		–	15,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ
		–	15,	_⌒_, 2-wire	10...65 VDC	100 DC, Ⓚ
		Sn +	35,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	25,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	25,	⎓, PNP	10...65 VDC	200 DC, Ⓚ
		uprox®	25,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ
		Ⓔx II 2 G SIL2	20,	NAMUR	nom. 8.2 VDC	–
		–	20,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		–	20,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ
		–	20,	_⌒_, 2-wire	10...65 VDC	100 DC, Ⓚ
active face, variable orientation in 5 directions						
	**CK40**	*uprox*®+	30,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®+	30,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®+	50,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®+	50,	⎓, PNP	10...65 VDC	200 DC, Ⓚ
		Ⓔx II 3 G Ⓔx II 3 D *uprox*®+	50,	⎓, PNP	10...65 VDC	200 DC, Ⓚ
		uprox®+	50,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®+	50,	⎓, NPN	10...65 VDC	200 DC, Ⓚ
		uprox®	40,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	35,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	35,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ
active face, variable orientation in 5 directions						

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI20U-CK40-AP6X2-H1141	1627233 ✘	S002	0.25	-20...+70	IP68	PBT	PA-X	–	•	•
BI20U-CK40-VP4X2-H1141	1627216 ✘	S008	0.25	-20...+70	IP68	PBT	PA-X	–	•	•
BI20U-CK40-AN6X2-H1141	1627231	S005	0.25	-20...+70	IP68	PBT	PA-X	–	•	•
BI20U-CK40-VN4X2-H1141	1568814	S011	0.25	-20...+70	IP68	PBT	PA-X	–	•	•
BI15U-CK40-AP6X2-H1141	1625600 ✘	S002	0.25	-30...+85	IP68	PBT	PA-X	–	•	•
BI15U-CK40-VP4X2-H1141	1568801 ✘	S008	0.25	-30...+85	IP68	PBT	PA-X	–	•	•
BI15U-CK40-AN6X2-H1141	1625610	S005	0.25	-30...+85	IP68	PBT	PA-X	–	•	•
BI15U-CK40-VN4X2-H1141	1568811	S011	0.25	-30...+85	IP68	PBT	PA-X	–	•	•
BI15-CK40-Y1X-H1141	4065000	S026	0.15	-25...+70	IP67	PBT	PA	–	–	•
BI15-CK40-AP6X2-H1141	16250 ✘	S002	0.15	-25...+70	IP67	PBT	PA	–	•	•
BI15-CK40-AN6X2-H1141	16251	S005	0.15	-25...+70	IP67	PBT	PA	–	•	•
BI15-CK40-AD4X-H1141	44650 ✘	S014	0.15	-25...+70	IP67	PBT	PA	–	–	•
NI35-CK40-AP6X2-H1141	1626400 ✘	S002	0.15	-25...+70	IP67	PBT	PA	–	•	•
NI25U-CK40-AP6X2-H1141	1625700 ✘	S002	0.25	-30...+85	IP68	PBT	PA-X	–	•	•
NI25U-CK40-VP4X2-H1141	1568803 ✘	S008	0.25	-30...+85	IP68	PBT	PA-X	–	•	•
NI25U-CK40-AN6X2-H1141	1625710	S005	0.25	-30...+85	IP68	PBT	PA-X	–	•	•
NI20-CK40-Y1X-H1141	4065200	S026	0.15	-25...+70	IP67	PBT	PA	–	–	•
NI20-CK40-AP6X2-H1141	16252 ✘	S002	0.15	-25...+70	IP67	PBT	PA	–	•	•
NI20-CK40-AN6X2-H1141	16253 ✘	S005	0.15	-25...+70	IP67	PBT	PA	–	•	•
NI20-CK40-AD4X-H1141	44652	S014	0.2	-25...+70	IP67	PBT	PA	–	–	•
BI30U-CK40-AP6X2-H1141	1625829 ✘	S002	0.25	-10...+60	IP68	PBT	PA-X	–	• •	• •
BI30U-CK40-AN6X2-H1141	1625820	S005	0.25	-10...+60	IP68	PBT	PA-X	–	• •	• •
NI50U-CK40-AP6X2-H1141	1625837 ✘	S002	0.25	-25...+70	IP68	PBT	PA-X	–	• •	• •
NI50U-CK40-VP4X2-H1141	1538302 ✘	S008	0.25	-25...+70	IP68	PBT	PA-X	–	• •	• •
NI50U-CK40-VP4X2-H1141/ 3GD	1514120	S008	0.25	-25...+70	IP68	PBT	PA-X	–	• •	• •
NI50U-CK40-AN6X2-H1141	1625823 ✘	S005	0.25	-25...+70	IP68	PBT	PA-X	–	• •	• •
NI50U-CK40-VN4X2-H1141	1625806	S011	0.25	-25...+70	IP68	PBT	PA-X	–	• •	• •
NI40U-CK40-AP6X2-H1141	1623641 ✘	S002	0.25	-30...+85	IP68	PBT	PA-X	–	• •	• •
NI35U-CK40-AP6X2-H1141	1625800 ✘	S002	0.25	-30...+85	IP68	PBT	PA-X	–	• •	• •
NI35U-CK40-AN6X2-H1141	1625810 ✘	S005	0.25	-30...+85	IP68	PBT	PA-X	–	• •	• •

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style	Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
CK40  active face, variable orientation in 5 directions	*uprox*®	35,		20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ
CK40  active face, variable orientation in 5 directions	*uprox*®	35,		20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ
CK40  active face, variable orientation in 5 directions	*uprox*®	15,		20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ
CK40  active face, variable orientation in 5 directions	*uprox*®	15,		20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ
CP40  active face, variable orientation in 9 directions	*uprox*® *uprox*®+ *uprox*®	15, 50, 40,	, PNP , PNP , PNP	10...65 VDC 10...30 VDC 10...65 VDC	200 DC, Ⓚ 200 DC, Ⓚ 200 DC, Ⓚ
CP40  active face, variable orientation in 9 directions	*uprox*®+ *uprox*®+ Ⓔx II 3 D *uprox*®+ *uprox*®+ *uprox*®+ *uprox*®	30, 20, 20, 20, 20, 15,	, NPN , PNP , PNP , NPN , NPN , NPN	10...30 VDC 10...30 VDC 10...30 VDC 10...30 VDC 10...65 VDC 10...30 VDC	200 DC, Ⓚ 200 DC, Ⓚ 200 DC, Ⓚ 200 DC, Ⓚ 200 DC, Ⓚ 200 DC, Ⓚ

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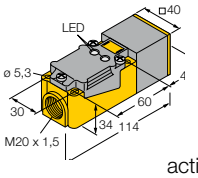
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI35U-CK40-ADZ30X2-B3131	4280430 ✘	S152	0.06	-30...+85	IP68	PBT	PA-X	–	•	•
NI35U-CK40-ADZ30X2-B1131	4280410 ✘	S152	0.06	-30...+85	IP68	PBT	PA-X	–	•	•
BI15U-CK40-ADZ30X2-B1131	4280010	S152	0.06	-30...+85	IP68	PBT	PA-X	–	•	•
BI15U-CK40-ADZ30X2-B3131	4280030 ✘	S152	0.06	-30...+85	IP68	PBT	PA-X	–	•	•
BI15U-CP40-VP4X2-H1141	1540502 ✘	S008	0.25	-30...+85	IP68	PBT	PA-X	–	•	•
NI50U-CP40-AP6X2-H1141	1625835 ✘	S002	0.25	-25...+70	IP68	PBT	PA-X	–	•	•
NI40U-CP40-VP4X2-H1141	1540602 ✘	S008	0.25	-30...+85	IP68	PBT	PA-X	–	•	•
BI30U-CP40-AN6X2	1625102	S006	0.25	-10...+60	IP68	PBT	PA-X	–	•	•
BI20U-CP40-AP6X2	1627232 ✘	S003	0.25	-20...+70	IP68	PBT	PA-X	–	•	•
BI20U-CP40-AP6X2/3D	1627236 ✘	S003	0.25	-20...+70	IP68	PBT	PA-X	–	•	•
BI20U-CP40-AN6X2	1627230	S006	0.25	-20...+70	IP68	PBT	PA-X	–	•	•
BI20U-CP40-VN4X2	1627237	S012	0.25	-20...+70	IP68	PBT	PA-X	–	•	•
BI15U-CP40-AN6X2	1623510	S006	0.25	-30...+85	IP68	PBT	PA-X	–	•	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style	Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
CP40  active face, variable orientation in 9 directions	*uprox*®	15, ▭	program.	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ
	–	15, ▭	⎽◺, PNP	10...30 VDC	200 DC, Ⓚ
	–	15, ▭	⎽⊣◺, PNP	10...65 VDC	200 DC, Ⓚ
	T -40 °C	15, ▭	⎽⊣◺, PNP	10...65 VDC	200 DC, Ⓚ
	T +100 °C	15, ▭	⎽⊣◺, PNP	10...65 VDC	200 DC, Ⓚ
	–	15, ▭	⎽◺, NPN	10...30 VDC	200 DC, Ⓚ
	–	15, ▭	⎽⊣◺, NPN	10...65 VDC	200 DC, Ⓚ
	–	15, ▭	program.	20...250 VAC 10...300 VDC	400 AC 300 DC
	T +100 °C	15, ▭	program.	20...250 VAC 10...300 VDC	400 AC 300 DC
	T -40 °C	15, ▭	program.	20...250 VAC 10...300 VDC	400 AC 300 DC
	uprox®+	50, ▭	⎽◺, PNP	10...30 VDC	200 DC, Ⓚ
	uprox®+	50, ▭	⎽⊣◺, PNP	10...65 VDC	200 DC, Ⓚ
	uprox®+	50, ▭	⎽◺, NPN	10...30 VDC	200 DC, Ⓚ
	uprox®+	50, ▭	⎽⊣◺, NPN	10...65 VDC	200 DC, Ⓚ
	uprox®	40, ▭	⎽⊣◺, PNP	10...65 VDC	200 DC, Ⓚ
	uprox®	40, ▭	⎽⊣◺, NPN	10...65 VDC	200 DC, Ⓚ
	uprox®	40, ▭	program.	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ
	–	35, ▭	⎽⊣◺, PNP	10...65 VDC	200 DC, Ⓚ
	–	35, ▭	⎽⊣◺, NPN	10...65 VDC	200 DC, Ⓚ
	–	35, ▭	program.	20...250 VAC 10...300 VDC	400 AC 300 DC
	–	20, ▭	⎽◺, PNP	10...30 VDC	200 DC, Ⓚ
	–	20, ▭	⎽⊣◺, PNP	10...65 VDC	200 DC, Ⓚ
	T -40 °C	20, ▭	⎽⊣◺, PNP	10...65 VDC	200 DC, Ⓚ
	T +100 °C	20, ▭	⎽⊣◺, PNP	10...65 VDC	200 DC, Ⓚ
	selective NF	20, ▭	⎽⊣◺, PNP	10...65 VDC	200 DC, Ⓚ
	–	20, ▭	⎽◺, NPN	10...30 VDC	200 DC, Ⓚ
	–	20, ▭	⎽⊣◺, NPN	10...65 VDC	200 DC, Ⓚ
	selective NF	20, ▭	⎽⊣◺, NPN	10...65 VDC	200 DC, Ⓚ
	–	20, ▭	program.	20...250 VAC 10...300 VDC	400 AC 300 DC
	T +100 °C	20, ▭	program.	20...250 VAC 10...300 VDC	400 AC 300 DC
	T -40 °C	20, ▭	program.	20...250 VAC 10...300 VDC	400 AC 300 DC
	selective NF	20, ▭	program.	20...250 VAC	400 AC

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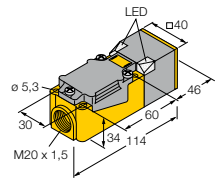
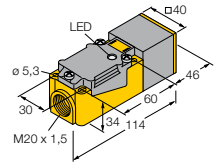
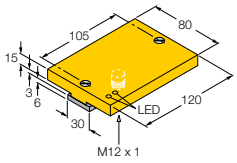
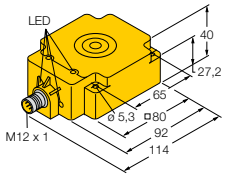
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI15U-CP40-FDZ30X2	4280600 ✘	S016	0.06	-30...+85	IP68	PBT	PA-X	–	•	•
BI15-CP40-AP6X2	16023 ✘	S003	0.15	-25...+70	IP67	PBT	PBT	–	•	•
BI15-CP40-VP4X2	15690 ✘	S009	0.15	-25...+70	IP67	PBT	PBT	–	•	•
BI15-CP40-VP4X2/S97	15058 ✘	S009	0.15	-40...+70	IP67	PBT	PBT	–	•	•
BI15-CP40-VP4X2/S100	15045 ✘	S009	0.15	-25...+100	IP67	PBT	PBT	–	•	•
BI15-CP40-AN6X2	16223 ✘	S006	0.15	-25...+70	IP67	PBT	PBT	–	•	•
BI15-CP40-VN4X2	15790 ✘	S012	0.15	-25...+70	IP67	PBT	PBT	–	•	•
BI15-CP40-FZ3X2	13400 ✘	S016	0.02	-25...+70	IP67	PBT	PBT	–	•	•
BI15-CP40-FZ3X2/S100	13440 ✘	S016	0.02	-25...+100	IP67	PBT	PBT	–	•	•
BI15-CP40-FZ3X2/S97	1341015	S016	0.02	-40...+70	IP67	PBT	PBT	–	•	•
NI50U-CP40-AP6X2	1625831 ✘	S003	0.25	-25...+70	IP68	PBT	PA-X	–	•	•
NI50U-CP40-VP4X2	1538303 ✘	S009	0.25	-25...+70	IP68	PBT	PA-X	–	•	•
NI50U-CP40-AN6X2	1625846 ✘	S006	0.25	-25...+70	IP68	PBT	PA-X	–	•	•
NI50U-CP40-VN4X2	1625847	S012	0.25	-25...+70	IP68	PBT	PA-X	–	•	•
NI40U-CP40-VP4X2	1540600 ✘	S009	0.25	-30...+85	IP68	PBT	PA-X	–	•	•
NI40U-CP40-VN4X2	1540610 ✘	S012	0.25	-30...+85	IP68	PBT	PA-X	–	•	•
NI40U-CP40-FDZ30X2	4280800 ✘	S016	0.06	-30...+85	IP68	PBT	PA-X	–	•	•
NI35-CP40-VP4X2	15694 ✘	S009	0.15	-25...+70	IP67	PBT	PBT	–	•	•
NI35-CP40-VN4X2	15794 ✘	S012	0.15	-25...+70	IP67	PBT	PBT	–	•	•
NI35-CP40-FZ3X2	13403 ✘	S016	0.02	-25...+70	IP67	PBT	PBT	–	•	•
NI20-CP40-AP6X2	16024 ✘	S003	0.15	-25...+70	IP67	PBT	PBT	–	•	•
NI20-CP40-VP4X2	15691 ✘	S009	0.15	-25...+70	IP67	PBT	PBT	–	•	•
NI20-CP40-VP4X2/S97	1569101	S009	0.15	-40...+70	IP67	PBT	PBT	–	•	•
NI20-CP40-VP4X2/S100	15046 ✘	S009	0.15	-25...+100	IP67	PBT	PBT	–	•	•
NI20NF-CP40-VP4X2	15684 ✘	S009	0.1	0...+60	IP67	PBT	PBT	–	•	•
NI20-CP40-AN6X2	16224 ✘	S006	0.15	-25...+70	IP67	PBT	PBT	–	•	•
NI20-CP40-VN4X2	15791 ✘	S012	0.15	-25...+70	IP67	PBT	PBT	–	•	•
NI20NF-CP40-VN4X2	15784 ✘	S012	0.1	0...+60	IP67	PBT	PBT	–	•	•
NI20-CP40-FZ3X2	13401 ✘	S016	0.02	-25...+70	IP67	PBT	PBT	–	•	•
NI20-CP40-FZ3X2/S100	13441 ✘	S016	0.02	-25...+100	IP67	PBT	PBT	–	•	•
NI20-CP40-FZ3X2/S97	1340123	S016	0.02	-40...+70	IP67	PBT	PBT	–	•	•
NI20NF-CP40-FZ3X2	13284 ✘	S016	0.02	0...+60	IP67	PBT	PBT	–	•	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**CP40** active face, variable orientation in 9 directions	*uprox*®+	30,	, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®+	20,	, PNP	10...65 VDC	200 DC, Ⓚ
		uprox®	15,	, PNP	10...65 VDC	200 DC, Ⓚ
		uprox®	15,	, PNP	10...30 VDC	200 DC, Ⓚ
	**CP40** active face, variable orientation in 9 directions	Ⓔx II 2 G SIL2	15,	NAMUR	nom. 8.2 VDC	–
		Ⓔx II 2 G SIL2 T -40 °C	15,	NAMUR	nom. 8.2 VDC	–
		Ⓔx II 2 G SIL2 T +100 °C	15,	NAMUR	nom. 8.2 VDC	–
		–	15,	, 2-wire	10...65 VDC	100 DC, Ⓚ
		Ⓔx II 2 G SIL2	20,	NAMUR	nom. 8.2 VDC	–
		Ⓔx II 2 G SIL2 T -40 °C	20,	NAMUR	nom. 8.2 VDC	–
		Ⓔx II 2 G SIL2 T +100 °C	20,	NAMUR	nom. 8.2 VDC	–
		–	20,	, 2-wire	10...65 VDC	100 DC, Ⓚ
	**QF15**	–	30,	, PNP	10...30 VDC	200 DC, Ⓚ
	**Q80**	*uprox*®+	50,	, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®+	50,	, PNP	10...65 VDC	200 DC, Ⓚ
		Ⓔx II 3 G Ⓔx II 3 D *uprox*®+	50,	, PNP	10...65 VDC	200 DC, Ⓚ
		uprox®+	50,	, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®+	50,	, NPN	10...65 VDC	200 DC, Ⓚ

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Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI30U-CP40-AP6X2	1625830 ✘	S003	0.25	-10...+60	IP68	PBT	PA-X	–	● ●	● ●
BI20U-CP40-VP4X2	1627240 ✘	S009	0.25	-20...+70	IP68	PBT	PA-X	–	● ●	● ●
BI15U-CP40-VP4X2	1540500 ✘	S009	0.25	-30...+85	IP68	PBT	PA-X	–	● ●	● ●
BI15U-CP40-AP6X2	1623500 ✘	S003	0.25	-30...+85	IP68	PBT	PA-X	–	● ●	● ●
BI15-CP40-Y1X	10110 ✘	S027	0.15	-25...+70	IP67	PBT	PBT	–	–	●
BI15-CP40-Y1X/S97	10397	S027	0.15	-40...+70	IP67	PBT	PBT	–	–	●
BI15-CP40-Y1X/S100	10396	S027	0.15	-25...+100	IP67	PBT	PBT	–	–	●
BI15-CP40-AD4X	44660 ✘	S015	0.15	-25...+70	IP67	PBT	PBT	–	–	●
NI20-CP40-Y1X	10111 ✘	S027	0.15	-25...+70	IP67	PBT	PBT	–	–	●
NI20-CP40-Y1X/S97	10432	S027	0.15	-40...+70	IP67	PBT	PBT	–	–	●
NI20-CP40-Y1X/S100	1011121	S027	0.15	-25...+100	IP67	PBT	PBT	–	–	●
NI20-CP40-AD4X	44661 ✘	S015	0.15	-25...+70	IP67	PBT	PBT	–	–	●
BI30-QF15-AP6X2-H1141	1625100 ✘	S002	0.25	-25...+70	IP68	PBT	PBT	–	●	●
BI50U-Q80-AP6X2-H1141	1608940 ✘	S002	0.25	-25...+70	IP68	PBT	PBT	–	●	●
BI50U-Q80-VP4X2-H1141	1562000 ✘	S008	0.25	-25...+70	IP68	PBT	PBT	–	●	●
BI50U-Q80-VP4X2-H1141/3GD	1562004	S008	0.25	0...+50	IP68	PBT	PBT	–	●	●
BI50U-Q80-AN6X2-H1141	1608944	S005	0.25	-25...+70	IP68	PBT	PBT	–	●	●
BI50U-Q80-VN4X2-H1141	1562001	S011	0.25	-25...+70	IP68	PBT	PBT	–	●	●

✘ = Preferred solution, available at short notice

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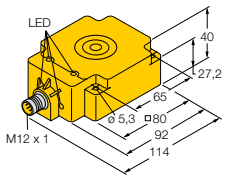
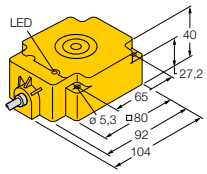
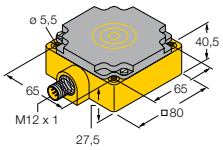
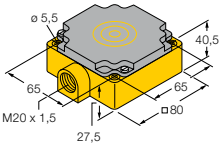
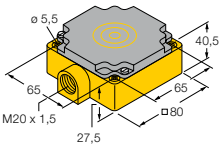
Inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**Q80**	*uprox*®+	70,	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®+	70,	⎓◺, PNP	10...65 VDC	200 DC, Ⓚ
	**Q80**	⟨Ex⟩ II 2 G SIL2 Sn +	50,	NAMUR	nom. 8.2 VDC	–
		⟨Ex⟩ II 2 G SIL2	60,	NAMUR	nom. 8.2 VDC	–
	**CP80**	–	40,	⎓◺, PNP	10...65 VDC	200 DC, Ⓚ
		uprox®	75,	⎓◺, PNP	10...65 VDC	200 DC, Ⓚ
	**CP80**	⟨Ex⟩ II 2 G SIL2	40,	NAMUR	nom. 8.2 VDC	–
		⟨Ex⟩ II 2 G SIL2 T -40 °C	40,	NAMUR	nom. 8.2 VDC	–
		⟨Ex⟩ II 2 G SIL2 T +100 °C	40,	NAMUR	nom. 8.2 VDC	–
	**CP80**	–	40,	⎓◺, PNP	10...65 VDC	200 DC, Ⓚ
		–	40,	⎓◺, NPN	10...65 VDC	200 DC, Ⓚ
		–	40,	program.	20...250 VAC 10...300 VDC	400 AC 300 DC
		uprox®	75,	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	75,	⎓◺, PNP	10...65 VDC	200 DC, Ⓚ
		uprox®	75,	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ

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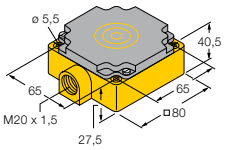
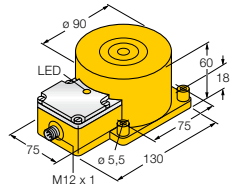
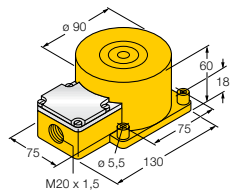
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI70U-Q80-AP6X2-H1141	1625832 ✘	S002	0.25	-25...+70	IP68	PBT	PBT	–	•	•
NI70U-Q80-VP4X2-H1141	1625833 ✘	S008	0.25	-25...+70	IP68	PBT	PBT	–	•	•
BI50-Q80-Y1X	1008701 ✘	S025	0.1	-25...+70	IP67	PBT	PBT	PVC 2 m	–	•
NI60-Q80-Y1X	1008700	S025	0.1	-25...+70	IP67	PBT	PBT	PVC 2 m	–	•
BI40-CP80-VP4X2-H1141	1569702 ✘	S008	0.1	-25...+70	IP67	PBT	PBT	–	•	•
NI75U-CP80-VP4X2-H1141	1540802	S008	0.25	-30...+85	IP67	PBT	PBT	–	•	•
NI40-CP80-Y1	10085 ✘	S027	0.1	-25...+70	IP67	PBT	PBT	–	–	–
NI40-CP80-Y1/S97	1040010	S027	0.1	-40...+70	IP67	PBT	PBT	–	–	–
NI40-CP80-Y1/S100	10404 ✘	S027	0.1	-25...+100	IP67	PBT	PBT	–	–	–
BI40-CP80-VP4X2	15697 ✘	S009	0.1	-25...+70	IP67	PBT	PBT	–	•	•
BI40-CP80-VN4X2	15797	S012	0.1	-25...+70	IP67	PBT	PBT	–	•	•
BI40-CP80-FZ3X2	13404	S016	0.02	-25...+70	IP67	PBT	PBT	–	•	•
NI75U-CP80-AP6X2	1623800 ✘	S003	0.25	-30...+85	IP67	PBT	PBT	–	•	•
NI75U-CP80-VP4X2	1540800 ✘	S009	0.25	-30...+85	IP67	PBT	PBT	–	•	•
NI75U-CP80-AN6X2	1623810 ✘	S006	0.25	-30...+85	IP67	PBT	PBT	–	•	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**CP80**	*uprox*®	75, ⊏	⎓, NPN	10...65 VDC	200 DC, Ⓚ	
		uprox®	75, ⊏	program.	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
		Sn +	50, ⊏	⎓, PNP	10...65 VDC	200 DC, Ⓚ	
		Sn +	50, ⊏	⎓, NPN	10...65 VDC	200 DC, Ⓚ	
		Sn +	50, ⊏	program.	20...250 VAC 10...300 VDC	400 AC 300 DC	
		–	40, ⊏	⎓, PNP	10...65 VDC	200 DC, Ⓚ	
		T -40 °C	40, ⊏	⎓, PNP	10...65 VDC	200 DC, Ⓚ	
		T +100 °C	40, ⊏	⎓, PNP	10...65 VDC	200 DC, Ⓚ	
		–	40, ⊏	⎓, NPN	10...65 VDC	200 DC, Ⓚ	
		–	40, ⊏	program.	20...250 VAC 10...300 VDC	400 AC 300 DC	
		T -40 °C	40, ⊏	program.	20...250 VAC 10...300 VDC	400 AC 300 DC	
		T +100 °C	40, ⊏	program.	20...250 VAC 10...300 VDC	400 AC 300 DC	
	**K90**	*uprox*®+	100, ⊏	⎓, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®+	100, ⊏	⎓, NPN	10...65 VDC	200 DC, Ⓚ	
	**K90**	*uprox*®+	100, ⊏	⎓, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®+	100, ⊏	⎓, NPN	10...65 VDC	200 DC, Ⓚ	
		–	60, ⊏	⎓, PNP	10...65 VDC	200 DC, Ⓚ	
		–	60, ⊏	⎓, NPN	10...65 VDC	200 DC, Ⓚ	
		–	60, ⊏	program.	20...250 VAC 10...300 VDC	400 AC 300 DC	
		Ⓔx II 2 G SIL2	50, ⊏	NAMUR	nom. 8.2 VDC	–	

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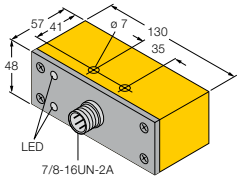
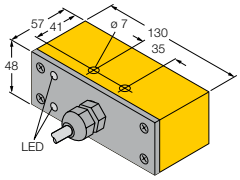
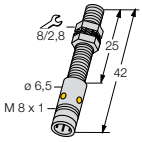
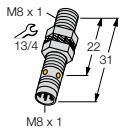
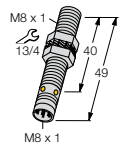
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI75U-CP80-VN4X2	1540810 ✘	S012	0.25	-30...+85	IP67	PBT	PBT	–	•	•
NI75U-CP80-FDZ30X2	4280900 ✘	S016	0.06	-30...+85	IP67	PBT	PBT	–	•	•
NI50-CP80-VP4X2	15696 ✘	S009	0.1	-25...+70	IP67	PBT	PBT	–	•	•
NI50-CP80-VN4X2	15796 ✘	S012	0.1	-25...+70	IP67	PBT	PBT	–	•	•
NI50-CP80-FZ3X2	13406 ✘	S016	0.02	-25...+70	IP67	PBT	PBT	–	•	•
NI40-CP80-VP4X2	15695 ✘	S009	0.1	-25...+70	IP67	PBT	PBT	–	•	•
NI40-CP80-VP4X2/S97	1569522	S009	0.1	-40...+70	IP67	PBT	PBT	–	•	•
NI40-CP80-VP4X2/S100	15095 ✘	S009	0.1	-25...+100	IP67	PBT	PBT	–	•	•
NI40-CP80-VN4X2	15795 ✘	S012	0.1	-25...+70	IP67	PBT	PBT	–	•	•
NI40-CP80-FZ3X2	13405 ✘	S016	0.02	-25...+70	IP67	PBT	PBT	–	•	•
NI40-CP80-FZ3X2/S97	1340510	S016	0.02	-40...+70	IP67	PBT	PBT	–	•	•
NI40-CP80-FZ3X2/S100	13443 ✘	S016	0.02	-25...+100	IP67	PBT	PBT	–	•	•
NI100U-K90SR-VP4X2-H1141	1625844	S008	0.25	-30...+85	IP68	PBT	PBT	–	•	•
NI100U-K90SR-VN4X2-H1141	1515510	S011	0.25	-30...+85	IP68	PBT	PBT	–	•	•
NI100U-K90SR-VP4X2	1625834 ✘	S009	0.25	-30...+85	IP68	PBT	PBT	–	•	•
NI100U-K90SR-VN4X2	1515503 ✘	S012	0.25	-30...+85	IP68	PBT	PBT	–	•	•
NI60-K90SR-VP4X2	15640 ✘	S009	0.06	-25...+70	IP67	PBT	PBT	–	•	•
NI60-K90SR-VN4X2	15740 ✘	S012	0.06	-25...+70	IP67	PBT	PBT	–	•	•
NI60-K90SR-FZ3X2	13429 ✘	S016	0.02	-25...+70	IP67	PBT	PBT	–	•	•
NI50-K90SR-Y1	10074 ✘	S027	0.1	-25...+70	IP67	PBT	PBT	–	–	–

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**Q130**	–	30,		20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
	**Q130**	–	30,	, PNP	10...65 VDC	200 DC, Ⓚ	
		–	30,	, NPN	10...65 VDC	200 DC, Ⓚ	
		–	30,		20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
	**M5 x 0,5**	–	1,	, PNP	10...30 VDC	100 DC, Ⓚ	
		–	1,	, PNP	10...30 VDC	100 DC, Ⓚ	
		–	1,	, NPN	10...30 VDC	100 DC, Ⓚ	
	M5 x 0,5	Ⓔx II 2 G SIL2	1,	NAMUR	nom. 8.2 VDC	–	
		–	1,	, PNP	10...30 VDC	100 DC, Ⓚ	
		–	1,	, PNP	10...30 VDC	100 DC, Ⓚ	
		–	1,	, NPN	10...30 VDC	100 DC, Ⓚ	
	**M8 x 1**	Sn +	2,	, PNP	10...30 VDC	150 DC, Ⓚ	
		Sn +	2,	, NPN	10...30 VDC	150 DC, Ⓚ	
		–	1.5,	, PNP	10...30 VDC	150 DC, Ⓚ	
		–	1.5,	, NPN	10...30 VDC	150 DC, Ⓚ	
	**M8 x 1**	*uprox*®+	2,	, PNP	10...30 VDC	150 DC, Ⓚ	
		teflon *uprox*®+	2,	, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®+	2,	, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®+	2,	, NPN	10...30 VDC	150 DC, Ⓚ	
		Sn +	2,	, PNP	10...30 VDC	150 DC, Ⓚ	
		Sn +	2,	, NPN	10...30 VDC	150 DC, Ⓚ	

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI30-Q130-ADZ30X2-B1131	42100 ✘	S153	0.03	-25...+70	IP67	PBT	PBT	–	•	•
NI30-Q130-VP4X2	15179 ✘	S007	0.03	-25...+70	IP67	PBT	PBT	PVC	•	•
NI30-Q130-VN4X2	15178	S010	0.03	-25...+70	IP67	PBT	PBT	PVC	•	•
NI30-Q130-ADZ30X2	42095 ✘	S155	0.03	-25...+70	IP67	PBT	PBT	PVC	•	•
BI1-EG05-AP6X-V1331	4608640 ✘	S002	3	-25...+70	IP67	VA	PA	–	–	•
BI1-EG05-RP6X-V1331	4609752	S175	3	-25...+70	IP67	VA	PA	–	–	•
BI1-EG05-AN6X-V1331	4608740 ✘	S005	3	-25...+70	IP67	VA	PA	–	–	•
BI1-EG05-Y1	1003240 ✘	S025	5	-25...+70	IP67	VA	PA	PVC 2 m	–	–
BI1-EG05-AP6X	4609740 ✘	S001	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
BI1-EG05-RP6X	4609750	S054	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
BI1-EG05-AN6X	4609840 ✘	S004	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
BI2-EG08K-AP6X-V1131	4669450 ✘	S002	3	-25...+70	IP67	VA	PA	–	–	•
BI2-EG08K-AN6X-V1131	4669550 ✘	S005	3	-25...+70	IP67	VA	PA	–	–	•
BI1,5-EG08K-AP6X-V1131	4672440 ✘	S002	3	-25...+70	IP67	VA	PA	–	–	•
BI1,5-EG08K-AN6X-V1131	4672540 ✘	S005	3	-25...+70	IP67	VA	PA	–	–	•
BI2U-EG08-AP6X-V1131	4602033 ✘	S002	1	-30...+85	IP68	VA	PA	–	–	•
BI2U-EGT08-AP6X-V1131	4602070 ✘	S002	1	-30...+85	IP68	VA–T	PA	–	–	•
BI2U-EG08-RP6X-V1131	4602091 ✘	S175	1	-30...+85	IP68	VA	PA	–	–	•
BI2U-EG08-AN6X-V1131	4602036	S005	1	-30...+85	IP68	VA	PA	–	–	•
BI2-EG08-AP6X-V1131	4602050 ✘	S002	3	-25...+70	IP67	VA	PA	–	–	•
BI2-EG08-AN6X-V1131	4602150 ✘	S005	3	-25...+70	IP67	VA	PA	–	–	•

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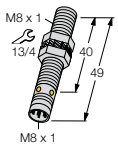
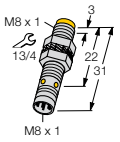
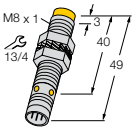
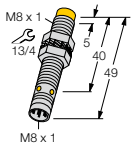
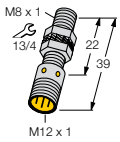
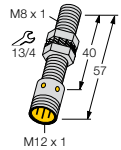
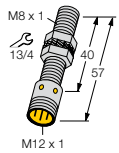
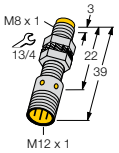
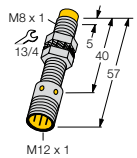
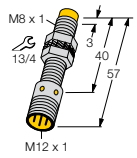
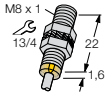
Inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**M8 x 1**	*uprox*®	1.5,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		teflon *uprox*®	1.5,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®	1.5,	⎯⎽⎺, NPN	10...30 VDC	150 DC, Ⓚ
		–	1.5,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		–	1.5,	⎯⎽⎺, NPN	10...30 VDC	150 DC, Ⓚ
	**M8 x 1**	–	3,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		–	3,	⎯⎽⎺, NPN	10...30 VDC	150 DC, Ⓚ
	**M8 x 1**	–	3,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		–	3,	⎯⎽⎺, NPN	10...30 VDC	150 DC, Ⓚ
	**M8 x 1**	*uprox*®+	6,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®+	6,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®+	6,	⎯⎽⎺, NPN	10...30 VDC	150 DC, Ⓚ
		uprox®	4,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®	4,	⎯⎽⎺, NPN	10...30 VDC	150 DC, Ⓚ
	**M8 x 1**	Sn +	2,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		Sn +	2,	⎯⎽⎺, NPN	10...30 VDC	150 DC, Ⓚ
		Ⓔx II 2 G SIL2	1.5,	NAMUR	nom. 8.2 VDC	–
		–	1.5,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		–	1.5,	⎯⎽⎺, NPN	10...30 VDC	150 DC, Ⓚ
	**M8 x 1**	*uprox*®+	2,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		teflon *uprox*®+	2,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®+	2,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®+	2,	⎯⎽⎺, NPN	10...30 VDC	150 DC, Ⓚ
		Sn +	2,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		Sn +	2,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI1,5U-EG08-AP6X-V1131	4600520 ✘	S002	2	-30...+85	IP68	VA	PA	–	–	•
BI1,5U-EGT08-AP6X-V1131	4600556 ✘	S002	2	-30...+85	IP67	VA–T	PA	–	–	•
BI1,5U-EG08-AN6X-V1131	4600530 ✘	S005	2	-30...+85	IP68	VA	PA	–	–	•
BI1,5-EG08-AP6X-V1131	4602220 ✘	S002	3	-25...+70	IP67	VA	PA	–	–	•
BI1,5-EG08-AN6X-V1131	4602350	S005	3	-25...+70	IP67	VA	PA	–	–	•
NI3-EG08K-AP6X-V1131	4669650 ✘	S002	3	-25...+70	IP67	VA	PA	–	–	•
NI3-EG08K-AN6X-V1131	4669750	S005	3	-25...+70	IP67	VA	PA	–	–	•
NI3-EG08-AP6X-V1131	4602750 ✘	S002	3	-25...+70	IP67	VA	PA	–	–	•
NI3-EG08-AN6X-V1131	4602850	S005	3	-25...+70	IP67	VA	PA	–	–	•
NI6U-EG08-AP6X-V1131	4635801 ✘	S002	1	0...+70	IP68	VA	PA	–	–	•
NI6U-EG08-RP6X-V1131	4635831 ✘	S175	1	0...+70	IP68	VA	PA	–	–	•
NI6U-EG08-AN6X-V1131	4635804	S005	1	0...+70	IP68	VA	PA	–	–	•
NI4U-EG08-AP6X-V1131	4600620 ✘	S002	2	-30...+85	IP68	VA	PA	–	–	•
NI4U-EG08-AN6X-V1131	4600630 ✘	S005	2	-30...+85	IP68	VA	PA	–	–	•
BI2-EG08K-AP6X-H1341	4669460 ✘	S002	3	-25...+70	IP67	VA	PA	–	–	•
BI2-EG08K-AN6X-H1341	4669560	S005	3	-25...+70	IP67	VA	PA	–	–	•
BI1,5-EG08K-Y1-H1341	1003620 ✘	S026	5	-25...+70	IP67	VA	PA	–	–	–
BI1,5-EG08K-AP6X-H1341	4669050 ✘	S002	3	-25...+70	IP67	VA	PA	–	–	•
BI1,5-EG08K-AN6X-H1341	4669150 ✘	S005	3	-25...+70	IP67	VA	PA	–	–	•
BI2U-EG08-AP6X-H1341	4602034 ✘	S002	1	-30...+85	IP68	VA	PA	–	–	•
BI2U-EGT08-AP6X-H1341	4602071 ✘	S002	1	-30...+85	IP68	VA–T	PA	–	–	•
BI2U-EG08-RP6X-H1341	4602080 ✘	S056	1	-30...+85	IP68	VA	PA	–	–	•
BI2U-EG08-AN6X-H1341	4602037	S005	1	-30...+85	IP68	VA	PA	–	–	•
BI2-EG08-AP6X-H1341	4602060 ✘	S002	3	-25...+70	IP67	VA	PA	–	–	•
BI2-EG08-VP6X-H1341	4602522 ✘	S008	2	-25...+70	IP67	VA	PA	–	–	•

✘ = Preferred solution, available at short notice

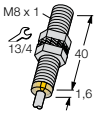
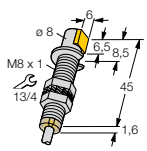
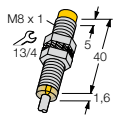
Inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**M8 x 1**	Sn +	2, ▭	⎯◟⎯, NPN	10...30 VDC	150 DC, Ⓚ
		Sn +	2, ▭	⎯◟⎯, 2-wire	10...55 VDC	100 DC, Ⓚ
		uprox®	1.5, ▭	⎯◟⎯, PNP	10...30 VDC	150 DC, Ⓚ
		teflon *uprox*®	1.5, ▭	⎯◟⎯, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®	1.5, ▭	⎯◟⎯, NPN	10...30 VDC	150 DC, Ⓚ
		20 bar wash down	1.5, ▭	⎯◟⎯, PNP	10...30 VDC	150 DC, Ⓚ
		–	1.5, ▭	⎯◟⎯, PNP	10...30 VDC	150 DC, Ⓚ
		20 bar wash down	1.5, ▭	⎯◟⎯, NPN	10...30 VDC	150 DC, Ⓚ
		–	1.5, ▭	⎯◟⎯, NPN	10...30 VDC	150 DC, Ⓚ
	**M8 x 1**	ⓔx II 2 G SIL2	3, ▭	NAMUR	nom. 8.2 VDC	–
		–	3, ▭	⎯◟⎯, PNP	10...30 VDC	150 DC, Ⓚ
		–	3, ▭	⎯◟⎯, NPN	10...30 VDC	150 DC, Ⓚ
	**M8 x 1**	*uprox*®+	6, ▭	⎯◟⎯, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®+	6, ▭	⊣◟⎯, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®+	6, ▭	⎯◟⎯, NPN	10...30 VDC	150 DC, Ⓚ
		uprox®	4, ▭	⎯◟⎯, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®	4, ▭	⎯◟⎯, NPN	10...30 VDC	150 DC, Ⓚ
	**M8 x 1**	–	3, ▭	⎯◟⎯, PNP	10...30 VDC	150 DC, Ⓚ
		–	3, ▭	⎯◟⎯, NPN	10...30 VDC	150 DC, Ⓚ
	**M8 x 1**	Sn +	2, ▭	⎯◟⎯, PNP	10...30 VDC	150 DC, Ⓚ
		Sn +	2, ▭	⎯◟⎯, NPN	10...30 VDC	150 DC, Ⓚ
		ⓔx II 2 G SIL2	1.5, ▭	NAMUR	nom. 8.2 VDC	–
		–	1.5, ▭	⎯◟⎯, PNP	10...30 VDC	150 DC, Ⓚ
		–	1.5, ▭	⎯◟⎯, NPN	10...30 VDC	150 DC, Ⓚ

Hans Turck GmbH & Co.KG • Witzlebenstraße 7 • D–45472 Mülheim/Ruhr • Tel. 0208 4952-0 • Fax 0208 4952-264 • www.turck.com

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI2-EG08-AN6X-H1341	4602160 ✘	S005	3	-25...+70	IP67	VA	PA	–	–	•
BI2-EG08-AG41X-H1341	4562001	S093	1	-25...+70	IP67	VA	PA	–	–	•
BI1,5U-EG08-AP6X-H1341	4600540 ✘	S002	2	-30...+85	IP68	VA	PA	–	–	•
BI1,5U-EGT08-AP6X-H1341	4600555 ✘	S002	2	-30...+85	IP68	VA–T	PA	–	–	•
BI1,5U-EG08-AN6X-H1341	4600550	S005	2	-30...+85	IP68	VA	PA	–	–	•
BI1,5-EG08WD-AP6X-H1341	4602210 ✘	S002	3	-25...+85	IP68 / IP69K	VA	PVDF	–	–	•
BI1,5-EG08-AP6X-H1341	4602260 ✘	S002	3	-25...+70	IP67	VA	PA	–	–	•
BI1,5-EG08WD-AN6X-H1341	4602211	S005	3	-25...+85	IP68 / IP69K	VA	PVDF	–	–	•
BI1,5-EG08-AN6X-H1341	4602360 ✘	S005	3	-25...+70	IP67	VA	PA	–	–	•
NI3-EG08K-Y1-H1341	1003720 ✘	S026	5	-25...+70	IP67	VA	PA	–	–	–
NI3-EG08K-AP6X-H1341	4669660 ✘	S002	3	-25...+70	IP67	VA	PA	–	–	•
NI3-EG08K-AN6X-H1341	4669760 ✘	S005	3	-25...+70	IP67	VA	PA	–	–	•
NI6U-EG08-AP6X-H1341	4635802 ✘	S002	1	0...+70	IP68	VA	PA	–	–	•
NI6U-EG08-RP6X-H1341	4635830 ✘	S056	1	0...+70	IP68	VA	PA	–	–	•
NI6U-EG08-AN6X-H1341	4635805	S005	1	0...+70	IP68	VA	PA	–	–	•
NI4U-EG08-AP6X-H1341	4600640 ✘	S002	2	-30...+85	IP68	VA	PA	–	–	•
NI4U-EG08-AN6X-H1341	4600650	S005	2	-30...+85	IP68	VA	PA	–	–	•
NI3-EG08-AP6X-H1341	4602760 ✘	S002	3	-25...+70	IP67	VA	PA	–	–	•
NI3-EG08-AN6X-H1341	4602860 ✘	S005	3	-25...+70	IP67	VA	PA	–	–	•
BI2-EG08K-AP6X	4669400 ✘	S001	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
BI2-EG08K-AN6X	4669500 ✘	S004	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
BI1,5-EG08K-Y1	1003600 ✘	S025	5	-25...+70	IP67	VA	PA	PVC 2 m	–	–
BI1,5-EG08K-AP6X	4669040 ✘	S001	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
BI1,5-EG08K-AN6X	4669140 ✘	S004	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•

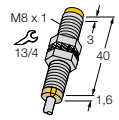
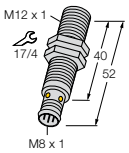
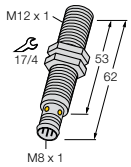
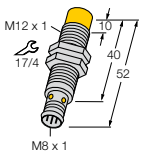
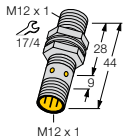
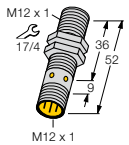
✘ = Preferred solution, available at short notice

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M8 x 1**	*uprox*®+	2, ▭	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®+	2, ▭	⎯⎽⎯, NPN	10...30 VDC	150 DC, Ⓚ	
		Sn +	2, ▭	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		T +100 °C	2, ▭	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		Sn +	2, ▭	⎯⎽⎯, NPN	10...30 VDC	150 DC, Ⓚ	
		T +100 °C	2, ▭	⎯⎽⎯, NPN	10...30 VDC	150 DC, Ⓚ	
		Sn +	2, ▭	⎯⎽⎯, 2-wire	10...55 VDC	100 DC, Ⓚ	
		–	2, ▭	⎯⎽⎯	20...132 VAC 10...140 VDC	100 AC 100 DC	
		uprox®	1.5, ▭	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®	1.5, ▭	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®	1.5, ▭	⎯⎽⎯, NPN	10...30 VDC	150 DC, Ⓚ	
		uprox®	1.5, ▭	⎯⎽⎯, NPN	10...30 VDC	150 DC, Ⓚ	
		–	1.5, ▭	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		–	1.5, ▭	⎯⎽⎯, NPN	10...30 VDC	150 DC, Ⓚ	
	M8 x 1	Ⓔx II 2 G SIL2	3, ▭	NAMUR	nom. 8.2 VDC	–	
		–	3, ▭	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		–	3, ▭	⎯⎽⎯, NPN	10...30 VDC	150 DC, Ⓚ	
	**M8 x 1**	Ⓔx II 2 G SIL2	1.5, ▭	NAMUR	nom. 8.2 VDC	–	
		–	1.5, ▭	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		–	1.5, ▭	⎯⎽⎯, NPN	10...30 VDC	150 DC, Ⓚ	
	**M8 x 1**	*uprox*®+	6, ▭	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®+	6, ▭	⎯⎽⎯, NPN	10...30 VDC	150 DC, Ⓚ	
		uprox®	4, ▭	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®	4, ▭	⎯⎽⎯, NPN	10...30 VDC	150 DC, Ⓚ	
		Sn +	4, ▭	⎯⎽⎯, 2-wire	10...55 VDC	100 DC, Ⓚ	

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI2U-EG08-AP6X	4602032 ✘	S001	1	-30...+85	IP68	VA	PA	PUR 2 m	–	•
BI2U-EG08-AN6X	4602035 ✘	S004	1	-30...+85	IP68	VA	PA	PUR 2 m	–	•
BI2-EG08-AP6X	4602040 ✘	S001	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
BI2-EG08-AP6X/S100	4602047 ✘	S001	3	-25...+100	IP67	VA	PA	TPE 2 m	–	•
BI2-EG08-AN6X	4602140 ✘	S004	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
BI2-EG08-AN6X/S100	4602108	S004	3	-25...+100	IP67	VA	PA	TPE 2 m	–	•
BI2-EG08-AG41X	4562000	S042	1	-25...+70	IP67	VA	PA	PUR 2 m	–	•
BI2-EG08-AZ14X	4100001 ✘	S092	0.02	-25...+70	IP67	VA	PA	PUR 2 m	–	•
BI1,5U-EG08-AP6X	4600500 ✘	S001	2	-30...+85	IP68	VA	PA	PUR 2 m	–	•
BI1,5U-EG08-AP6X 7M	4600501	S001	2	-30...+85	IP68	VA	PA	PUR 7 m	–	•
BI1,5U-EG08-AN6X 7M	4600504	S004	2	-30...+85	IP68	VA	PA	PUR 7 m	–	•
BI1,5U-EG08-AN6X	4600510 ✘	S004	2	-30...+85	IP68	VA	PA	PUR 2 m	–	•
BI1,5-EG08-AP6X	4602240 ✘	S001	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
BI1,5-EG08-AN6X	4602340 ✘	S004	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
NI3-EG08K-Y1	1003700 ✘	S025	5	-25...+70	IP67	VA	PA	PVC 2 m	–	–
NI3-EG08K-AP6X	4669600 ✘	S001	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
NI3-EG08K-AN6X	4669700 ✘	S004	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
BI1,5-GS880-Y1	1004401	S025	5	-25...+70	IP67	VA	POM	PVC 2 m	–	–
BI1,5-GS880-AP6X	4604401 ✘	S001	3	-25...+70	IP67	VA	POM	PUR 2 m	–	•
BI1,5-GS880-AN6X	4604501	S004	3	-25...+70	IP67	VA	POM	PUR 2 m	–	•
NI6U-EG08-AP6X	4635800 ✘	S001	1	0...+70	IP68	VA	PA	PUR 2 m	–	•
NI6U-EG08-AN6X	4635803 ✘	S004	1	0...+70	IP68	VA	PA	PUR 2 m	–	•
NI4U-EG08-AP6X	4600600 ✘	S001	2	-30...+85	IP68	VA	PA	PUR 2 m	–	•
NI4U-EG08-AN6X	4600610 ✘	S004	2	-30...+85	IP68	VA	PA	PUR 2 m	–	•
NI4-EG08-AG41X	4561000	S042	1	-25...+70	IP67	VA	PA	PUR 2 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**M8 x 1**	–	3,	_⌒_, PNP	10...30 VDC	150 DC, Ⓚ
		–	3,	_⌒_, NPN	10...30 VDC	150 DC, Ⓚ
	**M12 x 1**	*uprox*®+	4,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®+	4,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ
	**M12 x 1**	Sn +	4,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
	**M12 x 1**	*uprox*®+	10,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®+	10,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ
	**M12 x 1**	–	2,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
	**M12 x 1**	*uprox*®+	4,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		teflon *uprox*®+	4,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		20 bar *uprox*®+ wash down	4,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ

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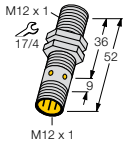
	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	NI3-EG08-AP6X	4602740 ✘	S001	3	-25...+70	IP67	VA	PA	PUR 2 m	–	–
	NI3-EG08-AN6X	4602840 ✘	S004	3	-25...+70	IP67	VA	PA	PUR 2 m	–	–
	BI4U-M12-AP6X-V1131	1634780 ✘	S002	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
	BI4U-M12-AN6X-V1131	1635430	S005	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
	BI4-G12-AP6X-V1131	1690703 ✘	S002	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
	NI10U-M12-AP6X-V1131	1634790 ✘	S002	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
	NI10U-M12-AN6X-V1131	1634795	S005	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
	BI2-G12K-AP6X-H1141	4670260 ✘	S002	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
	BI4U-M12-AP6X-H1141	1634804 ✘	S002	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
	BI4U-MT12-AP6X-H1141	1634809 ✘	S002	2	-30...+85	IP68	CuZn-T	LCP	–	–	•
	BI4U-EM12WD-AP6X-H1141	1634812 ✘	S002	2	-30...+85	IP68 / IP69K	VA	LCP	–	–	•

✘ = Preferred solution, available at short notice

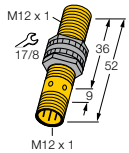
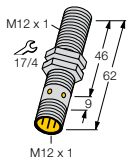
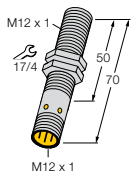
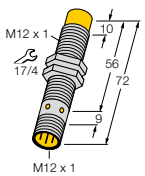
Inductive sensors

Dimensions/Housing style	Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
M12 x 1  	Ex II 3 D 20 bar *uprox*®+ wash down	4, ▭	⎯⌐, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®+	4, ▭	⎯⌐, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®+	4, ▭	⎯⌐, NPN	10...30 VDC	200 DC, Ⓚ	
	teflon *uprox*®+	4, ▭	⎯⌐, NPN	10...30 VDC	200 DC, Ⓚ	
	20 bar *uprox*®+ wash down	4, ▭	⎯⌐, NPN	10...30 VDC	200 DC, Ⓚ	
	Ex II 3 D 20 bar *uprox*®+ wash down	4, ▭	⎯⌐, NPN	10...30 VDC	200 DC, Ⓚ	
	Sn +	4, ▭	⎯⌐, PNP	10...30 VDC	200 DC, Ⓚ	
	Sn +	4, ▭	⎯⌐, PNP	10...30 VDC	200 DC, Ⓚ	
	Sn +	4, ▭	⎯⌐, NPN	10...30 VDC	200 DC, Ⓚ	
	Sn +	4, ▭	⎯⌐, NPN	10...30 VDC	200 DC, Ⓚ	
	uprox®	3, ▭	⎯⌐, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®	3, ▭	⎯⌐, PNP	10...30 VDC	200 DC, Ⓚ	
	teflon *uprox*®	3, ▭	⎯⌐, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®	3, ▭	⎯⌐, NPN	10...30 VDC	200 DC, Ⓚ	
	teflon *uprox*®	3, ▭	⎯⌐, NPN	10...30 VDC	200 DC, Ⓚ	
	uprox®	3, ▭	⎯⌐, NPN	10...30 VDC	200 DC, Ⓚ	
	–	3, ▭	⎯⌐, 2-wire	10...65 VDC	100 DC, Ⓚ	
	Ex II 2 G SIL2	2, ▭	NAMUR	nom. 8.2 VDC	–	
	Ex II 1 G Ex II 1 D SIL2	2, ▭	NAMUR	nom. 8.2 VDC	–	
	–	2, ▭	⎯⌐, PNP	10...30 VDC	200 DC, Ⓚ	
	–	2, ▭	⎯⌐, PNP	10...30 VDC	200 DC, Ⓚ	
	–	2, ▭	⎯⌐, NPN	10...30 VDC	200 DC, Ⓚ	
	–	2, ▭	⎯⌐, NPN	10...30 VDC	200 DC, Ⓚ	
	–	2, ▭	⎯⌐, 2-wire	10...65 VDC	100 DC, Ⓚ	

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI4U-EM12WD-AP6X-H1141/3D	1634851 ✘	S002	2	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
Bi4U-M12-RP6X-H1141	1634846 ✘	S056	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI4U-M12-AN6X-H1141	1634824 ✘	S005	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI4U-MT12-AN6X-H1141	1634829	S005	2	-30...+85	IP68	CuZn-T	LCP	–	–	•
BI4U-EM12WD-AN6X-H1141	1634841	S005	2	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI4U-EM12WD-AN6X-H1141/3D	1634852	S005	2	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI4-M12-AP6X-H1141	46070 ✘	S002	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI4-M12-VP6X-H1141	1633200 ✘	S008	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI4-M12-AN6X-H1141	46071 ✘	S005	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI4-M12-VN6X-H1141	1643200	S011	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI3U-M12-AP6X-H1141	1634140 ✘	S002	3	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
BI3U-EM12-AP6X-H1141	1634340 ✘	S002	3	-30...+85	IP68	VA	PBT	–	–	•
BI3U-MT12-AP6X-H1141	1634240 ✘	S002	0.25	-30...+85	IP67	CuZn-T	PBT	–	–	•
BI3U-M12-AN6X-H1141	1634150 ✘	S005	3	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
BI3U-MT12-AN6X-H1141	1634250 ✘	S005	0.25	-30...+85	IP67	CuZn-T	PBT	–	–	•
BI3U-EM12-AN6X-H1141	1634350 ✘	S005	3	-30...+85	IP68	VA	PBT	–	–	•
BI3-M12-AD4X-H1141	4405041 ✘	S014	1	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI2-M12-Y1X-H1141	40102 ✘	S026	5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI2-EM12-Y1X-H1141	4010201 ✘	S026	5	-25...+70	IP67	VA	PA	–	–	•
BI2-M12-AP6X-H1141	46065 ✘	S002	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI2-M12-VP6X-H1141	16330 ✘	S008	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI2-M12-AN6X-H1141	46066 ✘	S005	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI2-M12-VN6X-H1141	16430 ✘	S011	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI2-M12-AD4X-H1141	44065 ✘	S014	1	-25...+70	IP67	CuZn-Cr	PA	–	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M12 x 1**	*uprox*®	3, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	3, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	8, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	8, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ	
	**M12 x 1**	*uprox*®+	4, ▭	⎯◺, PNP	10...55 VDC	200 DC, Ⓚ	
		20 bar *uprox*®+ wash down	4, ▭	⎯◺, PNP	10...55 VDC	200 DC, Ⓚ	
		uprox®+	4, ▭	⎯◺, NPN	10...55 VDC	200 DC, Ⓚ	
		Sn +	4, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	3, ▭	⎯◺, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®	3, ▭	⎯◺, NPN	10...65 VDC	200 DC, Ⓚ	
		uprox®	3, ▭	⎯◺, NPN	10...65 VDC	200 DC, Ⓚ	
		harsh selective NF	3, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
		harsh selective NF	3, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ	
		–	2, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
		–	2, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ	
	**M12 x 1**	selective FE	3, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
	**M12 x 1**	*uprox*®	8, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	

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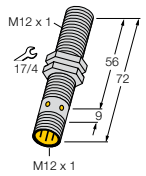
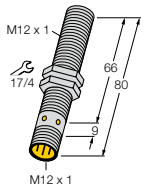
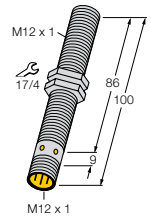
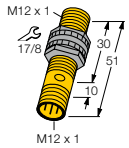
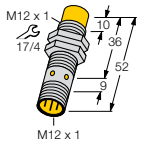
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI3U-S12-AP6X-H1141	1634600 ✘	S002	3	-30...+85	IP68	PBT	PBT	–	–	•
BI3U-S12-AN6X-H1141	1634620	S005	3	-30...+85	IP68	PBT	PBT	–	–	•
NI8U-S12-AP6X-H1141	1644600 ✘	S002	2	-30...+85	IP68	PBT	PBT	–	–	•
NI8U-S12-AN6X-H1141	1644620	S005	2	-30...+85	IP68	PBT	PBT	–	–	•
BI4U-M12E-VP44X-H1141	1634869 ✘	S008	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI4U-EM12EWD-VP44X-H1141	1634905 ✘	S008	2	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI4U-M12E-VN44X-H1141	1634873 ✘	S011	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI4-M12E-AP6X-H1141	4608030 ✘	S002	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI3U-M12E-VP4X-H1141	1580252 ✘	S008	3	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
BI3U-M12E-VN4X-H1141	1580354	S011	3	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
BI3U-EM12E-VN4X-H1141	1580363	S011	3	-30...+85	IP68	VA	PBT	–	–	•
BI3NF-EM12HE-AP6X2-H1141	1615001 ✘	S002	3	0...+60	IP67	VA	DURO	–	•	•
BI3NF-EM12HE-AN6X2-H1141	1615003	S005	3	0...+60	IP67	VA	DURO	–	•	•
BI2-M12E-AP6X-H1141	4606505 ✘	S002	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI2-M12E-AN6X-H1141	4606602	S005	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI3FE-M12FEE-AP6X-H1141	1615108 ✘	S002	0.025	0...+60	IP67	CuZn-OP	VA	–	–	•
NI8U-M12EE-AP6X-H1141	1644147 ✘	S002	2	-30...+85	IP67	CuZn-Cr	PA	–	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M12 x 1**	*uprox*®	3,	_⟍_, PNP	10...30 VDC	200 DC, Ⓚ	
	**M12 x 1**	*uprox*®+	4,	⎺⟍_, PNP	10...55 VDC	200 DC, Ⓚ	
	**M12 x 1**	*uprox*®+	4,	⎺⟍_, PNP	10...55 VDC	200 DC, Ⓚ	
	**M12 x 1**	–	2,	_⟍_, PNP	10...30 VDC	200 DC, Ⓚ	
		–	2,	_⟍_, NPN	10...30 VDC	200 DC, Ⓚ	
		–	4,	_⟍_, PNP	10...30 VDC	200 DC, Ⓚ	
	**M12 x 1**	*uprox*®+	10,	_⟍_, PNP	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®+	10,	_⟍_, PNP	10...30 VDC	200 DC, Ⓚ	
		20 bar *uprox*®+ wash down	10,	_⟍_, PNP	10...30 VDC	200 DC, Ⓚ	
		⟨Ex⟩ II 3 D 20 bar *uprox*®+ wash down	10,	_⟍_, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	10,	⎺⟍_, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	10,	_⟍_, NPN	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®+	10,	_⟍_, NPN	10...30 VDC	200 DC, Ⓚ	

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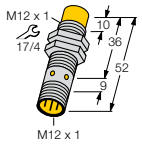
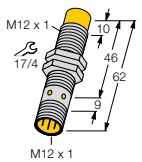
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI3U-M12EE-AP6X-H1141	1634149 ✘	S002	3	-30...+85	IP67	CuZn-Cr	PA	–	–	•
BI4U-M12-VP44X-H1141 L80	1634918 ✘	S008	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI4U-M12-VP44X-H1141 L100	1634917 ✘	S008	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI2-S12-AP6X-H1141	46520 ✘	S002	2	-25...+70	IP67	PA	PA	–	–	•
BI2-S12-AN6X-H1141	46521	S005	2	-25...+70	IP67	PA	PA	–	–	•
NI4-S12-AP6X-H1141	46522 ✘	S002	2	-25...+70	IP67	PA	PA	–	–	•
NI10U-M12-AP6X-H1141	1634806 ✘	S002	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI10U-MT12-AP6X-H1141	1634810 ✘	S002	1	-30...+85	IP68	CuZn-T	LCP	–	–	•
NI10U-EM12WD-AP6X-H1141	1634814 ✘	S002	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI10U-EM12WD-AP6X-H1141/3D	1634857 ✘	S002	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI10U-M12-RP6X-H1141	1634848 ✘	S056	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI10U-M12-AN6X-H1141	1634826 ✘	S005	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI10U-MT12-AN6X-H1141	1634830	S005	1	-30...+85	IP68	CuZn-T	LCP	–	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M12 x 1**	20 bar *uprox*®+ wash down	10,	__, NPN	10...30 VDC	200 DC, Ⓚ	
		Ex II 3 D 20 bar *uprox*®+ wash down	10,	__, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	8,	__, PNP	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®	8,	__, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	8,	__, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	8,	__, NPN	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®	8,	__, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	8,	__, NPN	10...30 VDC	200 DC, Ⓚ	
		Sn +	8,	__, PNP	10...30 VDC	200 DC, Ⓚ	
		Sn +	8,	__, NPN	10...30 VDC	200 DC, Ⓚ	
		–	8,	__, 2-wire	10...65 VDC	100 DC, Ⓚ	
		Ex II 2 G SIL2	5,	NAMUR	nom. 8.2 VDC	–	
		Ex II 1 G Ex II 1 D SIL2	5,	NAMUR	nom. 8.2 VDC	–	
		–	4,	__, PNP	10...30 VDC	200 DC, Ⓚ	
		–	4,	⊼, PNP	10...30 VDC	200 DC, Ⓚ	
		–	4,	__, NPN	10...30 VDC	200 DC, Ⓚ	
		–	4,	⊼, NPN	10...30 VDC	200 DC, Ⓚ	
		–	4,	__, 2-wire	10...65 VDC	100 DC, Ⓚ	
	**M12 x 1**	*uprox*®+	10,	__, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	10,	⊼, PNP	10...55 VDC	200 DC, Ⓚ	
		20 bar *uprox*®+ wash down	10,	⊼, PNP	10...55 VDC	200 DC, Ⓚ	
		uprox®+	10,	⊼, NPN	10...55 VDC	200 DC, Ⓚ	
		uprox®	8,	⊼, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®	8,	⊼, NPN	10...65 VDC	200 DC, Ⓚ	

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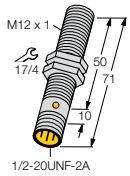
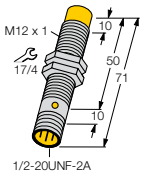
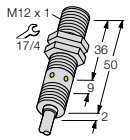
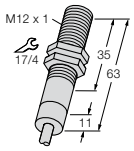
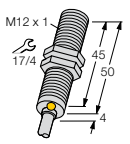
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI10U-EM12WD-AN6X-H1141	1634837	S005	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI10U-EM12WD-AN6X-H1141/3D	1634858	S005	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI8U-M12-AP6X-H1141	1644140 ✘	S002	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
NI8U-MT12-AP6X-H1141	1644240 ✘	S002	2	-30...+85	IP67	CuZn-T	PBT	–	–	•
NI8U-EM12-AP6X-H1141	1644340 ✘	S002	2	-30...+85	IP68	VA	PBT	–	–	•
NI8U-M12-AN6X-H1141	1644150 ✘	S005	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
NI8U-MT12-AN6X-H1141	1644250	S005	2	-30...+85	IP67	CuZn-T	PBT	–	–	•
NI8U-EM12-AN6X-H1141	1644350 ✘	S005	2	-30...+85	IP68	VA	PBT	–	–	•
NI8-M12-AP6X-H1141	4611310 ✘	S002	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
NI8-M12-AN6X-H1141	4611315	S005	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
NI8-M12-AD4X-H1141	4411241 ✘	S014	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
NI5-M12-Y1X-H1141	40103 ✘	S026	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
NI5-EM12-Y1X-H1141	4010301 ✘	S026	2	-25...+70	IP67	VA	PA	–	–	•
NI4-M12-AP6X-H1141	46067 ✘	S002	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
NI4-M12-VP6X-H1141	16331 ✘	S008	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
NI4-M12-AN6X-H1141	46068 ✘	S005	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
NI4-M12-VN6X-H1141	16431 ✘	S011	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
NI4-M12-AD4X-H1141	44067 ✘	S014	1	-25...+70	IP67	CuZn-Cr	PA	–	–	•
NI10U-M12E-AP6X-H1141	1634901	S002	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI10U-M12E-VP44X-H1141	1634871 ✘	S008	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI10U-EM12EWD-VP44X-H1141	1634896	S008	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI10U-M12E-VN44X-H1141	1634875 ✘	S011	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI8U-M12E-VP4X-H1141	1580454 ✘	S008	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
NI8U-M12E-VN4X-H1141	1580552 ✘	S011	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M12 x 1**	*uprox*®	2,		20...250 VAC 10...300 VDC	100 AC 100 DC, Ⓚ	
	**M12 x 1**	*uprox*®	8,		20...250 VAC 10...300 VDC	100 AC 100 DC, Ⓚ	
	**M12 x 1**	20 bar *uprox*®+ wash down	4,	, PNP	10...30 VDC	200 DC, Ⓚ	
		20 bar *uprox*®+ wash down	4,	, NPN	10...30 VDC	200 DC, Ⓚ	
	**M12 x 1**	T +120 °C wash down	2,	, PNP	10...30 VDC	200 DC, Ⓚ	
		20 bar wash down T -60 °C	2,	, PNP	10...30 VDC	200 DC, Ⓚ	
	**M12 x 1**	*uprox*®+	4,	, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	4,	, NPN	10...30 VDC	200 DC, Ⓚ	
		Sn +	4,	, PNP	10...30 VDC	200 DC, Ⓚ	
		Sn +	4,	, PNP	10...30 VDC	200 DC, Ⓚ	
		Sn +	4,	, NPN	10...30 VDC	200 DC, Ⓚ	
		Sn +	4,	, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	3,	, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	3,	, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	3,	, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	3,	, NPN	10...30 VDC	200 DC, Ⓚ	
		–	3,	, 2-wire	10...65 VDC	100 DC, Ⓚ	
		–	2,	, PNP	10...30 VDC	200 DC, Ⓚ	
		T +100 °C	2,	, PNP	10...30 VDC	200 DC, Ⓚ	
		–	2,	, PNP	10...30 VDC	200 DC, Ⓚ	

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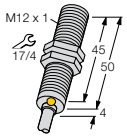
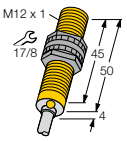
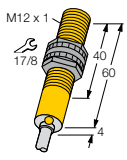
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI2U-G12-ADZ32X-B3131	4281005 ✘	S019	0.06	-30...+85	IP67	CuZn-Cr	PA	–	–	•
NI8U-G12-ADZ32X-B3131	4281105 ✘	S019	0.02	-30...+85	IP67	CuZn-Cr	PA	–	–	•
BI4U-EM12WD-AP6X	1634811 ✘	S001	2	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
BI4U-EM12WD-AN6X	1634842	S004	2	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
BI2-EM12D-AP6/S120	4614512 ✘	S001	0.1	-25...+120	IP68 / IP69K	VA	PTFE	PTFE 2 m	–	–
BI2-EM12WD-AP6/S929	4614515	S001	1	-60...+60	IP68 / IP69K	VA	PTFE	FEP 2 m	–	–
BI4U-M12-AP6X	1634803 ✘	S001	2	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
BI4U-M12-AN6X	1634823	S004	2	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
BI4-M12-AP6X	4607006 ✘	S001	2	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI4-M12-VP6X	1633300	S007	2	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI4-M12-AN6X	4607130	S004	2	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI4-M12-VN6X	1643300	S010	2	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI3U-M12-AP6X	1634100 ✘	S001	3	-30...+85	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI3U-EM12-AP6X	1634300 ✘	S001	3	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
BI3U-M12-AN6X	1634120 ✘	S004	3	-30...+85	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI3U-EM12-AN6X	1634320	S004	3	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
BI3-M12-AD4X	4405035	S013	1	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI2-M12-AP6X	46050 ✘	S001	2	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI2-M12-AP6X/S100	4605003 ✘	S001	2	-25...+100	IP67	CuZn-Cr	PA-X	PVC 2 m	–	•
BI2-M12-VP6X	16302 ✘	S007	2	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**M12 x 1**	–	2, ▭	⎓, PNP	10...30 VDC	200 DC, Ⓚ
		–	2, ▭	⎍, NPN	10...30 VDC	200 DC, Ⓚ
		–	2, ▭	⎓, NPN	10...30 VDC	200 DC, Ⓚ
		–	2, ▭	⎓, NPN	10...30 VDC	200 DC, Ⓚ
		–	2, ▭	⎍, 2-wire	10...65 VDC	100 DC, Ⓚ
	**M12 x 1**	*uprox*®	3, ▭	⎍, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	3, ▭	⎍, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®	8, ▭	⎍, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	8, ▭	⎍, NPN	10...30 VDC	200 DC, Ⓚ
	M12 x 1	Sn +	4, ▭	⎍, PNP	10...30 VDC	200 DC, Ⓚ
		Sn +	4, ▭	⎍, NPN	10...30 VDC	200 DC, Ⓚ
		–	3, ▭	⎍, 2-wire	10...65 VDC	100 DC, Ⓚ
		Ⓔx II 2 G SIL2	2, ▭	NAMUR	nom. 8.2 VDC	–
		Ⓔx I M1	2, ▭	NAMUR	nom. 8.2 VDC	–
		Ⓔx II 1 G Ⓔx II 1 D SIL2 T +100 °C	2, ▭	NAMUR	nom. 8.2 VDC	–
		–	2, ▭	⎍, PNP	10...30 VDC	200 DC, Ⓚ
		–	2, ▭	⎍, NPN	10...30 VDC	200 DC, Ⓚ
	**M12 x 1**	–	2, ▭	⎍, PNP	10...30 VDC	200 DC, Ⓚ
		T -40 °C	2, ▭	⎍, PNP	10...30 VDC	200 DC, Ⓚ
		T +100 °C	2, ▭	⎍, PNP	10...30 VDC	200 DC, Ⓚ
		–	2, ▭	⎍, NPN	10...30 VDC	200 DC, Ⓚ
		–	2, ▭	⎍, 2-wire	10...65 VDC	100 DC, Ⓚ
		–	2, ▭	⎍	20...250 VAC 10...300 VDC	100 AC 100 DC
		T -40 °C	2, ▭	⎍	20...250 VAC 10...300 VDC	100 AC 100 DC
		T +100 °C	2, ▭	⎍	20...250 VAC 10...300 VDC	100 AC 100 DC
		–	4, ▭	⎍, PNP	10...30 VDC	200 DC, Ⓚ
		T -40 °C	4, ▭	⎍, PNP	10...30 VDC	200 DC, Ⓚ
		T +100 °C	4, ▭	⎍, PNP	10...30 VDC	200 DC, Ⓚ

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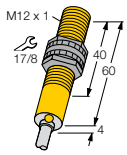
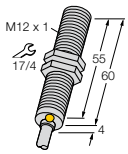
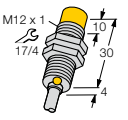
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI2-EM12-VP6X 7M	1630230 ✘	S007	2	-25...+70	IP67	VA	PA	PVC 7 m	–	•
BI2-M12-AN6X	46051 ✘	S004	2	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI2-M12-VN6X	16402 ✘	S010	2	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI2-EM12-VN6X 7M	1630231	S010	2	-25...+70	IP67	VA	PA	PVC 7 m	–	•
BI2-M12-AD4X	44050 ✘	S013	1	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI3U-S12-AP6X	1634500 ✘	S001	3	-30...+85	IP68	PBT	PBT	PVC 2 m	–	•
BI3U-S12-AN6X	1634520	S004	3	-30...+85	IP68	PBT	PBT	PVC 2 m	–	•
NI8U-S12-AP6X	1644500 ✘	S001	2	-30...+85	IP68	PBT	PBT	PVC 2 m	–	•
NI8U-S12-AN6X	1644520	S004	2	-30...+85	IP68	PBT	PBT	PVC 2 m	–	•
BI4-G12K-AP6X	4670250 ✘	S001	2	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI4-G12K-AN6X	4670251	S004	2	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI3-G12K-AD4X	4405030	S013	1	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI2-G12-Y1X	40100 ✘	S025	5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI2-G12-Y2X 7M	4010501	S025	5	-25...+70	IP67	CuZn-Cr	PA	PVC 7 m	–	•
BI2-EG12-Y1X/S100 7M	4012003 ✘	S025	5	-25...+100	IP67	VA	PA	PVC 7 m	–	•
BI2-G12K-AP6X	46702 ✘	S001	2	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI2-G12K-AN6X	46712 ✘	S004	2	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI2-S12-AP6X	46530 ✘	S001	2	-25...+70	IP67	PA	PA	PVC 2 m	–	•
BI2-S12-AP6X/S97	16645	S001	2	-40...+70	IP67	PA	PA	Silic.	–	•
BI2-S12-AP6X/S100	4653023 ✘	S001	2	-25...+100	IP67	PA	PA	PVC 2 m	–	•
BI2-S12-AN6X	46531 ✘	S004	2	-25...+70	IP67	PA	PA	PVC 2 m	–	•
BI2-S12-AD4X	44530 ✘	S013	1	-25...+70	IP67	PA	PA	PVC 2 m	–	•
BI2-S12-AZ31X	13020 ✘	S092	0.02	-25...+70	IP67	PA	PA	PVC 2 m	–	•
BI2-S12-AZ31X/S97	1302002	S092	0.02	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
BI2-S12-AZ31X/S100	1302001	S092	0.02	-25...+100	IP67	PA	PA	PVC 2 m	–	•
NI4-S12-AP6X	46532 ✘	S001	2	-25...+70	IP67	PA	PA	PVC 2 m	–	•
NI4-S12-AP6X/S97	4653221	S001	2	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
NI4-S12-AP6X/S100	4653201 ✘	S001	2	-25...+100	IP67	PA	PA	PVC 2 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M12 x 1**	–	4, ▭	⎯◺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		–	4, ▭	⎯◺⎯, 2-wire	10...65 VDC	100 DC, Ⓚ	
		–	4, ▭	⎯◺⎯	20...250 VAC 10...300 VDC	100 AC 100 DC	
		T -40 °C	4, ▭	⎯◺⎯	20...250 VAC 10...300 VDC	100 AC 100 DC	
		T +100 °C	4, ▭	⎯◺⎯	20...250 VAC 10...300 VDC	100 AC 100 DC	
	**M12 x 1**	*uprox*®+	4, ▭	⎯◹⎯, PNP	10...55 VDC	200 DC, Ⓚ	
		uprox®+	4, ▭	⎯◹⎯, NPN	10...55 VDC	200 DC, Ⓚ	
		uprox®	3, ▭	⎯◹⎯, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®	3, ▭	⎯◹⎯, NPN	10...65 VDC	200 DC, Ⓚ	
		uprox®	3, ▭	⎯◹⎯, NPN	10...65 VDC	200 DC, Ⓚ	
		–	2, ▭	⎯◺⎯	20...250 VAC 10...300 VDC	100 AC 100 DC	
	**M12 x 1**	–	8, ▭	⎯◺⎯, 2-wire	10...65 VDC	100 DC, Ⓚ	
		⟨Ex⟩ II 2 G SIL2	5, ▭	NAMUR	nom. 8.2 VDC	–	
		⟨Ex⟩ II 1 G ⟨Ex⟩ II 1 D SIL2 T +100 °C	5, ▭	NAMUR	nom. 8.2 VDC	–	
		–	5, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		–	5, ▭	⎯◺⎯, NPN	10...30 VDC	200 DC, Ⓚ	

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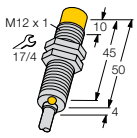
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI4-S12-AN6X	46533 ✘	S004	2	-25...+70	IP67	PA	PA	PVC 2 m	–	•
NI4-S12-AD4X	44532 ✘	S013	1	-25...+70	IP67	PA	PA	PVC 2 m	–	•
NI4-S12-AZ31X	13022 ✘	S092	0.02	-25...+70	IP67	PA	PA	PVC 2 m	–	•
NI4-S12-AZ31X/S97	1302202	S092	0.02	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
NI4-S12-AZ31X/S100	1302201	S092	0.02	-25...+100	IP67	PA	PA	PVC 2 m	–	•
BI4U-M12E-VP44X	1634868 ✘	S007	2	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
BI4U-M12E-VN44X	1634872	S010	2	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
BI3U-M12E-VP4X	1580203 ✘	S007	3	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
BI3U-M12E-VN4X	1580302	S010	3	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
BI3U-EM12E-VN4X	1580362	S010	3	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
BI2-M12-AZ31X	13030 ✘	S092	0.02	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
NI8-G12K-AD4X	4411230	S013	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
NI5-G12-Y1X	40101 ✘	S025	2	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
NI5-EG12-Y1X/S100 7M	4012008 ✘	S025	2	-25...+100	IP67	VA	PA	PVC 7 m	–	•
NI5-G12K-AP6X	46703 ✘	S001	1.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
NI5-G12K-AN6X	46713 ✘	S004	1.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	M12 x 1	Ex II 2 G SIL2	2,	NAMUR	nom. 8.2 VDC	–	
		Ex II 2 G SIL2 T -40 °C	2,	NAMUR	nom. 8.2 VDC	–	
		Ex II 2 G SIL2 T +100 °C	2,	NAMUR	nom. 8.2 VDC	–	
		Ex II 2 G SIL2	5,	NAMUR	nom. 8.2 VDC	–	
		Ex II 2 G SIL2 T -40 °C	5,	NAMUR	nom. 8.2 VDC	–	
		Ex II 2 G SIL2 T +100 °C	5,	NAMUR	nom. 8.2 VDC	–	
	**M12 x 1**	*uprox*®+	10,	PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	10,	NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	8,	PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	8,	PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	8,	NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	8,	NPN	10...30 VDC	200 DC, Ⓚ	
		–	8,	2-wire	10...65 VDC	100 DC, Ⓚ	
		–	4,	PNP	10...30 VDC	200 DC, Ⓚ	
		–	4,	PNP	10...30 VDC	200 DC, Ⓚ	
		–	4,	PNP	10...30 VDC	200 DC, Ⓚ	
		T +100 °C	4,	PNP	10...30 VDC	200 DC, Ⓚ	
		–	4,	NPN	10...30 VDC	200 DC, Ⓚ	
		–	4,	NPN	10...30 VDC	200 DC, Ⓚ	
		–	4,	NPN	10...30 VDC	200 DC, Ⓚ	
		–	4,	2-wire	10...65 VDC	100 DC, Ⓚ	

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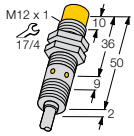
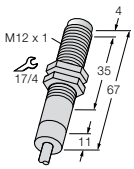
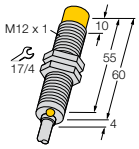
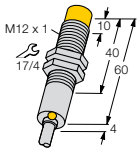
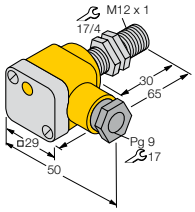
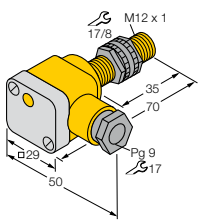
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI2-P12-Y1X	40300 ✘	S025	5	-25...+70	IP67	PA	PA	PVC 2 m	–	•
BI2-P12-Y1X/S97	4030021	S025	5	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
BI2-P12-Y1/S100	10302 ✘	S025	5	-25...+100	IP67	PA	PA	PVC 2 m	–	–
NI5-P12-Y1X	40301 ✘	S025	2	-25...+70	IP67	PA	PA	PVC 2 m	–	•
NI5-P12-Y1X/S97	1009402	S025	2	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
NI5-P12-Y1/S100	10242	S025	2	-25...+100	IP67	PA	PA	PVC 2 m	–	–
NI10U-M12-AP6X	1634805 ✘	S001	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
NI10U-M12-AN6X	1634825 ✘	S004	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
NI8U-M12-AP6X	1644100 ✘	S001	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
NI8U-EM12-AP6X	1644300 ✘	S001	2	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
NI8U-M12-AN6X	1644120 ✘	S004	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
NI8U-EM12-AN6X	1644320	S004	2	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
NI8-M12-AD4X	4411235 ✘	S013	1	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
NI4-M12-AP6X	46052 ✘	S001	2	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
NI4-M12-VP6X	16304 ✘	S007	2	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
NI4-EM12-VP6X 7M	1630233 ✘	S007	2	-25...+70	IP67	VA	PA	PVC 7 m	–	•
NI4-M12-AP6X/S100	4605201 ✘	S001	2	-25...+100	IP67	CuZn-Cr	PA-X	PVC 2 m	–	•
NI4-M12-AN6X	46053 ✘	S004	2	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
NI4-M12-VN6X	16404 ✘	S010	2	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
NI4-EM12-VN6X 7M	1630232	S010	2	-25...+70	IP67	VA	PA	PVC 7 m	–	•
NI4-M12-AD4X	44052 ✘	S013	1	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M12 x 1**	20 bar *uprox*®+ wash down	10, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		20 bar *uprox*®+ wash down	10, ▭	⎯◺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	**M12 x 1**	T +120 °C wash down	4, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		20 bar wash down T -60 °C	4, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	**M12 x 1**	*uprox*®+	10, ▭	⎓◺⎓, PNP	10...55 VDC	200 DC, Ⓚ	
		uprox®+	10, ▭	⎓◺⎓, NPN	10...55 VDC	200 DC, Ⓚ	
		uprox®	8, ▭	⎓◺⎓, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®	8, ▭	⎓◺⎓, NPN	10...65 VDC	200 DC, Ⓚ	
	**M12 x 1**	–	4, ▭	⎯◺⎯	20...250 VAC 10...300 VDC	100 AC 100 DC	
	**M12 x 1**	⟨Ex⟩ II 2 G SIL2	2, ▭	NAMUR	nom. 8.2 VDC	–	
		⟨Ex⟩ II 1 G ⟨Ex⟩ II 1 D SIL2	2, ▭	NAMUR	nom. 8.2 VDC	–	
	**M12 x 1**	⟨Ex⟩ II 2 G SIL2	2, ▭	NAMUR	nom. 8.2 VDC	–	
		⟨Ex⟩ II 2 G SIL2	5, ▭	NAMUR	nom. 8.2 VDC	–	

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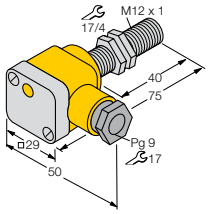
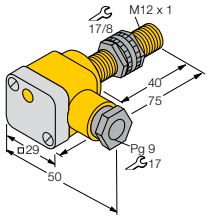
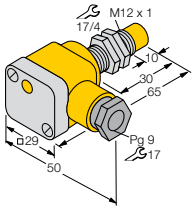
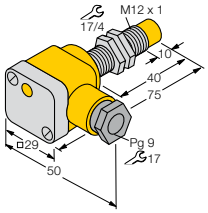
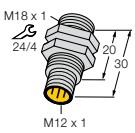
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI10U-EM12WD-AP6X	1634813 ✘	S001	1	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
NI10U-EM12WD-AN6X	1634838	S004	1	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
NI4-EM12D-AP6/S120	1633110 ✘	S001	0.1	-25...+120	IP68 / IP69K	VA	PTFE	PTFE 2 m	–	–
NI4-EM12WD-AP6/S929	1633111	S001	1	-60...+60	IP68 / IP69K	VA	PTFE	FEP 2 m	–	–
NI10U-M12E-VP44X	1634870 ✘	S007	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
NI10U-M12E-VN44X	1634874	S010	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
NI8U-M12E-VP4X	1580406 ✘	S007	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
NI8U-M12E-VN4X	1580501 ✘	S010	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
NI4-M12-AZ31X	13032 ✘	S092	0.02	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI2-G12SK-Y1X	40110 ✘	S027	5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI2-EG12SK-Y1X	4012050 ✘	S027	5	-25...+70	IP67	VA	PA	–	–	•
BI2-P12SK-Y1X	40310 ✘	S027	5	-25...+70	IP67	PA	PA	–	–	•
NI5-P12SK-Y1X	40311 ✘	S027	2	-25...+70	IP67	PA	PA	–	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M12 x 1**	*uprox*®	3, ▭	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	3, ▭	⎯⎺⎯, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®	3, ▭	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	3, ▭	⎯⎺⎯, NPN	10...65 VDC	200 DC, Ⓚ	
		–	2, ▭	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		–	2, ▭	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	**M12 x 1**	*uprox*®	3, ▭	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	3, ▭	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		–	2, ▭	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		–	2, ▭	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	8, ▭	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	8, ▭	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		–	5, ▭	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		–	5, ▭	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	**M12 x 1**	Ⓔx II 2 G SIL2	5, ▭	NAMUR	nom. 8.2 VDC	–	
		Ⓔx II 1 G Ⓔx II 1 D SIL2	5, ▭	NAMUR	nom. 8.2 VDC	–	
	**M12 x 1**	*uprox*®	8, ▭	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	8, ▭	⎯⎺⎯, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®	8, ▭	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	8, ▭	⎯⎺⎯, NPN	10...65 VDC	200 DC, Ⓚ	
		–	5, ▭	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		–	5, ▭	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	–	5, ▭	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	

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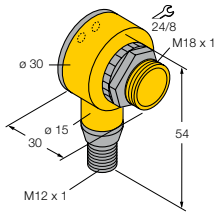
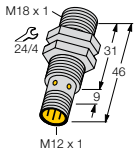
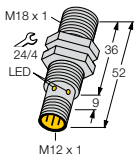
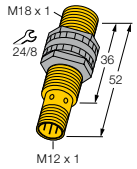
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED
BI3U-EG12SK-AP6X	1634400 ✘	S003	3	-30...+85	IP68	VA	PBT	–	–	•
BI3U-EG12SK-VP4X	1580601 ✘	S009	3	-30...+85	IP68	VA	PBT	–	–	•
BI3U-EG12SK-AN6X	1634420	S006	3	-30...+85	IP68	VA	PBT	–	–	•
BI3U-EG12SK-VN4X	1580701	S012	3	-30...+85	IP68	VA	PBT	–	–	•
BI2-G12SK-AP6X	46360 ✘	S003	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI2-G12SK-AN6X	46361	S006	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI3U-P12SK-AP6X	1634700 ✘	S003	3	-30...+85	IP68	PA	PA	–	–	•
BI3U-P12SK-AN6X	1634720	S006	3	-30...+85	IP68	PA	PA	–	–	•
BI2-P12SK-AP6X	46535 ✘	S003	2	-25...+70	IP67	PA	PA	–	–	•
BI2-P12SK-AN6X	46536	S006	2	-25...+70	IP67	PA	PA	–	–	•
NI8U-P12SK-AP6X	1644700 ✘	S003	2	-30...+85	IP68	PA	PA	–	–	•
NI8U-P12SK-AN6X	1644720	S006	2	-30...+85	IP68	PA	PA	–	–	•
NI5-P12SK-AP6X	46537 ✘	S003	1.5	-25...+70	IP67	PA	PA	–	–	•
NI5-P12SK-AN6X	46538	S006	1.5	-25...+70	IP67	PA	PA	–	–	•
NI5-G12SK-Y1X	40111 ✘	S027	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
NI5-EG12SK-Y1X	4012140 ✘	S027	2	-25...+70	IP67	VA	PA	–	–	•
NI8U-EG12SK-AP6X	1644400 ✘	S003	2	-30...+85	IP68	VA	PBT	–	–	•
NI8U-EG12SK-VP4X	1580901 ✘	S009	2	-30...+85	IP68	VA	PBT	–	–	•
NI8U-EG12SK-AN6X	1644420	S006	2	-30...+85	IP68	VA	PBT	–	–	•
NI8U-EG12SK-VN4X	1580902	S012	2	-30...+85	IP68	VA	PBT	–	–	•
NI5-G12SK-AP6X	46362 ✘	S003	1.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
NI5-G12SK-AN6X	46363 ✘	S006	1.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI5-G18KK-AP6-H1141	4670410 ✘	S002	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	–

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M18 x 1**	*uprox*®	5,	__, PNP	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	Sn +	8,	__, PNP	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	*uprox*®+	8,	__, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	8,	__, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®+	8,	⎓_, PNP	10...30 VDC	200 DC, Ⓚ	
		Sn +	8,	__, PNP	10...30 VDC	200 DC, Ⓚ	
		Sn +	8,	⎓_, PNP	10...65 VDC	200 DC, Ⓚ	
		Sn +	8,	__, NPN	10...30 VDC	200 DC, Ⓚ	
		Sn +	8,	⎓_, NPN	10...65 VDC	200 DC, Ⓚ	
		–	7,	__, 2-wire	10...65 VDC	100 DC, Ⓚ	
		uprox®	5,	__, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	5,	__, NPN	10...30 VDC	200 DC, Ⓚ	
		Ⓔx II 2 G SIL2	5,	NAMUR	nom. 8.2 VDC	–	
		–	5,	__, PNP	10...30 VDC	200 DC, Ⓚ	
		–	5,	⎓_, PNP	10...65 VDC	200 DC, Ⓚ	
		–	5,	__, NPN	10...30 VDC	200 DC, Ⓚ	
		–	5,	⎓_, NPN	10...65 VDC	200 DC, Ⓚ	
		–	5,	__, 2-wire	10...65 VDC	100 DC, Ⓚ	
	**M18 x 1**	*uprox*®	5,	__, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	5,	__, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	12,	__, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	12,	__, NPN	10...30 VDC	200 DC, Ⓚ	

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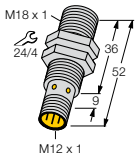
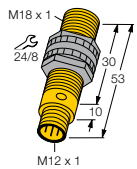
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI5U-T18-AP6X2-H1141	1635136 ✘	S002	2	-30...+85	IP68	PBT	PBT	–	•	•
BI8-M18K-AP6X-H1141	4615050 ✘	S002	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI8U-M18-AP6X-H1141	1644731 ✘	S002	1.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI8U-M18-AN6X-H1141	1644737 ✘	S005	1.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI8U-M18-RP6X-H1141	1644750 ✘	S056	1.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI8-M18-AP6X-H1141	46150 ✘	S002	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI8-M18-VP4X-H1141	4590701	S008	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI8-M18-AN6X-H1141	4615100	S005	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI8-M18-VN4X-H1141	4590702	S011	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI7-M18-AD4X-H1141	4414541 ✘	S014	1	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI5U-M18-AP6X-H1141	1635140 ✘	S002	2.5	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
BI5U-M18-AN6X-H1141	1635150 ✘	S005	2.5	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
BI5-M18-Y1X-H1141	40152 ✘	S026	1	-25...+70	IP67	CuZn-Cr	PBT	–	–	•
BI5-M18-AP6X-H1141	46145 ✘	S002	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI5-M18-VP4X-H1141	15618 ✘	S008	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI5-M18-AN6X-H1141	46146 ✘	S005	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI5-M18-VN4X-H1141	15718 ✘	S011	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI5-M18-AD4X-H1141	44145 ✘	S014	1	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI5U-S18-AP6X-H1141	1635600 ✘	S002	2.5	-30...+85	IP68	PBT	PBT	–	–	•
BI5U-S18-AN6X-H1141	1635620	S005	2.5	-30...+85	IP68	PBT	PBT	–	–	•
NI12U-S18-AP6X-H1141	1645600 ✘	S002	2	-30...+85	IP68	PBT	PBT	–	–	•
NI12U-S18-AN6X-H1141	1645620	S005	2	-30...+85	IP68	PBT	PBT	–	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M18 x 1**	teflon *uprox*®+	8, ▭	⎯⎽, PNP	10...30 VDC	200 DC, Ⓚ	
	▭⊸	15 bar *uprox*®+ wash down	8, ▭	⎯⎽, PNP	10...30 VDC	200 DC, Ⓚ	
		Ⓔx II 3 G Ⓔx II 3 D 15 bar *uprox*®+ wash down	8, ▭	⎯⎽, PNP	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®+	8, ▭	⎯⎽, NPN	10...30 VDC	200 DC, Ⓚ	
		15 bar *uprox*®+ wash down	8, ▭	⎯⎽, NPN	10...30 VDC	200 DC, Ⓚ	
		Ⓔx II 3 G Ⓔx II 3 D 15 bar *uprox*®+ wash down	8, ▭	⎯⎽, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	5, ▭	⎯⎽, PNP	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®	5, ▭	⎯⎽, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	5, ▭	⎯⎽, NPN	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®	5, ▭	⎯⎽, NPN	10...30 VDC	200 DC, Ⓚ	
		Ⓔx II 1 G Ⓔx II 1 D SIL2	5, ▭	NAMUR	nom. 8.2 VDC	–	
		Ⓔx II 1 G Ⓔx II 1 D SIL2	5, ▭	NAMUR	nom. 8.2 VDC	–	
	**M18 x 1**	–	5, ▭	⎯⎽, PNP	10...30 VDC	200 DC, Ⓚ	
	▭⊸	–	5, ▭	⎯⎽, NPN	10...30 VDC	200 DC, Ⓚ	
		–	8, ▭	⎯⎽, PNP	10...30 VDC	200 DC, Ⓚ	
		–	8, ▭	⎯⎽, NPN	10...30 VDC	200 DC, Ⓚ	

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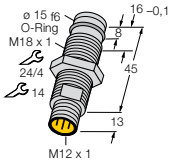
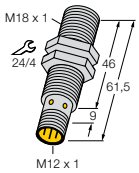
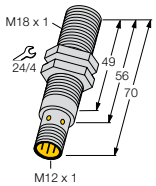
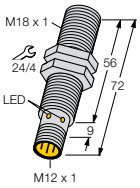
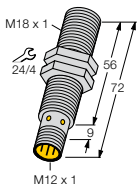
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI8U-MT18-AP6X-H1141	1644730 ✘	S002	1.5	-30...+85	IP68	CuZn-T	LCP	–	–	•
BI8U-EM18WD-AP6X-H1141	1634816 ✘	S002	1.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI8U-EM18WD-AP6X-H1141/3GD	1634853 ✘	S002	1.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI8U-MT18-AN6X-H1141	1644739	S005	1.5	-30...+85	IP68	CuZn-T	LCP	–	–	•
BI8U-EM18WD-AN6X-H1141	1634839	S005	1.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI8U-EM18WD-AN6X-H1141/3GD	1634854	S005	1.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI5U-EM18-AP6X-H1141	1635340 ✘	S002	2.5	-30...+85	IP68	VA	PBT	–	–	•
BI5U-MT18-AP6X-H1141	1635240 ✘	S002	0.25	-30...+85	IP67	CuZn-T	PBT	–	–	•
BI5U-EM18-AN6X-H1141	1635350 ✘	S005	2.5	-30...+85	IP68	VA	PBT	–	–	•
BI5U-MT18-AN6X-H1141	1635250	S005	2.5	-30...+85	IP67	CuZn-T	PBT	–	–	•
BI5-EG18SK-Y1X	4012060 ✘	S027	1	-25...+70	IP67	VA	PA	–	–	•
BI5-EM18-Y1X-H1141	4015202 ✘	S026	1	-25...+70	IP67	VA	PA	–	–	•
BI5-S18-AP6X-H1141	46524 ✘	S002	1	-25...+70	IP67	PA	PA	–	–	•
BI5-S18-AN6X-H1141	46525	S005	0.5	-25...+70	IP67	PA	PA	–	–	•
NI8-S18-AP6X-H1141	46526 ✘	S002	0.5	-25...+70	IP67	PA	PA	–	–	•
NI8-S18-AN6X-H1141	46527 ✘	S005	0.5	-25...+70	IP67	PA	PA	–	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M18 x 1**	500 bar	2,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	
		100 bar	2,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	*uprox*®+	8,	⎓⌒, PNP	10...55 VDC	200 DC, Ⓚ	
		15 bar *uprox*®+ wash down	8,	⎓⌒, PNP	10...55 VDC	200 DC, Ⓚ	
		uprox®+	8,	⎓⌒, NPN	10...55 VDC	200 DC, Ⓚ	
		uprox®	5,	⎓⌒, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®	5,	⎓⌒, NPN	10...65 VDC	200 DC, Ⓚ	
	**M18 x 1**	selective FE	5,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	Sn +	8,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	teflon *uprox*®+	8,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®	5,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	
		–	5,	⎓⌒, PNP	10...65 VDC	200 DC, Ⓚ	
		harsh selective NF	5,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	

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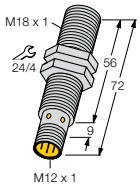
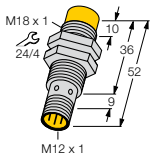
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BID2-G180-AP6-H1141/S212	16885 ✘	S002	2	-25...+70	IP67	VA	PA	–	–	–
BID2-G180-AP6-H1141/S220	1688501	S002	2	-25...+70	IP67	VA	PA	–	–	–
BI8U-M18M-VP44X-H1141	1634877 ✘	S008	1.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI8U-EM18MWD-VP44X-H1141	1634897	S008	1.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI8U-M18M-VN44X-H1141	1634881 ✘	S011	1.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI5U-M18M-VP4X-H1141	1581255 ✘	S008	2.5	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
BI5U-M18M-VN4X-H1141	1581311	S011	2.5	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
BI5FE-M18FE-AP6X-H1141	1615009 ✘	S002	0.025	0...+60	IP67	CuZn-OP	VA	–	–	•
BI8-M18-AP6X-H1141/S58	4615004 ✘	S002	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI8U-MT18E-AP6X-H1141	1644752	S002	2.5	-30...+85	IP68	CuZn-T	LCP	–	–	•
BI5U-MT18E-AP6X-H1141	1635248 ✘	S002	2.5	-30...+85	IP67	CuZn-T	PBT	–	–	•
BI5-M18E-VP4X-H1141	1561811 ✘	S008	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI5NF-EM18HE-AP6X2-H1141	1615000 ✘	S002	2.5	0...+60	IP67	VA	DURO	–	•	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M18 x 1**	harsh selective NF	5,	_⌒, NPN	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	teflon *uprox*®+	15,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	15,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	
		Ⓔx II 3 D 15 bar *uprox*®+ wash down	15,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	
		15 bar *uprox*®+ wash down	15,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	15,	⊥⌒, PNP	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®+	15,	_⌒, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®+	15,	_⌒, NPN	10...30 VDC	200 DC, Ⓚ	
		Ⓔx II 3 D 15 bar *uprox*®+ wash down	15,	_⌒, NPN	10...30 VDC	200 DC, Ⓚ	
		15 bar *uprox*®+ wash down	15,	_⌒, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	12,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®	12,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	12,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	12,	_⌒, NPN	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®	12,	_⌒, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	12,	_⌒, NPN	10...30 VDC	200 DC, Ⓚ	
		Ⓔx II 2 G SIL2	10,	NAMUR	nom. 8.2 VDC	–	
		Ⓔx II 1 G Ⓔx II 1 D SIL2	10,	NAMUR	nom. 8.2 VDC	–	
		–	8,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	
		–	8,	⊥⌒, PNP	10...65 VDC	200 DC, Ⓚ	
		–	8,	_⌒, NPN	10...30 VDC	200 DC, Ⓚ	

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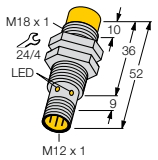
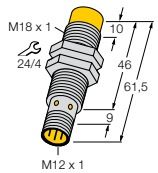
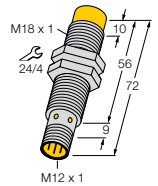
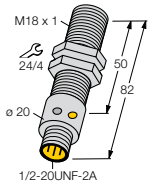
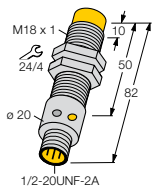
	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	BI5NF-EM18HE-AN6X2-H1141	1615004	S005	2.5	0...+60	IP67	VA	DURO	–	•	•
	NI15U-MT18-AP6X-H1141	1635333 ✘	S002	1	-30...+85	IP68	CuZn-T	LCP	–	–	•
	NI15U-M18-AP6X-H1141	1635331 ✘	S002	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
	NI15U-EM18WD-AP6X-H1141/3D	1634859 ✘	S002	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	NI15U-EM18WD-AP6X-H1141	1634818 ✘	S002	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	NI15U-M18-RP6X-H1141	1635450 ✘	S056	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
	NI15U-MT18-AN6X-H1141	1635337	S005	1	-30...+85	IP68	CuZn-T	LCP	–	–	•
	NI15U-M18-AN6X-H1141	1635335 ✘	S005	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
	NI15U-EM18WD-AN6X-H1141/3D	1634860	S005	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	NI15U-EM18WD-AN6X-H1141	1634835	S005	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	NI12U-EM18-AP6X-H1141	1645340 ✘	S002	2	-30...+85	IP68	VA	PBT	–	–	•
	NI12U-MT18-AP6X-H1141	1645240 ✘	S002	2	-30...+85	IP67	CuZn-T	PBT	–	–	•
	NI12U-M18-AP6X-H1141	1645140 ✘	S002	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
	NI12U-EM18-AN6X-H1141	1645350 ✘	S005	2	-30...+85	IP68	VA	PBT	–	–	•
	NI12U-MT18-AN6X-H1141	1645250 ✘	S005	2	-30...+85	IP67	CuZn-T	PBT	–	–	•
	NI12U-M18-AN6X-H1141	1645150 ✘	S005	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
	NI10-M18-Y1X-H1141	40153 ✘	S026	0.5	-25...+70	IP67	CuZn-Cr	PBT	–	–	•
	NI10-EM18-Y1X-H1141	1006261 ✘	S026	0.5	-25...+70	IP67	VA	PBT	–	–	•
	NI8-M18-AP6X-H1141	46147 ✘	S002	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
	NI8-M18-VP4X-H1141	15619 ✘	S008	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
	NI8-M18-AN6X-H1141	46148 ✘	S005	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M18 x 1**	–	8,	, NPN	10...65 VDC	200 DC, Ⓚ	
		–	8,	, 2-wire	10...65 VDC	100 DC, Ⓚ	
	**M18 x 1**	*uprox*®+	15,	, PNP	10...55 VDC	200 DC, Ⓚ	
		15 bar *uprox*®+ wash down	15,	, PNP	10...55 VDC	200 DC, Ⓚ	
		uprox®+	15,	, NPN	10...55 VDC	200 DC, Ⓚ	
		uprox®	12,	, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®	12,	, NPN	10...65 VDC	200 DC, Ⓚ	
	**M18 x 1**	*uprox*®	12,	, PNP	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	*uprox*®	5,		20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
	**M18 x 1**	*uprox*®	12,		20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	

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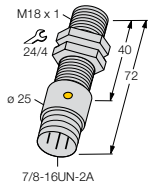
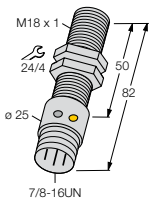
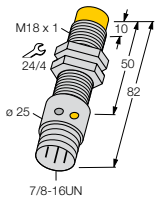
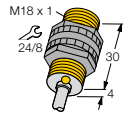
	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	NI8-M18-VN4X-H1141	15719 ✘	S011	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
	NI8-M18-AD4X-H1141	44147 ✘	S014	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
	NI15U-M18M-VP44X-H1141	1634879 ✘	S008	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
	NI15U-EM18MWD-VP44X-H1141	1634898	S008	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	NI15U-M18M-VN44X-H1141	1634883 ✘	S011	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
	NI12U-M18M-VP4X-H1141	1581458 ✘	S008	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
	NI12U-M18M-VN4X-H1141	1581552 ✘	S011	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
	NI12U-M18E-AP6X-H1141	1645143 ✘	S002	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
	BI5U-G18-ADZ30X2-B3331	4281213	S153	0.02	-30...+85	IP67	CuZn-Cr	PBT	–	•	•
	NI12U-G18-ADZ30X2-B3331	4281413	S153	0.02	-30...+85	IP67	CuZn-Cr	PA	–	•	•

✘ = Preferred solution, available at short notice

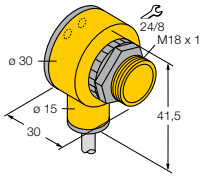
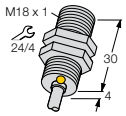
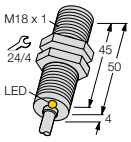
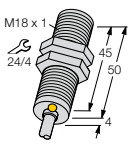
Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M18 x 1**	–	5, ▭	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		–	5, ▭	⎯⎽⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	*uprox*®	5, ▭	⎯⎽⎯	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
	**M18 x 1**	*uprox*®	12, ▭	⎯⎽⎯	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
	**M18 x 1**	Ⓔx II 2 G SIL2	5, ▭	NAMUR	nom. 8.2 VDC	–	
		Ⓔx II 2 G SIL2 T -40 °C	5, ▭	NAMUR	nom. 8.2 VDC	–	
		Ⓔx II 2 G SIL2 T +100 °C	5, ▭	NAMUR	nom. 8.2 VDC	–	
		Ⓔx II 2 G SIL2	10, ▭	NAMUR	nom. 8.2 VDC	–	
		Ⓔx II 2 G SIL2 T -40 °C	10, ▭	NAMUR	nom. 8.2 VDC	–	
		Ⓔx II 2 G SIL2 T +100 °C	10, ▭	NAMUR	nom. 8.2 VDC	–	

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED
BI5-G18-AP6X-B1341	46963 ✘	S002	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI5-G18-AN6X-B1341	46952 ✘	S005	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI5U-G18-ADZ30X2-B1331	4281212 ✘	S153	0.02	-30...+85	IP67	CuZn-Cr	PBT	–	•	•
NI12U-G18-ADZ30X2-B1331	4281412 ✘	S153	0.02	-30...+85	IP67	CuZn-Cr	PBT	–	•	•
BI5-P18-Y1X	40350 ✘	S025	1	-25...+70	IP67	PA	PA	PVC 2 m	–	•
BI5-P18-Y1X/S97	4035001	S025	1	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
BI5-P18-Y1/S100	10245 ✘	S025	1	-25...+100	IP67	PA	PA	PVC 2 m	–	–
NI10-P18-Y1X	40351 ✘	S025	0.5	-25...+70	IP67	PA	PA	PVC 2 m	–	•
NI10-P18-Y1X/S97	4035121	S025	0.5	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
NI10-P18-Y1/S100	10317 ✘	S025	0.5	-25...+100	IP67	PA	PA	PVC 2 m	–	–

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M18 x 1**	*uprox*®	5, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	–	7, ▭	⎯◺⎯, 2-wire	10...65 VDC	100 DC, Ⓚ	
		Ⓔx II 2 G SIL2	5, ▭	NAMUR	nom. 8.2 VDC	–	
		Ⓔx II 1 G Ⓔx II 1 D SIL2 T +100 °C	5, ▭	NAMUR	nom. 8.2 VDC	–	
		–	5, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		–	5, ▭	⎯◺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	*uprox*®+	8, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	8, ▭	⎯◺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		–	7, ▭	⎯◺⎯, 2-wire	10...65 VDC	100 DC, Ⓚ	
		uprox®	5, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	5, ▭	⎯◺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		–	5, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		T +100 °C	5, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		–	5, ▭	⎯◺⎯, PNP	10...65 VDC	200 DC, Ⓚ	
		–	5, ▭	⎯◺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		–	5, ▭	⎯◺⎯, NPN	10...65 VDC	200 DC, Ⓚ	
		–	5, ▭	⎯◺⎯, 2-wire	10...65 VDC	100 DC, Ⓚ	
	**M18 x 1**	*uprox*®	5, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	5, ▭	⎯◺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		–	5, ▭	⎯◺⎯, PNP	10...65 VDC	200 DC, Ⓚ	
		–	5, ▭	⎯◺⎯, NPN	10...65 VDC	200 DC, Ⓚ	

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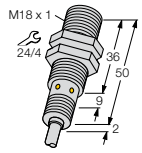
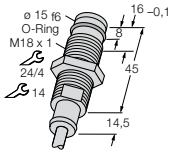
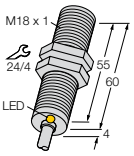
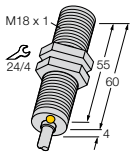
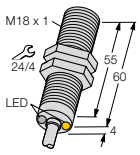
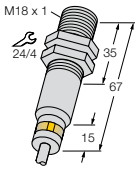
	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	BI5U-T18-AP6X2/S90	1635135 ✘	S001	2	-30...+85	IP68	PBT	PBT	PUR 2 m	•	•
	BI7-G18K-AD4X	4414540 ✘	S013	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
	BI5-G18-Y1X	40150 ✘	S025	1	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
	BI5-EG18-Y1X/S100 7M	4012007 ✘	S025	1	-25...+100	IP67	VA	PA	PVC 7 m	–	•
	BI5-G18K-AP6X	46704 ✘	S001	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
	BI5-G18K-AN6X	46714	S004	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
	BI8U-M18-AP6X	1644733 ✘	S001	1.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
	BI8U-M18-AN6X	1644736	S004	1.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
	BI7-M18-AD4X	4414535 ✘	S013	1	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
	BI5U-M18-AP6X	1635100 ✘	S001	2.5	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
	BI5U-M18-AN6X	1635120 ✘	S004	2.5	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
	BI5-M18-AP6X	46110 ✘	S001	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
	BI5-M18-AP6X/S100	4611004 ✘	S001	0.5	-25...+100	IP67	CuZn-Cr	PA-X	PVC 2 m	–	•
	BI5-M18-VP4X	15611 ✘	S007	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
	BI5-M18-AN6X	46111 ✘	S004	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
	BI5-M18-VN4X	15711 ✘	S010	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
	BI5-M18-AD4X	44110 ✘	S013	1	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
	BI5U-EM18-AP6X	1635300 ✘	S001	2.5	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
	BI5U-EM18-AN6X	1635320 ✘	S004	2.5	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
	BI5-EM18-VP4X 7M	1561130 ✘	S007	0.5	-25...+70	IP67	VA	PA	PVC 7 m	–	•
	BI5-EM18-VN4X 7M	1561131	S010	0.5	-25...+70	IP67	VA	PA	PVC 7 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M18 x 1**	15 bar *uprox*®+ wash down	8,	, PNP	10...30 VDC	200 DC, Ⓚ	
		15 bar *uprox*®+ wash down	8,	, NPN	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	500 bar	2,	, PNP	10...30 VDC	200 DC, Ⓚ	
		100 bar	2,	, PNP	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	–	5,		20...250 VAC 10...300 VDC	400 AC 300 DC	
	**M18 x 1**	*uprox*®+	8,	, PNP	10...55 VDC	200 DC, Ⓚ	
		uprox®+	8,	, NPN	10...55 VDC	200 DC, Ⓚ	
		uprox®	5,	, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®	5,	, NPN	10...65 VDC	200 DC, Ⓚ	
	**M18 x 1**	*uprox*®	5,		20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
	**M18 x 1**	15 bar wash down T -60 °C	5,	, PNP	10...30 VDC	200 DC, Ⓚ	

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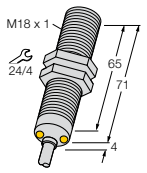
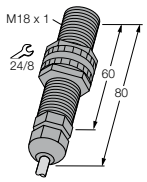
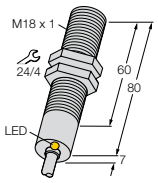
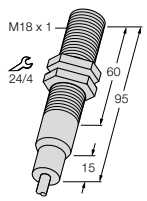
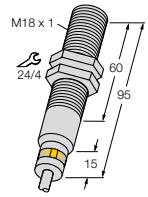
	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	BI8U-EM18WD-AP6X	1634815 ✘	S001	1.5	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
	BI8U-EM18WD-AN6X	1634840	S004	1.5	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
	BID2-G180-AP6/S212	1688003 ✘	S001	2	-25...+70	IP67	VA	PA	PVC 2 m	–	–
	BID2-G180-AP6/S220	16880	S001	2	-25...+70	IP67	VA	PA	PVC 2 m	–	–
	BI5-M18-AZ3X	43104 ✘	S155	0.02	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
	BI8U-M18M-VP44X	1634876 ✘	S007	1.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
	BI8U-M18M-VN44x	1634880	S010	1.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
	BI5U-M18M-VP4X	1581201 ✘	S007	2.5	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
	BI5U-M18M-VN4X	1581310	S010	2.5	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
	BI5U-M18-ADZ30X2	4282210 ✘	S155	0.02	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
	BI5-EM18WD-AP6X/S929	4614902	S001	1	-60...+60	IP68 / IP69K	VA	PTFE	FEP 2 m	–	•

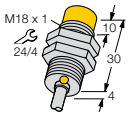
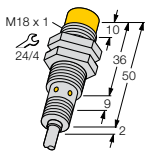
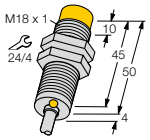
✘ = Preferred solution, available at short notice

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M18 x 1**	rotation monitoring	5, ⊐	⎽◺⎽, PNP	10...65 VDC	200 DC, Ⓚ	
		rotation monitoring	5, ⊐	⎽◺⎽, PNP	10...65 VDC	200 DC, Ⓚ	
		rotation monitoring	5, ⊐	⎽◺⎽, PNP	10...65 VDC	200 DC, Ⓚ	
		rotation monitoring	5, ⊐	⎽◺⎽, PNP	10...65 VDC	200 DC, Ⓚ	
	**M18 x 1**	underwater	5, ⊐	⎽◺⎽, PNP	10...30 VDC	200 DC, Ⓚ	
		underwater	5, ⊐	⎽◺⎽, NPN	10...30 VDC	200 DC, Ⓚ	
		underwater	5, ⊐	⎽◺⎽	20...250 VAC 10...300 VDC	400 AC 300 DC	
		Ⓔx II 2 G SIL2 underwater	8, ⊐	NAMUR	nom. 8.2 VDC	–	
		underwater	8, ⊐	⎽◺⎽, PNP	10...30 VDC	200 DC, Ⓚ	
		underwater	8, ⊐	⎽◺⎽, NPN	10...30 VDC	200 DC, Ⓚ	
		underwater	8, ⊐	⎽◺⎽	20...250 VAC 10...300 VDC	400 AC 300 DC	
	**M18 x 1**	–	5, ⊐	⎽◺⎽, PNP	10...30 VDC	200 DC, Ⓚ	
		–	5, ⊐	⎽◺⎽	20...250 VAC	400 AC	
	**M18 x 1**	10 bar T +160 °C	5, ⊐	⎽◺⎽, PNP	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	*uprox*®+	8, ⊐	⎽◺⎽, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	8, ⊐	⎽◺⎽, NPN	10...30 VDC	200 DC, Ⓚ	
		T +120 °C wash down	5, ⊐	⎽◺⎽, PNP	10...30 VDC	200 DC, Ⓚ	

	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	DBI5U-M18E-AP4X3	1582236 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
	DBI5U-M18E-AP4X2 500/MIN	1582229	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
	DTBI5U-M18E-AP4X3	1582237 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
	DBI5U-M18E-AP4X2 50/MIN	1582239 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
	BI5-P18-AP6/S139-S90	1660350	S001	0.5	-25...+70	IP68	POM	POM	PUR 2 m	–	–
	BI5-P18-AN6/S139-S90	1660351	S004	0.5	-25...+70	IP68	POM	POM	PUR 2 m	–	–
	BI5-P18-AZ3/S139-S90	13843	S092	0.02	-25...+70	IP68	POM	POM	PUR 2 m	–	–
	NI8-P18-Y1/S139	1072501	S025	1	-25...+70	IP68	POM	POM	PVC 2 m	–	–
	NI8-P18-AP6/S139-S90	1650082	S001	0.5	-25...+70	IP68	POM	POM	PUR 2 m	–	–
	NI8-P18-AN6/S139-S90	1650083	S004	0.5	-25...+70	IP68	POM	POM	PUR 2 m	–	–
	NI8-P18-AZ3/S139-S90	1350002	S092	0.02	-25...+70	IP68	POM	POM	PUR 2 m	–	–
	BI5-M18-AP6X/S120	4611030 ✘	S001	0.1	–	–	CuZn-Cr	PA	Silic. 2 m	–	•
	BI5-M18-AZ3X/S120	4310410 ✘	S092	0.02	–	–	CuZn-Cr	PA	PTFE 2 m	–	•
	BI5-EM18-AP6/S907	4617425 ✘	S001	0.2	-25...+160	IP68 / IP69K	VA	PEEK	PTFE 2 m	–	–
	BI8U-M18E-AP6X-H1141	1644735 ✘	S002	1.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
	BI8U-M18E-AN6X-H1141	1644751	S005	1.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
	BI5-EM18D-VP6X/S120	4614900 ✘	S007	0.1	-25...+120	IP68 / IP69K	VA	PTFE	PTFE 2 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M18 x 1**	Ex II 2 G SIL2	14, ▭	NAMUR	nom. 8.2 VDC	–	
	▭—	Ex II 1 G Ex II 1 D SIL2 T +100 °C	10, ▭	NAMUR	nom. 8.2 VDC	–	
		Ex II 2 G SIL2	10, ▭	NAMUR	nom. 8.2 VDC	–	
		–	10, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
		–	10, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	15 bar *uprox*®+ wash down	15, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
	▭—	15 bar *uprox*®+ wash down	15, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	*uprox*®+	15, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	15, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ	
	▭—	*uprox*®	12, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	12, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	12, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	12, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ	
		–	8, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
		–	8, ▭	⎯◺, PNP	10...65 VDC	200 DC, Ⓚ	
		–	8, ▭	⎯◺, PNP	10...65 VDC	200 DC, Ⓚ	
		T +100 °C	8, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
		–	8, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ	
		–	8, ▭	⎯◺, NPN	10...65 VDC	200 DC, Ⓚ	
		–	8, ▭	⎯◺, NPN	10...65 VDC	200 DC, Ⓚ	
		–	8, ▭	⎯◺, 2-wire	10...65 VDC	100 DC, Ⓚ	

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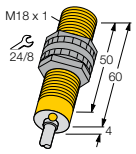
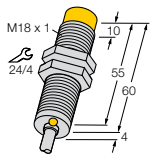
	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	NI14-G18-Y1X	4015401	S025	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
	NI10-EG18-Y1X/S100 7M	4012006 ✘	S025	0.5	-25...+100	IP67	VA	PA	PVC 7 m	–	•
	NI10-G18-Y1X	40151 ✘	S025	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
	NI10-G18K-AP6X	46705 ✘	S001	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
	NI10-G18K-AN6X	46715	S004	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
	NI15U-EM18WD-AP6X	1634817 ✘	S001	1	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
	NI15U-EM18WD-AN6X	1634836	S004	1	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
	NI15U-M18-AP6X	1635330 ✘	S001	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
	NI15U-M18-AN6X	1635334	S004	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
	NI12U-M18-AP6X	1645100 ✘	S001	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
	NI12U-EM18-AP6X	1645300 ✘	S001	2	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
	NI12U-M18-AN6X	1645120 ✘	S004	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
	NI12U-EM18-AN6X	1645320 ✘	S004	2	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
	NI8-M18-AP6X	46112 ✘	S001	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
	NI8-M18-VP4X	15612 ✘	S007	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
	NI8-EM18-VP4X 7M	1561133 ✘	S007	0.5	-25...+70	IP67	VA	PA	PVC 7 m	–	•
	NI8-M18-AP6X/S100	4611201 ✘	S001	0.5	-25...+100	IP67	CuZn-Cr	PA-X	PVC 2 m	–	•
	NI8-M18-AN6X	46113 ✘	S004	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
	NI8-M18-VN4X	15712 ✘	S010	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
	NI8-EM18-VN4X 7M	1561132	S010	0.5	-25...+70	IP67	VA	PA	PVC 7 m	–	•
	NI8-M18-AD4X	44112 ✘	S013	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M18 x 1**	*uprox*®	5,	, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	5,	, NPN	10...30 VDC	200 DC, Ⓚ	
		–	5,	, PNP	10...30 VDC	200 DC, Ⓚ	
		T –40 °C	5,	, PNP	10...65 VDC	200 DC, Ⓚ	
		T +100 °C	5,	, PNP	10...65 VDC	200 DC, Ⓚ	
		–	5,	, NPN	10...30 VDC	200 DC, Ⓚ	
		–	5,	, 2-wire	10...65 VDC	100 DC, Ⓚ	
		–	5,		20...250 VAC 10...300 VDC	400 AC 300 DC	
		T –40 °C	5,		20...250 VAC 10...300 VDC	400 AC 300 DC	
		T +100 °C	5,		20...250 VAC 10...300 VDC	400 AC 300 DC	
		uprox®	12,	, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	12,	, NPN	10...30 VDC	200 DC, Ⓚ	
		–	8,	, PNP	10...30 VDC	200 DC, Ⓚ	
		T –40 °C	8,	, PNP	10...65 VDC	200 DC, Ⓚ	
		T +100 °C	8,	, PNP	10...65 VDC	200 DC, Ⓚ	
		–	8,	, NPN	10...30 VDC	200 DC, Ⓚ	
		–	8,	, 2-wire	10...65 VDC	100 DC, Ⓚ	
		–	8,		20...250 VAC 10...300 VDC	400 AC 300 DC	
		T –40 °C	8,		20...250 VAC 10...300 VDC	400 AC 300 DC	
		T +100 °C	8,		20...250 VAC 10...300 VDC	400 AC 300 DC	
	**M18 x 1**	*uprox*®+	15,	, PNP	10...55 VDC	200 DC, Ⓚ	
		uprox®+	15,	, NPN	10...55 VDC	200 DC, Ⓚ	
		uprox®	12,	, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®	12,	, NPN	10...65 VDC	200 DC, Ⓚ	
		uprox®	12,		20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
		–	8,		20...250 VAC 10...300 VDC	400 AC 300 DC	

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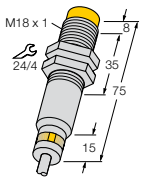
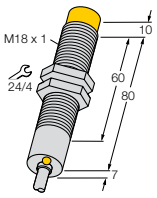
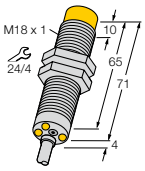
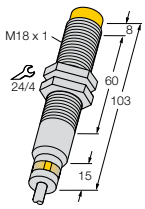
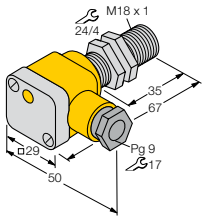
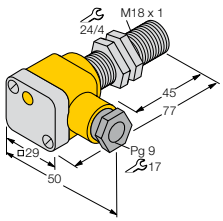
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI5U-S18-AP6X	1635500 ✘	S001	2.5	-30...+85	IP68	PBT	PBT	PVC 2 m	–	•
BI5U-S18-AN6X	1635520	S004	2.5	-30...+85	IP68	PBT	PBT	PVC 2 m	–	•
BI5-S18-AP6X	46560 ✘	S001	1	-25...+70	IP67	PA	PA	PVC 2 m	–	•
BI5-S18-VP4X/S97	1513420	S007	0.5	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
BI5-S18-VP4X/S100	1513402	S007	0.5	-25...+100	IP67	PA	PA	PVC 2 m	–	•
BI5-S18-AN6X	46561 ✘	S004	0.5	-25...+70	IP67	PA	PA	PVC 2 m	–	•
BI5-S18-AD4X	44560 ✘	S013	1	-25...+70	IP67	PA	PA	PVC 2 m	–	•
BI5-S18-AZ3X	43504 ✘	S092	0.02	-25...+70	IP67	PA	PA	PVC 2 m	–	•
BI5-S18-AZ3X/S97	1373410	S092	0.02	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
BI5-S18-AZ3X/S100	13734 ✘	S092	0.02	-25...+100	IP67	PA	PA	PVC 2 m	–	•
NI12U-S18-AP6X	1645500 ✘	S001	2	-30...+85	IP68	PBT	PBT	PVC 2 m	–	•
NI12U-S18-AN6X	1645520	S004	2	-30...+85	IP68	PBT	PBT	PVC 2 m	–	•
NI8-S18-AP6X	46562 ✘	S001	0.5	-25...+70	IP67	PA	PA	PVC 2 m	–	•
NI8-S18-VP4X/S97	1513512	S007	0.5	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
NI8-S18-VP4X/S100	1513510	S007	0.5	-25...+100	IP67	PA	PA	PVC 2 m	–	•
NI8-S18-AN6X	46563 ✘	S004	0.5	-25...+70	IP67	PA	PA	PVC 2 m	–	•
NI8-S18-AD4X	44562 ✘	S013	0.5	-25...+70	IP67	PA	PA	PVC 2 m	–	•
NI8-S18-AZ3X	43505 ✘	S092	0.02	-25...+70	IP67	PA	PA	PVC 2 m	–	•
NI8-S18-AZ3X/S97	1371803	S092	0.02	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
NI8-S18-AZ3X/S100	13718 ✘	S092	0.02	-25...+100	IP67	PA	PA	PVC 2 m	–	•
NI15U-M18M-VP44X	1634878 ✘	S007	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
NI15U-M18M-VN44X	1634882	S010	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
NI12U-M18M-VP4X	1581403 ✘	S007	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
NI12U-M18M-VN4X	1581501	S010	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
NI12U-M18-ADZ30X2	4282410 ✘	S155	0.02	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
NI8-M18-AZ3X	43105 ✘	S155	0.02	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M18 x 1**	15 bar wash down T –60 °C	7,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	T +120 °C	8,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
		T +120 °C	8,	_⌒_	20...250 VAC	400 AC	
	**M18 x 1**	rotation monitoring	12,	_⌒_, PNP	10...65 VDC	200 DC, Ⓚ	
		rotation monitoring	12,	_⌒_, PNP	10...65 VDC	200 DC, Ⓚ	
	**M18 x 1**	T +160 °C	8,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
		T +120 °C wash down	7,	⊼⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	Ⓔx II 2 G SIL2	5,	NAMUR	nom. 8.2 VDC	–	
	**M18 x 1**	*uprox*®	5,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	5,	⊼⌒_, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®	5,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	5,	⊼⌒_, NPN	10...65 VDC	200 DC, Ⓚ	
		–	5,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
		–	5,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ	

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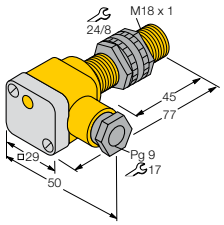
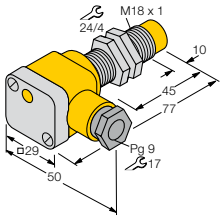
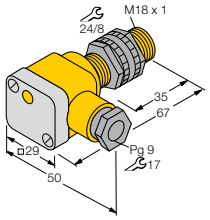
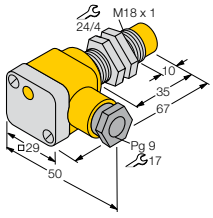
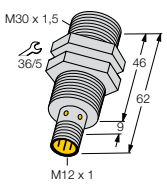
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI7-EM18WD-AP6X/S929	4632001	S001	1	-60...+60	IP68 / IP69K	VA	PTFE	FEP 2 m	–	•
NI8-M18-AP6X/S120	4611230 ✘	S001	0.1	-25...+120	IP67	CuZn-Cr	PA	Silic. 2 m	–	•
NI8-M18-AZ3X/S120	4310530 ✘	S092	0.02	-25...+120	IP67	CuZn-Cr	PA	PTFE 2 m	–	•
DNI12U-M18E-AP4X3	1582235 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
DTNI12U-M18E-AP4X3	1582234 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
NI8-EM18-AP6/S907	4611231 ✘	S001	0.2	-25...+160	IP68 / IP69K	VA	PEEK	PTFE 2 m	–	–
NI7-EM18D-VP6X/S120	4632100 ✘	S007	0.1	-25...+120	IP68 / IP69K	VA	PTFE	PTFE 2 m	–	•
BI5-G18SK-Y1X	40160 ✘	S027	1	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI5U-EG18SK-AP6X	1635400 ✘	S003	2.5	-30...+85	IP68	VA	PBT	–	–	•
BI5U-EG18SK-VP4X	1581601 ✘	S009	2.5	-30...+85	IP68	VA	PBT	–	–	•
BI5U-EG18SK-AN6X	1635420	S006	2.5	-30...+85	IP68	VA	PBT	–	–	•
BI5U-EG18SK-VN4X	1581701	S012	2.5	-30...+85	IP68	VA	PBT	–	–	•
BI5-G18SK-AP6X	46420 ✘	S003	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI5-G18SK-AN6X	46421	S006	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**M18 x 1**	*uprox*®	5,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	5,	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ
		–	5,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ
		–	5,	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®	12,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	12,	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ
		–	10,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ
		–	10,	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ
	**M18 x 1**	*uprox*®	12,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	12,	⎯⎺⎯, PNP	10...65 VDC	200 DC, Ⓚ
		uprox®	12,	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®	12,	⎯⎺⎯, NPN	10...65 VDC	200 DC, Ⓚ
		–	10,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ
		–	10,	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ
	**M18 x 1**	Ⓔx II 2 G SIL2	5,	NAMUR	nom. 8.2 VDC	–
		Ⓔx II 2 G SIL2	10,	NAMUR	nom. 8.2 VDC	–
	**M18 x 1**	Ⓔx II 1 G Ⓔx II 1 D SIL2	10,	NAMUR	nom. 8.2 VDC	–
		Ⓔx II 2 G SIL2	10,	NAMUR	nom. 8.2 VDC	–
	**M30 x 1,5**	*uprox*®+	15,	⎯⎺⎯, PNP	10...55 VDC	200 DC, Ⓚ
		10 bar *uprox*®+ wash down	15,	⎯⎺⎯, PNP	10...55 VDC	200 DC, Ⓚ
		uprox®+	15,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ
		teflon *uprox*®+	15,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ

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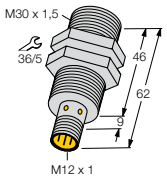
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI5U-P18SK-AP6X	1635700 ✘	S003	3	-30...+85	IP68	PBT	PBT	–	–	•
BI5U-P18SK-AN6X	1635720	S006	3	-30...+85	IP68	PBT	PBT	–	–	•
BI5-P18SK-AP6X	46565 ✘	S003	0.5	-25...+70	IP67	PA	PA	–	–	•
BI5-P18SK-AN6X	46566	S006	0.5	-25...+70	IP67	PA	PA	–	–	•
NI12U-P18SK-AP6X	1645700 ✘	S003	2	-30...+85	IP68	PBT	PBT	–	–	•
NI12U-P18SK-AN6X	1645720	S006	2	-30...+85	IP68	PBT	PBT	–	–	•
NI10-P18SK-AP6X	46567 ✘	S003	0.5	-25...+70	IP67	PA	PA	–	–	•
NI10-P18SK-AN6X	46568 ✘	S006	0.5	-25...+70	IP67	PA	PA	–	–	•
NI12U-EG18SK-AP6X	1645400 ✘	S003	2	-30...+85	IP68	VA	PBT	–	–	•
NI12U-EG18SK-VP4X	1581801 ✘	S009	2	-30...+85	IP68	VA	PBT	–	–	•
NI12U-EG18SK-AN6X	1645420	S006	2	-30...+85	IP68	VA	PBT	–	–	•
NI12U-EG18SK-VN4X	1581901	S012	2	-30...+85	IP68	VA	PBT	–	–	•
NI10-G18SK-AP6X	46422 ✘	S003	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
NI10-G18SK-AN6X	46423 ✘	S006	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI5-P18SK-Y1X	40360 ✘	S027	1	-25...+70	IP67	PA	PA	–	–	•
NI10-P18SK-Y1X	40361 ✘	S027	0.5	-25...+70	IP67	PA	PA	–	–	•
NI10-EG18SK-Y1X	4012150 ✘	S027	0.5	-25...+70	IP67	VA	PA	–	–	•
NI10-G18SK-Y1X	40161 ✘	S027	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI15U-M30-VP44X-H1141	1634885 ✘	S008	0.75	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI15U-EM30WD-VP44X-H1141	1634899	S008	0.75	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI15U-M30-AP6X-H1141	1636732 ✘	S002	0.75	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI15U-MT30-AP6X-H1141	1636734 ✘	S002	0.75	-30...+85	IP68	CuZn-T	LCP	–	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style	Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
 **M30 x 1,5**	10 bar *uprox*®+ wash down	15,	, PNP	10...30 VDC	200 DC, Ⓚ	
	Ex II 3 G Ex II 3 D 10 bar *uprox*®+ wash down	15,	, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®+	15,	, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®+	15,	, NPN	10...30 VDC	200 DC, Ⓚ	
	teflon *uprox*®+	15,	, NPN	10...30 VDC	200 DC, Ⓚ	
	10 bar *uprox*®+ wash down	15,	, NPN	10...30 VDC	200 DC, Ⓚ	
	Ex II 3 G Ex II 3 D 10 bar *uprox*®+ wash down	15,	, NPN	10...30 VDC	200 DC, Ⓚ	
	uprox®+	15,	, NPN	10...55 VDC	200 DC, Ⓚ	
	Sn +	15,	, PNP	10...30 VDC	200 DC, Ⓚ	
	Sn +	15,	, NPN	10...30 VDC	200 DC, Ⓚ	
	–	12,	, 2-wire	10...65 VDC	100 DC, Ⓚ	
	uprox®	10,	, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®	10,	, PNP	10...30 VDC	200 DC, Ⓚ	
	teflon *uprox*®	10,	, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®	10,	, PNP	10...65 VDC	200 DC, Ⓚ	
	uprox®	10,	, NPN	10...30 VDC	200 DC, Ⓚ	
	uprox®	10,	, NPN	10...30 VDC	200 DC, Ⓚ	
	teflon *uprox*®	10,	, NPN	10...30 VDC	200 DC, Ⓚ	
	uprox®	10,	, NPN	10...65 VDC	200 DC, Ⓚ	
	Ex II 2 G SIL2	10,	NAMUR	nom. 8.2 VDC	–	
	Ex II 1 G Ex II 1 D SIL2		NAMUR	nom. 8.2 VDC	–	
	–	10,	, PNP	10...30 VDC	200 DC, Ⓚ	
	–	10,	, PNP	10...65 VDC	200 DC, Ⓚ	
	–	10,	, NPN	10...30 VDC	200 DC, Ⓚ	
	–	10,	, NPN	10...65 VDC	200 DC, Ⓚ	
	–	10,	, 2-wire	10...65 VDC	100 DC, Ⓚ	

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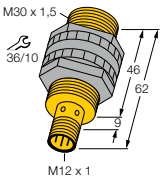
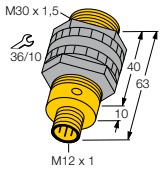
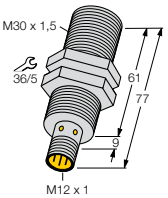
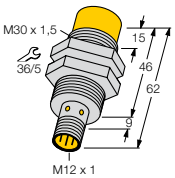
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI15U-EM30WD-AP6X-H1141	1634820 ✘	S002	0.75	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI15U-EM30WD-AP6X-H1141/ 3GD	1634855 ✘	S002	0.75	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
Bi15U-M30-RP6X-H1141	1636739 ✘	S056	0.75	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI15U-M30-AN6X-H1141	1636736 ✘	S005	0.75	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI15U-MT30-AN6X-H1141	1636738	S005	0.75	-30...+85	IP68	CuZn-T	LCP	–	–	•
BI15U-EM30WD-AN6X-H1141	1634834	S005	0.75	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI15U-EM30WD-AN6X-H1141/ 3GD	1634856	S005	0.75	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI15U-M30-VN44X-H1141	1634889 ✘	S011	0.75	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI15-M30-AP6X-H1141	46185 ✘	S002	0.3	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI15-M30-AN6X-H1141	4618600	S005	0.3	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI12-M30-AD4X-H1141	4417041 ✘	S014	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI10U-M30-AP6X-H1141	1636140 ✘	S002	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
BI10U-EM30-AP6X-H1141	1636340 ✘	S002	2	-30...+85	IP68	VA	PBT	–	–	•
BI10U-MT30-AP6X-H1141	1636240 ✘	S002	0.25	-30...+85	IP67	CuZn-T	PBT	–	–	•
BI10U-M30-VP4X-H1141	1582253 ✘	S008	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
BI10U-M30-AN6X-H1141	1636150 ✘	S005	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
BI10U-EM30-AN6X-H1141	1636350 ✘	S005	2	-30...+85	IP68	VA	PBT	–	–	•
BI10U-MT30-AN6X-H1141	1636250	S005	2	-30...+85	IP67	CuZn-T	PBT	–	–	•
BI10U-M30-VN4X-H1141	1582352	S011	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
BI10-M30-Y1X-H1141	40202 ✘	S026	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI10-EM30-Y1X-H1141	4020205 ✘	S026	0.5	-25...+70	IP67	VA	PA	–	–	•
BI10-M30-AP6X-H1141	46175 ✘	S002	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI10-M30-VP4X-H1141	15616 ✘	S008	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI10-M30-AN6X-H1141	46176 ✘	S005	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI10-M30-VN4X-H1141	15716	S011	2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI10-M30-AD4X-H1141	44175 ✘	S014	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M30 x 1,5**	*uprox*®	10,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	10,	_⌒, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	20,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	20,	_⌒, NPN	10...30 VDC	200 DC, Ⓚ	
	**M30 x 1,5**	–	10,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	
		–	10,	_⌒, NPN	10...30 VDC	200 DC, Ⓚ	
	**M30 x 1,5**	harsh selective NF	10,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	
		harsh selective NF	10,	_⌒, NPN	10...30 VDC	200 DC, Ⓚ	
	**M30 x 1,5**	*uprox*®+	30,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®+	30,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	
		Ⓔx II 3 D 10 bar *uprox*®+ wash down	30,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	30,	⊐⌒, PNP	10...55 VDC	200 DC, Ⓚ	
		10 bar *uprox*®+ wash down	30,	⊐⌒, PNP	10...55 VDC	200 DC, Ⓚ	
		uprox®+	30,	⊥⌒, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	30,	_⌒, NPN	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®+	30,	_⌒, NPN	10...30 VDC	200 DC, Ⓚ	
		Ⓔx II 3 D 10 bar *uprox*®+ wash down	30,	_⌒, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®+	30,	⊐⌒, NPN	10...55 VDC	200 DC, Ⓚ	
		uprox®	20,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	20,	_⌒, PNP	10...30 VDC	200 DC, Ⓚ	

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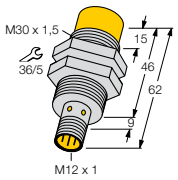
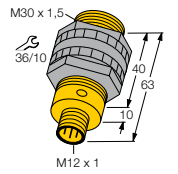
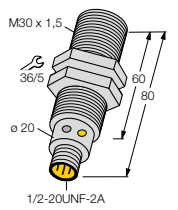
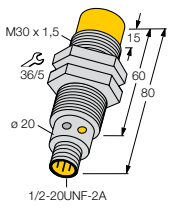
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI10U-S30-AP6X-H1141	1636600 ✘	S002	2	-30...+85	IP68	PBT	PA	–	–	•
BI10U-S30-AN6X-H1141	1636620	S005	2	-30...+85	IP68	PBT	PA	–	–	•
NI20U-S30-AP6X-H1141	1646600 ✘	S002	1.5	-30...+85	IP68	PBT	PA	–	–	•
NI20U-S30-AN6X-H1141	1646620	S005	1.5	-30...+85	IP68	PBT	PA	–	–	•
BI10-S30-AP6X-H1141	46580 ✘	S002	0.5	-25...+70	IP67	PA	PA	–	–	•
BI10-S30-AN6X-H1141	46581	S005	0.5	-25...+70	IP67	PA	PA	–	–	•
BI10NF-EM30HE-AP6X2-H1141	1615002 ✘	S002	2	0...+60	IP67	VA	DURO	–	•	•
BI10NF-EM30HE-AN6X2-H1141	1615005	S005	2	0...+60	IP67	VA	DURO	–	•	•
NI30U-M30-AP6X-H1141	1646631 ✘	S002	0.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI30U-MT30-AP6X-H1141	1646633 ✘	S002	0.5	-30...+85	IP68	CuZn-T	LCP	–	–	•
NI30U-EM30WD-AP6X-H1141/3D	1634861 ✘	S002	0.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI30U-M30-VP44X-H1141	1634887 ✘	S008	0.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI30U-EM30WD-VP44X-H1141	1634904	S008	0.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI30U-M30-RP6X-H1141	1646636 ✘	S056	0.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI30U-M30-AN6X-H1141	1644635 ✘	S005	0.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI30U-MT30-AN6X-H1141	1644637	S005	0.5	-30...+85	IP68	CuZn-T	LCP	–	–	•
NI30U-EM30WD-AN6X-H1141/3D	1634862	S005	0.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI30U-M30-VN44X-H1141	1634891 ✘	S011	0.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI20U-M30-AP6X-H1141	1646140 ✘	S002	1.5	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
NI20U-EM30-AP6X-H1141	1646340 ✘	S002	1.5	-30...+85	IP68	VA	PBT	–	–	•

✘ = Preferred solution, available at short notice

2

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M30 x 1,5**	teflon *uprox*®	20, ▭	⎯⎽, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	20, ▭	⎯⎽, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®	20, ▭	⎯⎽, NPN	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®	20, ▭	⎯⎽, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	20, ▭	⎯⎽, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	20, ▭	⎯⎽, NPN	10...65 VDC	200 DC, Ⓚ	
		–	20, ▭	⎯⎽, 2-wire	10...65 VDC	100 DC, Ⓚ	
		Ⓔx II 2 G SIL2	15, ▭	NAMUR	nom. 8.2 VDC	–	
		Ⓔx II 1 G Ⓔx II 1 D SIL2	15, ▭	NAMUR	nom. 8.2 VDC	–	
		–	15, ▭	⎯⎽, PNP	10...30 VDC	200 DC, Ⓚ	
		–	15, ▭	⎯⎽, PNP	10...65 VDC	200 DC, Ⓚ	
		–	15, ▭	⎯⎽, NPN	10...30 VDC	200 DC, Ⓚ	
		–	15, ▭	⎯⎽, 2-wire	10...65 VDC	100 DC, Ⓚ	
	**M30 x 1,5**	–	15, ▭	⎯⎽, PNP	10...30 VDC	200 DC, Ⓚ	
		–	15, ▭	⎯⎽, NPN	10...30 VDC	200 DC, Ⓚ	
	**M30 x 1,5**	*uprox*®	10, ▭	⎯⎽	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
	**M30 x 1,5**	*uprox*®	20, ▭	⎯⎽	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	

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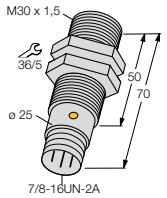
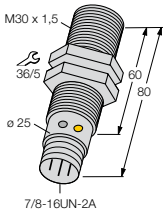
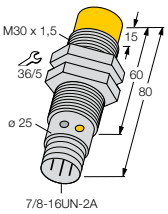
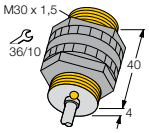
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI20U-MT30-AP6X-H1141	1646240 ✘	S002	1.5	-30...+85	IP67	CuZn-T	PBT	–	–	•
NI20U-M30-VP4X-H1141	1582457 ✘	S008	1.5	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
NI20U-M30-AN6X-H1141	1646150 ✘	S005	1.5	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
NI20U-MT30-AN6X-H1141	1646250	S005	1.5	-30...+85	IP67	CuZn-T	PBT	–	–	•
NI20U-EM30-AN6X-H1141	1646350	S005	1.5	-30...+85	IP68	VA	PBT	–	–	•
NI20U-M30-VN4X-H1141	1582552	S011	1.5	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
NI20-M30-AD4X-H1141	4466141 ✘	S014	0.2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
NI15-M30-Y1X-H1141	40203 ✘	S026	0.2	-25...+70	IP67	CuZn-Cr	PBT	–	–	•
NI15-EM30-Y1X-H1141	1006260 ✘	S026	0.2	-25...+70	IP67	VA	PA	–	–	•
NI15-M30-AP6X-H1141	46177 ✘	S002	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
NI15-M30-VP4X-H1141	15617 ✘	S008	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
NI15-M30-AN6X-H1141	46178 ✘	S005	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
NI15-M30-AD4X-H1141	44177 ✘	S014	0.2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
NI15-S30-AP6X-H1141	46582 ✘	S002	0.5	-25...+70	IP67	PA	PA	–	–	•
NI15-S30-AN6X-H1141	46583	S005	0.5	-25...+70	IP67	PA	PA	–	–	•
BI10U-G30-ADZ30X2-B3131	4281613	S153	0.02	-30...+85	IP67	CuZn-Cr	PBT	–	•	•
NI20U-G30-ADZ30X2-B3131	4281813	S153	0.02	-30...+85	IP67	CuZn-Cr	PBT	–	•	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M30 x 1,5**	–	10, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		–	10, ▭	⎯◺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	**M30 x 1,5**	*uprox*®	10, ▭	⎯◺⎯	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
	**M30 x 1,5**	*uprox*®	20, ▭	⎯◺⎯	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
	**M30 x 1,5**	Ⓔx II 2 G SIL2	10, ▭	NAMUR	nom. 8.2 VDC	–	
		Ⓔx II 2 G SIL2 T –40 °C	10, ▭	NAMUR	nom. 8.2 VDC	–	
		Ⓔx II 2 G SIL2 T +100 °C	10, ▭	NAMUR	nom. 8.2 VDC	–	
		Ⓔx II 2 G SIL2	15, ▭	NAMUR	nom. 8.2 VDC	–	
		Ⓔx II 2 G SIL2 T –40 °C	15, ▭	NAMUR	nom. 8.2 VDC	–	
		Ⓔx II 2 G SIL2 T +100 °C	15, ▭	NAMUR	nom. 8.2 VDC	–	

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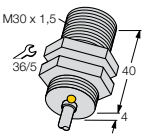
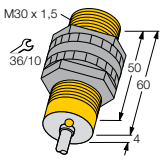
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI10-G30-AP6X-B1141	46965 ✘	S002	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI10-G30-AN6X-B1141	46954	S005	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI10U-G30-ADZ30X2-B1131	4281612	S153	0.02	-30...+85	IP67	CuZn-Cr	PBT	–	•	•
NI20U-G30-ADZ30X2-B1131	4281812	S153	0.02	-30...+85	IP67	CuZn-Cr	PBT	–	•	•
BI10-P30-Y1X	40400 ✘	S025	0.5	-25...+70	IP67	PA	PA	PVC 2 m	–	•
BI10-P30-Y1X/S97	1023322	S025	0.5	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
BI10-P30-Y1/S100	10233 ✘	S025	0.5	-25...+100	IP67	PA	PA	PVC 2 m	–	–
NI15-P30-Y1X	40401 ✘	S025	0.2	-25...+70	IP67	PA	PA	PVC 2 m	–	•
NI15-P30-Y1X/S97	1022704	S025	0.2	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
NI15-P30-Y1/S100	10227 ✘	S025	0.2	-25...+100	IP67	PA	PA	PVC 2 m	–	–

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style	Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
 **M30 x 1,5**	–	12, ▭	⎯◺⎯, 2-wire	10...65 VDC	100 DC, Ⓚ	
	Ⓔx II 2 G SIL2	10, ▭	NAMUR	nom. 8.2 VDC	–	
	Ⓔx II 1 G Ⓔx II 1 D SIL2 T +100 °C	10, ▭	NAMUR	nom. 8.2 VDC	–	
	–	10, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	–	10, ▭	⎯◺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
 **M30 x 1,5**	*uprox*®	10, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®	10, ▭	⎯◺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	–	10, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	T –40 °C	10, ▭	⎯◺⎯, PNP	10...65 VDC	200 DC, Ⓚ	
	T +100 °C	10, ▭	⎯◺⎯, PNP	10...65 VDC	200 DC, Ⓚ	
	–	10, ▭	⎯◺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	–	10, ▭	⎯◺⎯	20...250 VAC 10...300 VDC	400 AC 300 DC	
	T –40 °C	10, ▭	⎯◺⎯	20...250 VAC 10...300 VDC	400 AC 300 DC	
	T +100 °C	10, ▭	⎯◺⎯	20...250 VAC 10...300 VDC	400 AC 300 DC	
	–	10, ▭	⎯◺⎯, 2-wire	10...65 VDC	100 DC, Ⓚ	
	uprox®	20, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®	20, ▭	⎯◺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	–	15, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	T –40 °C	15, ▭	⎯◺⎯, PNP	10...65 VDC	200 DC, Ⓚ	
	T +100 °C	15, ▭	⎯◺⎯, PNP	10...65 VDC	200 DC, Ⓚ	
	–	15, ▭	⎯◺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	–	15, ▭	⎯◺⎯	20...250 VAC 10...300 VDC	400 AC 300 DC	
	T –40 °C	15, ▭	⎯◺⎯	20...250 VAC 10...300 VDC	400 AC 300 DC	
	T +100 °C	15, ▭	⎯◺⎯	20...250 VAC 10...300 VDC	400 AC 300 DC	
	–	15, ▭	⎯◺⎯, 2-wire	10...65 VDC	100 DC, Ⓚ	

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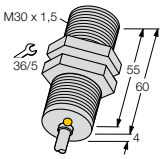
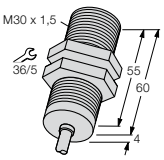
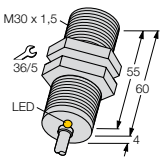
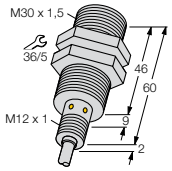
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI12-G30K-AD4X	4417010 ✘	S013	0.4	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI10-G30-Y1X	40200 ✘	S025	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI10-EG30-Y1X/S100 7M	4012005 ✘	S025	0.5	-25...+100	IP67	VA	PA	PVC 7 m	–	•
BI10-G30K-AP6X	46706 ✘	S001	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI10-G30K-AN6X	46716	S004	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI10U-S30-AP6X	1636500 ✘	S001	2	-30...+85	IP68	PA	PA	2 m	–	•
BI10U-S30-AN6X	1636520	S004	2	-30...+85	IP68	PA	PA	PVC 2 m	–	•
BI10-S30-AP6X	46590 ✘	S001	0.5	-25...+70	IP67	PA	PA	PVC 2 m	–	•
BI10-S30-VP4X/S97	1512221	S007	0.5	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
BI10-S30-VP4X/S100	15140 ✘	S007	0.5	-25...+100	IP67	PA	PA	PVC 2 m	–	•
BI10-S30-AN6X	46591 ✘	S004	0.5	-25...+70	IP67	PA	PA	PVC 2 m	–	•
BI10-S30-AZ3X	43554 ✘	S092	0.02	-25...+70	IP67	PA	PA	PVC 2 m	–	•
BI10-S30-AZ3X/S97	4355421	S092	0.02	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
BI10-S30-AZ3X/S100	13719 ✘	S092	0.02	-25...+100	IP67	PA	PA	PVC 2 m	–	•
BI10-S30-AD4X	44590 ✘	S013	0.5	-25...+70	IP67	PA	PA	PVC 2 m	–	•
NI20U-S30-AP6X	1646500 ✘	S001	1.5	-30...+85	IP68	PA	PA	PVC 2 m	–	•
NI20U-S30-AN6X	1646520	S004	1.5	-30...+85	IP68	PA	PA	PVC 2 m	–	•
NI15-S30-AP6X	46592 ✘	S001	0.5	-25...+70	IP67	PA	PA	PVC 2 m	–	•
NI15-S30-VP4X/S97	1514110	S007	0.5	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
NI15-S30-VP4X/S100	15141 ✘	S007	0.5	-25...+100	IP67	PA	PA	PVC 2 m	–	•
NI15-S30-AN6X	46593 ✘	S004	0.5	-25...+70	IP67	PA	PA	PVC 2 m	–	•
NI15-S30-AZ3X	43555 ✘	S092	0.02	-25...+70	IP67	PA	PA	PVC 2 m	–	•
NI15-S30-AZ3X/S97	1375803	S092	0.02	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
NI15-S30-AZ3X/S100	13758 ✘	S092	0.02	-25...+100	IP67	PA	PA	PVC 2 m	–	•
NI15-S30-AD4X	44592 ✘	S013	0.2	-25...+70	IP67	PA	PA	PVC 2 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style	Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
 **M30 x 1,5**	*uprox*®+	15, ▭	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®+	15, ▭	⎯⎽⎺, PNP	10...55 VDC	200 DC, Ⓚ	
	uprox®+	15, ▭	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ	
	uprox®+	15, ▭	⎯⎽⎺, NPN	10...55 VDC	200 DC, Ⓚ	
	–	12, ▭	⎯⎽⎺, 2-wire	10...65 VDC	100 DC, Ⓚ	
	uprox®	10, ▭	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®	10, ▭	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ	
	uprox®	10, ▭	⎯⎽⎺	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
	–	10, ▭	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ	
	–	10, ▭	⎯⎽⎺, PNP	10...65 VDC	200 DC, Ⓚ	
	–	10, ▭	⎯⎽⎺, PNP	10...65 VDC	200 DC, Ⓚ	
	–	10, ▭	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ	
	–	10, ▭	⎯⎽⎺, NPN	10...65 VDC	200 DC, Ⓚ	
	–	10, ▭	⎯⎽⎺, NPN	10...65 VDC	200 DC, Ⓚ	
	–	10, ▭	⎯⎽⎺	20...250 VAC 10...300 VDC	400 AC 300 DC	
	–	10, ▭	⎯⎽⎺, 2-wire	10...65 VDC	100 DC, Ⓚ	
 **M30 x 1,5**	*uprox*®	10, ▭	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®	10, ▭	⎯⎽⎺, PNP	10...65 VDC	200 DC, Ⓚ	
	uprox®	10, ▭	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ	
	uprox®	10, ▭	⎯⎽⎺, NPN	10...65 VDC	200 DC, Ⓚ	
 **M30 x 1,5**	T +100 °C	10, ▭	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ	
 **M30 x 1,5**	10 bar *uprox*®+ wash down	15, ▭	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ	
	10 bar *uprox*®+ wash down	15, ▭	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ	

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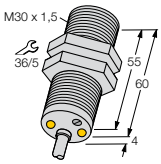
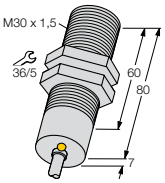
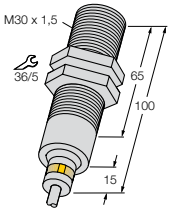
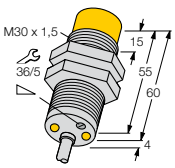
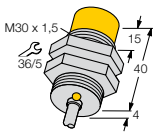
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI15U-M30-AP6X	1636731 ✘	S001	0.75	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
BI15U-M30-VP44X	1634884 ✘	S007	0.75	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
BI15U-M30-AN6X	1636735	S004	0.75	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
BI15U-M30-VN44X	1634888	S010	0.75	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
BI12-M30-AD4X	4417035 ✘	S013	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI10U-EM30-AP6X	1636300 ✘	S001	2	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
BI10U-EM30-AN6X	1636320 ✘	S004	2	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
BI10U-M30-ADZ30X2	4282610 ✘	S155	0.02	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
BI10-M30-AP6X	46170 ✘	S001	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI10-M30-VP4X	15614 ✘	S007	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI10-EM30-VP4X 7M	1561134 ✘	S007	0.5	-25...+70	IP67	VA	PA	PVC 7 m	–	•
BI10-M30-AN6X	46171 ✘	S004	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI10-M30-VN4X	15714 ✘	S010	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI10-EM30-VN4X 7M	1561135	S010	0.5	-25...+70	IP67	VA	PA	PVC 7 m	–	•
BI10-M30-AZ3X	43164 ✘	S155	0.02	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI10-M30-AD4X	44170 ✘	S013	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI10U-M30-AP6X	1636100 ✘	S001	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
BI10U-M30-VP4X	1582201 ✘	S007	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
BI10U-M30-AN6X	1636120 ✘	S004	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
BI10U-M30-VN4X	1582303	S010	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
BI10-M30-AP6X/S100	4617004 ✘	S001	0.5	-25...+100	IP67	CuZn-Cr	PA-X	PVC 2 m	–	•
BI15U-EM30WD-AP6X	1634819 ✘	S001	0.75	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
BI15U-EM30WD-AN6X	1634843	S004	0.75	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•

✘ = Preferred solution, available at short notice

2

Inductive sensors

Dimensions/Housing style	Features	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
 **M30 x 1,5**	rotation monitoring	10,	, PNP	10...65 VDC	200 DC, Ⓚ
	rotation monitoring	10,	, PNP	10...65 VDC	200 DC, Ⓚ
 **M30 x 1,5**	–	10,	, PNP	10...30 VDC	200 DC, Ⓚ
	–	10,		20...250 VAC	400 AC
 **M30 x 1,5**	10 bar T +160 °C	10,	, PNP	10...30 VDC	200 DC, Ⓚ
	T +120 °C wash down	10,	, PNP	10...30 VDC	200 DC, Ⓚ
 **M30 x 1,5**	rotation monitoring	20,	, PNP	10...65 VDC	200 DC, Ⓚ
	rotation monitoring	20,	, PNP	10...65 VDC	200 DC, Ⓚ
 **M30 x 1,5**	–	20,	, 2-wire	10...65 VDC	100 DC, Ⓚ
	Ⓔx II 2 G SIL2	15,	NAMUR	nom. 8.2 VDC	–
	–	15,	, NPN	10...30 VDC	200 DC, Ⓚ
	Ⓔx II 1 G Ⓔx II 1 D SIL2, T +100 °C	15,	NAMUR	nom. 8.2 VDC	–

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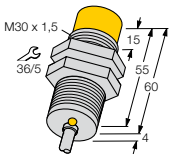
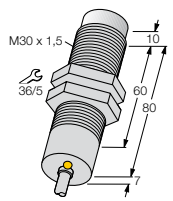
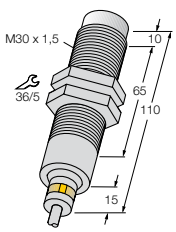
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
DBI10U-M30-AP4X2	1582231 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
DTBI10U-M30-AP4X2	1582230 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
BI10-M30-AP6X/S120	4617010 ✘	S001	0.1	–	–	CuZn-Cr	PA	Silic. 2 m	–	•
BI10-M30-AZ3X/S120	4316410 ✘	S092	0.02	–	–	CuZn-Cr	PA	PTFE 2 m	–	•
BI10-EM30-AP6/S907	4614513 ✘	S001	0.2	-25...+160	IP68 / IP69K	VA	PEEK	PTFE 2 m	–	–
BI10-EM30D-VP6X/S120	4617035 ✘	S007	0.1	-25...+120	IP68 / IP69K	VA	PTFE	PTFE 2 m	–	•
DNI20U-M30-AP4X2	1582233 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
DTNI20U-M30-AP4X2	1582232 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
NI20-G30K-AD4X	4417220	S013	0.4	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
NI15-G30-Y1X	40201 ✘	S025	0.2	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
NI15-G30K-AN6X	46717	S004	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
NI15-EG30-Y1X/S100 7M	4012004 ✘	S025	0.2	-25...+100	IP67	VA	PA	PVC 7 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**M30 x 1,5**	*uprox*®+	30, ▭	⎯⟋⎯, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®+	30, ▭	⎯⟋⎯, PNP	10...55 VDC	200 DC, Ⓚ
		uprox®+	30, ▭	⎯⟋⎯, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®+	30, ▭	⎯⟋⎯, NPN	10...55 VDC	200 DC, Ⓚ
		uprox®	20, ▭	⎯⟋⎯, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	20, ▭	⎯⟋⎯, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	20, ▭	⎯⟋⎯, PNP	10...65 VDC	200 DC, Ⓚ
		uprox®	20, ▭	⎯⟋⎯, PNP	10...65 VDC	200 DC, Ⓚ
		uprox®	20, ▭	⎯⟋⎯, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®	20, ▭	⎯⟋⎯, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®	20, ▭	⎯⟋⎯, NPN	10...65 VDC	200 DC, Ⓚ
		uprox®	20, ▭	⎯⟋	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ
		–	20, ▭	⎯⟋⎯, 2-wire	10...65 VDC	100 DC, Ⓚ
		–	15, ▭	⎯⟋⎯, PNP	10...30 VDC	200 DC, Ⓚ
		T +100 °C	15, ▭	⎯⟋⎯, PNP	10...30 VDC	200 DC, Ⓚ
		–	15, ▭	⎯⟋⎯, PNP	10...65 VDC	200 DC, Ⓚ
		–	15, ▭	⎯⟋⎯, PNP	10...65 VDC	200 DC, Ⓚ
		–	15, ▭	⎯⟋⎯, NPN	10...30 VDC	200 DC, Ⓚ
		–	15, ▭	⎯⟋⎯, NPN	10...65 VDC	200 DC, Ⓚ
		–	15, ▭	⎯⟋⎯, NPN	10...65 VDC	200 DC, Ⓚ
		–	15, ▭	⎯⟋	20...250 VAC 10...300 VDC	400 AC 300 DC
		–	15, ▭	⎯⟋⎯, 2-wire	10...65 VDC	100 DC, Ⓚ
	**M30 x 1,5**	T +120 °C	15, ▭	⎯⟋⎯, PNP	10...30 VDC	200 DC, Ⓚ
		T +120 °C	15, ▭	⎯⟋	20...250 VAC	400 AC
	**M30 x 1,5**	T +160 °C	15, ▭	⎯⟋⎯, PNP	10...30 VDC	200 DC, Ⓚ
		T +120 °C wash down	15, ▭	⎯⟋⎯, PNP	10...30 VDC	200 DC, Ⓚ

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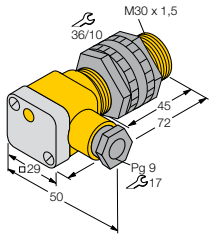
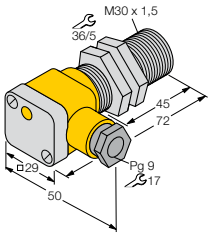
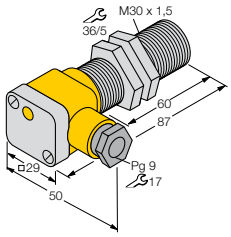
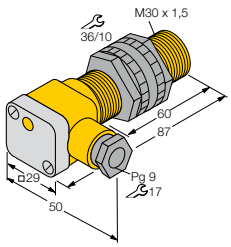
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI30U-M30-AP6X	1646630 ✘	S001	0.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
NI30U-M30-VP44X	1634886 ✘	S007	0.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
NI30U-M30-AN6X	1644634	S004	0.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
NI30U-M30-VN44X	1634890	S010	0.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
NI20U-M30-AP6X	1646100 ✘	S001	1.5	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
NI20U-EM30-AP6X	1646300 ✘	S001	1.5	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
NI20U-M30-VP4X	1582401 ✘	S007	1.5	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
NI20U-EM30-VP4X	1582462	S007	1.5	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
NI20U-M30-AN6X	1646120 ✘	S004	1.5	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
NI20U-EM30-AN6X	1646320	S004	1.5	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
NI20U-M30-VN4X	1582501	S010	1.5	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
NI20U-M30-ADZ30X2	4282810 ✘	S155	0.02	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
NI20-M30-AD4X	4466135 ✘	S013	0.2	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
NI15-M30-AP6X	46172 ✘	S001	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
NI15-M30-AP6X/S100	4617200 ✘	S001	0.5	-25...+100	IP67	CuZn-Cr	PA-X	PVC 2 m	–	•
NI15-M30-VP4X	15615 ✘	S007	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
NI15-EM30-VP4X 7M	1561137 ✘	S007	0.5	-25...+70	IP67	VA	PA	PVC 7 m	–	•
NI15-M30-AN6X	46173 ✘	S004	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
NI15-M30-VN4X	15715 ✘	S010	0.5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
NI15-EM30-VN4X 7M	1561136	S010	0.5	-25...+70	IP67	VA	PA	PVC 7 m	–	•
NI15-M30-AZ3X	43165 ✘	S155	0.02	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
NI15-M30-AD4X	44172 ✘	S013	0.2	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
NI15-M30-AP6X/S120	4617210 ✘	S001	0.5	-25...+120	IP67	CuZn-Cr	PA	Silic. 2 m	–	•
NI15-M30-AZ3X/S120	4316506 ✘	S092	0.02	-25...+120	IP67	CuZn-Cr	PA	PTFE 2 m	–	•
NI15-EM30-AP6/S907	4617412 ✘	S001	0.2	-25...+160	IP68 / IP69K	VA	PEEK	PTFE 2 m	–	–
NI15-EM30D-VP6X/S120	4617410 ✘	S007	0.1	-25...+120	IP68 / IP69K	VA	PTFE	PTFE 2 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M30 x 1,5** □—○—	Ⓔx II 2 G SIL2	10, ▭	NAMUR	nom. 8.2 VDC	–	
		Ⓔx II 2 G SIL2	15, ▭	NAMUR	nom. 8.2 VDC	–	
	**M30 x 1,5** □—○—	Ⓔx II 1 G Ⓔx II 1 D SIL2	10, ▭	NAMUR	nom. 8.2 VDC	–	
		Ⓔx II 2 G SIL2	10, ▭	NAMUR	nom. 8.2 VDC	–	
	**M30 x 1,5** □—○—	*uprox*®	10, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	10, ▭	⎯◺, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®	10, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	10, ▭	⎯◺, NPN	10...65 VDC	200 DC, Ⓚ	
		–	10, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
		–	10, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	20, ▭	⎯◺, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®	20, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	20, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	20, ▭	⎯◺, NPN	10...65 VDC	200 DC, Ⓚ	
	**M30 x 1,5** □—○—	*uprox*®	10, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	10, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ	
		–	10, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	20, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	20, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ	
		–	15, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
		–	15, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ	

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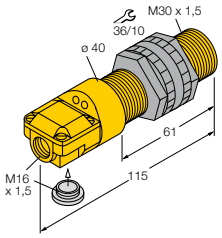
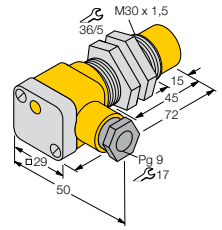
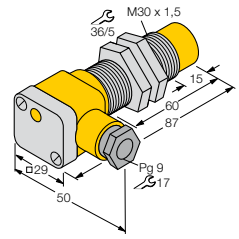
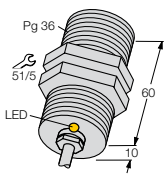
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI10-P30SK-Y1X	40410 ✘	S027	0.5	-25...+70	IP67	PA	PA	–	–	•
NI15-P30SK-Y1X	40411 ✘	S027	0.2	-25...+70	IP67	PA	PA	–	–	•
BI10-EG30SK-Y1X	4012070 ✘	S027	0.5	-25...+70	IP67	VA	PA	–	–	•
BI10-G30SK-Y1X	40220 ✘	S027	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI10U-EG30SK-AP6X	1636400 ✘	S003	2	-30...+85	IP68	VA	PBT	–	–	•
BI10U-EG30SK-VP4X	1582601 ✘	S009	2	-30...+85	IP68	VA	PBT	–	–	•
BI10U-EG30SK-AN6X	1636420	S006	2	-30...+85	IP68	VA	PBT	–	–	•
BI10U-EG30SK-VN4X	1582701	S012	2	-30...+85	IP68	VA	PBT	–	–	•
BI10-G30SK-AP6X	46480 ✘	S003	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI10-G30SK-AN6X	46481	S006	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
NI20U-EG30SK-VP4X	1582801 ✘	S009	1.5	-30...+85	IP68	VA	PBT	–	–	•
NI20U-EG30SK-AP6X	1646400 ✘	S003	1.5	-30...+85	IP68	VA	PBT	–	–	•
NI20U-EG30SK-AN6X	1646420	S006	1.5	-30...+85	IP68	VA	PBT	–	–	•
NI20U-EG30SK-VN4X	1582901	S012	1.5	-30...+85	IP68	VA	PBT	–	–	•
BI10U-P30SK-AP6X	1636700 ✘	S003	2	-30...+85	IP68	PA	PA	–	–	•
BI10U-P30SK-AN6X	1636720	S006	2	-30...+85	IP68	PA	PA	–	–	•
BI10-P30SK-AP6X	46595 ✘	S003	0.5	-25...+70	IP67	PA	PA	–	–	•
NI20U-P30SK-AP6X	1646700 ✘	S003	1.5	-30...+85	IP68	PA	PA	–	–	•
NI20U-P30SK-AN6X	1646720	S006	1.5	-30...+85	IP68	PA	PA	–	–	•
NI15-P30SK-AP6X	46597 ✘	S003	0.5	-25...+70	IP67	PA	PA	–	–	•
NI15-P30SK-AN6X	46598	S006	0.5	-25...+70	IP67	PA	PA	–	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**M30 x 1,5**	–	10,	_⟋_, PNP	10...30 VDC	200 DC, Ⓚ
		–	10,	⎓⟋⎓, PNP	10...65 VDC	200 DC, Ⓚ
		–	10,	_⟋_, NPN	10...30 VDC	200 DC, Ⓚ
		–	10,	⎓⟋⎓, NPN	10...65 VDC	200 DC, Ⓚ
		–	10,	program.	20...250 VAC 10...300 VDC	400 AC 300 DC
		–	15,	_⟋_, PNP	10...30 VDC	200 DC, Ⓚ
		–	15,	⎓⟋⎓, PNP	10...65 VDC	200 DC, Ⓚ
		–	15,	_⟋_, NPN	10...30 VDC	200 DC, Ⓚ
		–	15,	⎓⟋⎓, NPN	10...65 VDC	200 DC, Ⓚ
		–	15,	program.	20...250 VAC 10...300 VDC	400 AC 300 DC
	**M30 x 1,5**	Ⓔx II 2 G SIL2	15,	NAMUR	nom. 8.2 VDC	–
		Ⓔx II 1 G Ⓔx II 1 D SIL2	15,	NAMUR	nom. 8.2 VDC	–
	**M30 x 1,5**	–	15,	_⟋_, PNP	10...30 VDC	200 DC, Ⓚ
		–	15,	_⟋_, NPN	10...30 VDC	200 DC, Ⓚ
	**G47**	Ⓔx II 2 G SIL2	20,	NAMUR	nom. 8.2 VDC	–
		–	20,	_⟋_, PNP	10...65 VDC	200 DC, Ⓚ
		–	20,	_⟋_, NPN	10...65 VDC	200 DC, Ⓚ
		–	20,	_⟋_	20...250 VAC 10...300 VDC	400 AC 300 DC

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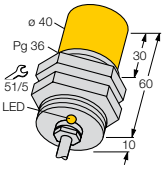
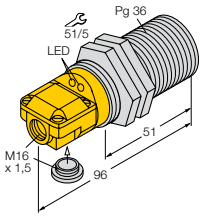
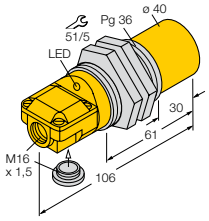
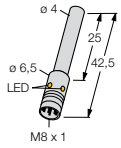
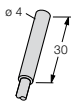
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI10-P30SR-AP6X	16116 ✘	S003	0.5	-25...+70	IP67	ABS	ABS	–	–	•
BI10-P30SR-VP4X2	15652 ✘	S009	0.5	-25...+70	IP67	ABS	ABS	–	•	•
BI10-P30SR-AN6X	16203 ✘	S006	0.5	-25...+70	IP67	ABS	ABS	–	–	•
BI10-P30SR-VN4X2	15752 ✘	S012	0.5	-25...+70	IP67	ABS	ABS	–	•	•
BI10-P30SR-FZ3X2	13420 ✘	S016	0.02	-25...+70	IP67	ABS	ABS	–	•	•
NI15-P30SR-AP6X	16117 ✘	S003	0.5	-25...+70	IP67	ABS	ABS	–	–	•
NI15-P30SR-VP4X2	15653 ✘	S009	0.5	-25...+70	IP67	ABS	ABS	–	•	•
NI15-P30SR-AN6X	16204	S006	0.5	-25...+70	IP67	ABS	ABS	–	–	•
NI15-P30SR-VN4X2	15753 ✘	S012	0.5	-25...+70	IP67	ABS	ABS	–	•	•
NI15-P30SR-FZ3X2	13421 ✘	S016	0.02	-25...+70	IP67	ABS	ABS	–	•	•
NI15-G30SK-Y1X	40221 ✘	S027	0.2	-25...+70	IP67	CuZn-Cr	PA	–	–	•
NI15-EG30SK-Y1X	4012160 ✘	S027	0.2	-25...+70	IP67	VA	PA	–	–	•
NI15-G30SK-AP6X	46482 ✘	S003	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
NI15-G30SK-AN6X	46483	S006	0.5	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BI20-G47-Y1X	10202 ✘	S025	0.2	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI20-G47-AP4X	15645 ✘	S001	0.1	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI20-G47-AN4X	15745 ✘	S004	0.1	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI20-G47-AZ3X	13088 ✘	S155	0.02	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**G47**	–	25,	, PNP	10...65 VDC	200 DC, Ⓚ	
		–	25,	, NPN	10...65 VDC	200 DC, Ⓚ	
		–	25,		20...250 VAC 10...300 VDC	400 AC 300 DC	
	**G47**	–	25,	, PNP	10...65 VDC	200 DC, Ⓚ	
		–	25,	, NPN	10...65 VDC	200 DC, Ⓚ	
		–	25,	program.	20...250 VAC 10...300 VDC	400 AC 300 DC	
	**G47**	–	40,	, PNP	10...65 VDC	200 DC, Ⓚ	
		–	40,	, NPN	10...65 VDC	200 DC, Ⓚ	
		–	40,	program.	20...250 VAC 10...300 VDC	400 AC 300 DC	
	Ø3	–	1,	, PNP	10...30 VDC	100 DC	
		–	1,	, NPN	10...30 VDC	100 DC	
	**Ø4**	–	1,	, PNP	10...30 VDC	100 DC, Ⓚ	
		–	1,	, PNP	10...30 VDC	100 DC, Ⓚ	
		–	1,	, NPN	10...30 VDC	100 DC, Ⓚ	
	**Ø4**	Ⓔx II 2 G SIL2	1,	NAMUR	nom. 8.2 VDC	–	

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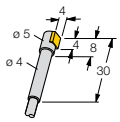
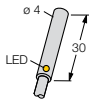
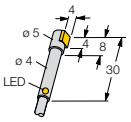
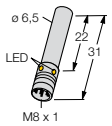
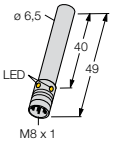
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI25-G47-AP4X	15646 ✘	S001	0.1	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
NI25-G47-AN4X	15746 ✘	S004	0.1	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
NI25-G47-AZ3X	13089 ✘	S155	0.02	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI25-G47SR-VP4X2	15648 ✘	S009	0.1	-25...+70	IP67	CuZn-Cr	PA	–	•	•
BI25-G47SR-VN4X2	15748 ✘	S012	0.1	-25...+70	IP67	CuZn-Cr	PA	–	•	•
BI25-G47SR-FZ3X2	13427 ✘	S016	0.02	-25...+70	IP67	CuZn-Cr	PA	–	•	•
NI40-G47SR-VP4X2	15650 ✘	S009	0.1	-25...+70	IP67	CuZn-Cr	PA	–	•	•
NI40-G47SR-VN4X2	15750	S012	0.1	-25...+70	IP67	CuZn-Cr	PA	–	•	•
NI40-G47SR-FZ3X2	13428 ✘	S016	0.02	-25...+70	IP67	CuZn-Cr	PA	–	•	•
BI1-EH03-AP7X	1619322 ✘	S001	5	-25...+70	IP67	VA	POM	PUR 2 m	–	•
BI1-EH03-AN7X	1619323 ✘	S004	5	-25...+70	IP67	VA	POM	PUR 2 m	–	•
BI1-EH04-AP6X-V1331	4608440 ✘	S002	3	-25...+70	IP67	VA	PA	–	–	•
BI1-EH04-RP6X-V1331	4608441	S175	3	-25...+70	IP67	VA	PA	–	–	•
BI1-EH04-AN6X-V1331	4608540 ✘	S005	3	-25...+70	IP67	VA	PA	–	–	•
BI1-EH04-Y1	1003040 ✘	S025	5	-25...+70	IP67	VA	PA	PVC 2 m	–	–

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**Ø4**	Ⓔx II 2 G SIL2	1, ▭	NAMUR	nom. 8.2 VDC	–
	**Ø4**	–	1, ▭	⎯⎽⎯, PNP	10...30 VDC	100 DC, Ⓚ
		–	1, ▭	⎯⏊⎯, PNP	10...30 VDC	100 DC, Ⓚ
		–	1, ▭	⎯⎽⎯, NPN	10...30 VDC	100 DC, Ⓚ
	**Ø4**	–	1, ▭	⎯⎽⎯, PNP	10...30 VDC	100 DC, Ⓚ
		–	1, ▭	⎯⏊⎯, PNP	10...30 VDC	100 DC, Ⓚ
		–	1, ▭	⎯⎽⎯, NPN	10...30 VDC	100 DC, Ⓚ
	**Ø6,5**	Sn +	2, ▭	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ
		Sn +	2, ▭	⎯⏊⎯, PNP	10...30 VDC	150 DC, Ⓚ
		Sn +	2, ▭	⎯⎽⎯, NPN	10...30 VDC	150 DC, Ⓚ
		–	1.5, ▭	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ
		–	1.5, ▭	⎯⎽⎯, NPN	10...30 VDC	150 DC, Ⓚ
	**Ø6,5**	*uprox*®+	2, ▭	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®+	2, ▭	⎯⏊⎯, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®+	2, ▭	⎯⎽⎯, NPN	10...30 VDC	150 DC, Ⓚ
		Sn +	2, ▭	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ
		Sn +	2, ▭	⎯⎽⎯, NPN	10...30 VDC	150 DC, Ⓚ
		–	1.5, ▭	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ
		–	1.5, ▭	⎯⎽⎯, NPN	10...30 VDC	150 DC, Ⓚ

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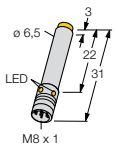
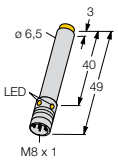
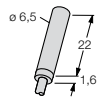
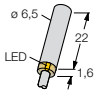
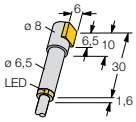
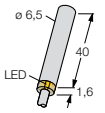
	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	BI1-HS540-Y1	1004001 ✘	S025	5	-25...+70	IP67	VA	PA	PVC 2 m	–	–
	BI1-EH04-AP6X	4609540 ✘	S001	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
	BI1-EH04-RP6X	4608442	S054	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
	BI1-EH04-AN6X	4609640 ✘	S004	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
	BI1-HS540-AP6X	4604001 ✘	S001	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
	BI1-HS540-RP6X	4604050	S054	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
	BI1-HS540-AN6X	4604101 ✘	S004	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
	BI2-EH6,5K-AP6X-V1131	4610020 ✘	S002	3	-25...+70	IP67	VA	PA	–	–	•
	BI2-EH6,5K-RP6X-V1131	4610021	S175	3	-25...+70	IP67	VA	PA	–	–	•
	BI2-EH6,5K-AN6X-V1131	4610120	S005	3	-25...+70	IP67	VA	PA	–	–	•
	BI1,5-EH6,5K-AP6X-V1131	4610740 ✘	S002	3	-25...+70	IP67	VA	PA	–	–	•
	BI1,5-EH6,5K-AN6X-V1131	4610840	S005	3	-25...+70	IP67	VA	PA	–	–	•
	BI2U-EH6,5-AP6X-V1131	4281160 ✘	S002	1	-25...+70	IP68	VA	PA	–	–	•
	BI2U-EH6,5-RP6X-V1131	1637151	S175	1	-25...+70	IP68	VA	PA	–	–	•
	BI2U-EH6,5-AN6X-V1131	4281180	S005	1	-25...+70	IP68	VA	PA	–	–	•
	BI2-EH6,5-AP6X-V1131	4612220 ✘	S002	3	-25...+70	IP67	VA	PA	–	–	•
	BI2-EH6,5-AN6X-V1131	4612320	S005	3	-25...+70	IP67	VA	PA	–	–	•
	BI1,5-EH6,5-AP6X-V1131	4612020 ✘	S002	3	-25...+70	IP67	VA	PA	–	–	•
	BI1,5-EH6,5-AN6X-V1131	4612120	S005	3	-25...+70	IP67	VA	PA	–	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**Ø6,5**	–	3,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		–	3,	⎯⎽⎺, NPN	10...30 VDC	150 DC, Ⓚ
	**Ø6,5**	*uprox*®+	6,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®+	6,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®+	6,	⎯⎽⎺, NPN	10...30 VDC	150 DC, Ⓚ
		–	3,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		–	3,	⎯⎽⎺, NPN	10...30 VDC	150 DC, Ⓚ
	**Ø6,5**	Ⓔx II 2 G SIL2	1.5,	NAMUR	nom. 8.2 VDC	–
	**Ø6,5**	Sn +	2,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		Sn +	2,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		Sn +	2,	⎯⎽⎺, NPN	10...30 VDC	150 DC, Ⓚ
		–	1.5,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		–	1.5,	⎯⎽⎺, NPN	10...30 VDC	150 DC, Ⓚ
	**Ø6,5**	Ⓔx II 2 G SIL2	1.5,	NAMUR	nom. 8.2 VDC	–
		–	1.5,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		–	1.5,	⎯⎽⎺, NPN	10...30 VDC	150 DC, Ⓚ
	**Ø6,5**	*uprox*®+	2,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®+	2,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®+	2,	⎯⎽⎺, NPN	10...30 VDC	150 DC, Ⓚ
		Sn +	2,	⎯⎽⎺, PNP	10...30 VDC	150 DC, Ⓚ
		Sn +	2,	⎯⎽⎺, NPN	10...30 VDC	150 DC, Ⓚ

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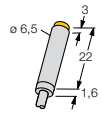
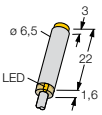
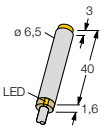
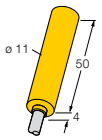
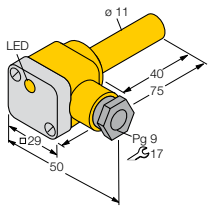
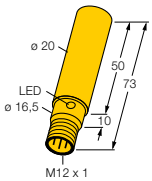
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI3-EH6,5K-AP6X-V1131	4610220	S002	3	-25...+70	IP67	VA	PA	–	–	•
NI3-EH6,5K-AN6X-V1131	4610320	S005	3	-25...+70	IP67	VA	PA	–	–	•
NI6U-EH6,5-AP6X-V1131	4631510 ✘	S002	1	0...+70	IP68	VA	PA	–	–	•
NI6U-EH6,5-RP6X-V1131	4635832	S175	1	0...+70	IP68	VA	PA	–	–	•
NI6U-EH6,5-AN6X-V1131	4631530	S005	1	0...+70	IP68	VA	PA	–	–	•
NI3-EH6,5-AP6X-V1131	4612420 ✘	S002	3	-25...+70	IP67	VA	PA	–	–	•
NI3-EH6,5-AN6X-V1131	4612520	S005	3	-25...+70	IP67	VA	PA	–	–	•
BI1,5-EH6,5K-Y1	1004600 ✘	S025	5	-25...+70	IP67	VA	PA	PVC 2 m	–	–
BI2-EH6,5K-AP6X	4610000 ✘	S001	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
BI2-EH6,5K-RP6X	4610001	S054	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
BI2-EH6,5K-AN6X	4610100	S004	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
BI1,5-EH6,5K-AP6X	4610540 ✘	S001	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
BI1,5-EH6,5K-AN6X	4610640 ✘	S004	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
BI1,5-HS865-Y1	1004201	S025	5	-25...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	–
BI1,5-HS865-AP6X	4604201 ✘	S001	3	-25...+70	IP67	CuZn-Cr	PA	PUR 2 m	–	•
BI1,5-HS865-AN6X	4604301	S004	3	-25...+70	IP67	CuZn-Cr	PA	PUR 2 m	–	•
BI2U-EH6,5-AP6X	4281150 ✘	S001	1	-25...+70	IP68	VA	PA	PUR 2 m	–	•
BI2U-EH6,5-RP6X	4281151	S054	1	-25...+70	IP68	VA	PA	PUR 2 m	–	•
BI2U-EH6,5-AN6X	4281170 ✘	S004	1	-25...+70	IP68	VA	PA	PUR 2 m	–	•
BI2-EH6,5-AP6X	4612200 ✘	S001	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
BI2-EH6,5-AN6X	4612300 ✘	S004	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•

✘ = Preferred solution, available at short notice

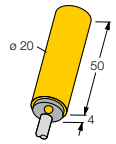
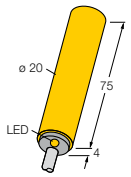
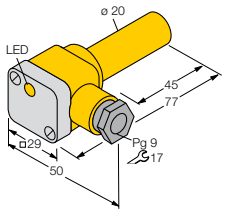
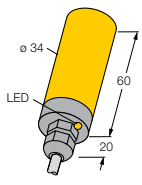
Inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**Ø6,5**	Ex II 2 G SIL2	3, ⊏	NAMUR	nom. 8.2 VDC	–
	**Ø6,5**	–	3, ⊏	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		–	3, ⊏	_⌒_, NPN	10...30 VDC	150 DC, Ⓚ
	**Ø6,5**	*uprox*®+	6, ⊏	_⌒_, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®+	6, ⊏	_⌒_, NPN	10...30 VDC	150 DC, Ⓚ
		–	3, ⊏	_⌒_, PNP	10...30 VDC	150 DC, Ⓚ
		–	3, ⊏	_⌒_, NPN	10...30 VDC	150 DC, Ⓚ
 Fixing clamp BS11 included in delivery	**Ø11**	Ex II 2 G SIL2	2, ⊏	NAMUR	nom. 8.2 VDC	–
		–	2, ⊏	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		Ex II 2 G SIL2	5, ⊏	NAMUR	nom. 8.2 VDC	–
		–	5, ⊏	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
 Fixing clamp BS11 included in delivery	**Ø11**	–	2, ⊏	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		–	5, ⊏	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
 Fixing clamp BS20 included in delivery	**Ø20**	–	10, ⊏	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ

	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	NI3-EH6,5K-Y1	1004700 ✘	S025	5	-25...+70	IP67	VA	PA	PVC 2 m	–	–
	NI3-EH6,5K-AP6X	4610200 ✘	S001	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
	NI3-EH6,5K-AN6X	4610300	S004	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
	NI6U-EH6,5-AP6X	4631500 ✘	S001	1	0...+70	IP68	VA	PA	PUR 2 m	–	•
	NI6U-EH6,5-AN6X	4631520	S004	1	0...+70	IP68	VA	PA	PUR 2 m	–	•
	NI3-EH6,5-AP6X	4612400 ✘	S001	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
	NI3-EH6,5-AN6X	4612500	S004	3	-25...+70	IP67	VA	PA	PUR 2 m	–	•
	BI2-K11-Y1	10070 ✘	S025	5	-25...+70	IP67	PA	PA	PVC 2 m	–	–
	BI2-K11-AP6X	46609 ✘	S001	2	-25...+70	IP67	PA	PA	PVC 2 m	–	•
	NI5-K11-Y1	10071 ✘	S025	2	-25...+70	IP67	PA	PA	PVC 2 m	–	–
	NI5-K11-AP6X	46611 ✘	S001	1.5	-25...+70	IP67	PA	PA	PVC 2 m	–	•
	BI2-K11SK-AP6X	46615 ✘	S003	2	-25...+70	IP67	PA	PA	–	–	•
	NI5-K11SK-AP6X	46617 ✘	S003	1.5	-25...+70	IP67	PA	PA	–	–	•
	NI10-K20-AP6X-H1141	4664200	S002	1	-25...+70	IP67	PBT	PBT	–	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**Ø20**	Ⓔx II 2 G SIL2	10, ▭	NAMUR	nom. 8.2 VDC	–
	▭—	–	10, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ
		–	10, ▭	⎯◺⎯, NPN	10...30 VDC	200 DC, Ⓚ
Fixing clamp BS20 included in delivery						
	**Ø20**	–	10, ▭	⎯◺⎯	20...250 VAC 10...300 VDC	400 AC 300 DC
	▭—					
Fixing clamp BS20 included in delivery						
	**Ø20**	*uprox*®	5, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	5, ▭	⎯◺⎯, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®	12, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ
	▭—○—	*uprox*®	12, ▭	⎯◺⎯, NPN	10...30 VDC	200 DC, Ⓚ
		–	10, ▭	⎯◺⎯, PNP	10...30 VDC	200 DC, Ⓚ
		–	10, ▭	⎯◺⎯, NPN	10...30 VDC	200 DC, Ⓚ
		–	10, ▭	⎯◺⎯	20...250 VAC 10...300 VDC	400 AC 300 DC
Fixing clamp BS20 included in delivery						
	**Ø34**	–	20, ▭	⎯◺⎯, PNP	10...65 VDC	200 DC, Ⓚ
	▭—					
Fixing clamp BS34.1 included in delivery						

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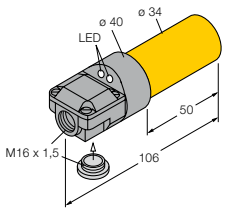
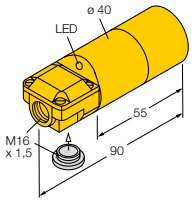
	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	NI10-K20-Y1	10072 ✘	S025	0.5	-25...+70	IP67	PBT	PBT	PVC 2 m	–	–
	NI10-K20-AP6X	46640 ✘	S001	1	-25...+70	IP67	PBT	PBT	PVC 2 m	–	•
	NI10-K20-AN6X	46641 ✘	S004	1	-25...+70	IP67	PBT	PBT	PVC 2 m	–	•
	NI10-K20-AZ3X	43585 ✘	S092	0.02	-25...+70	IP67	PBT	PBT	PVC 2 m	–	•
	BI5U-K20SK-AP6X	1635130 ✘	S003	1	-30...+85	IP68	PBT	PBT	–	–	•
	BI5U-K20SK-AN6X	1635131	S006	1	-30...+85	IP68	PBT	PBT	–	–	•
	NI12U-K20SK-AP6X	1645330 ✘	S003	1	-30...+85	IP68	PBT	PBT	–	–	•
	NI12U-K20SK-AN6X	1645331	S006	1	-30...+85	IP68	PBT	PBT	–	–	•
	NI10-K20SK-AP6X	46646 ✘	S003	1	-25...+70	IP67	PBT	PBT	–	–	•
	NI10-K20SK-AN6X	46648	S006	1	-25...+70	IP67	PBT	PBT	–	–	•
	NI10-K20SK-AZ3X	43591 ✘	S095	0.02	-25...+70	IP67	PBT	PBT	–	–	•
	NI20-K34-VP4X	1565602 ✘	S007	0.5	-25...+70	IP67	PBT	PBT	PVC 2 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**Ø34**	–	20,	, PNP	10...65 VDC	200 DC, Ⓚ	
Fixing clamp BS34.1 included in delivery							
	**Ø40**	rotation monitoring	15,	, PNP	10...65 VDC	200 DC, Ⓚ	
		rotation monitoring	30,	, PNP	10...65 VDC	200 DC, Ⓚ	
		–	30,	, PNP	10...65 VDC	200 DC, Ⓚ	
		–	30,	, NPN	10...65 VDC	200 DC, Ⓚ	
		–	30,	program.	20...250 VAC 10...300 VDC	400 AC 300 DC	
		–	20,	, PNP	10...30 VDC	200 DC, Ⓚ	
		–	20,	, PNP	10...65 VDC	200 DC, Ⓚ	
		–	20,	, NPN	10...30 VDC	200 DC, Ⓚ	
		–	20,	, NPN	10...65 VDC	200 DC, Ⓚ	
		–	20,	program.	20...250 VAC 10...300 VDC	400 AC 300 DC	
Fixing clamp BS40 included in delivery							

	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	NI20-K34SR-VP4X2	1565601 ✘	S009	0.5	-25...+70	IP67	PBT	PBT	–	•	•
	DBI15U-K40SR-AP4X2	1500201	S058	–	-30...+85	IP67	ABS	ABS	–	•	•
	DNI30U-K40SR-AP4X2	1500202	S058	–	-30...+85	IP67	ABS	ABS	–	•	•
	NI30-K40SR-VP4X2	15658 ✘	S009	0.1	-25...+70	IP67	ABS	ABS	–	•	•
	NI30-K40SR-VN4X2	15758 ✘	S012	0.1	-25...+70	IP67	ABS	ABS	–	•	•
	NI30-K40SR-FZ3X2	13425 ✘	S016	0.02	-25...+70	IP67	ABS	ABS	–	•	•
	NI20-K40SR-AP6X	16026 ✘	S003	0.1	-25...+70	IP67	ABS	ABS	–	–	•
	NI20-K40SR-VP4X2	15656 ✘	S009	0.1	-25...+70	IP67	ABS	ABS	–	•	•
	NI20-K40SR-AN6X	16226 ✘	S006	0.1	-25...+70	IP67	ABS	ABS	–	–	•
	NI20-K40SR-VN4X2	15756 ✘	S012	0.1	-25...+70	IP67	ABS	ABS	–	•	•
	NI20-K40SR-FZ3X2	13424 ✘	S016	0.02	-25...+70	IP67	ABS	ABS	–	•	•

2

✘ = Preferred solution, available at short notice

Ring sensors

Inductive ring sensors are used in particular in component feeding and assembly technology for monitoring the supply of small metallic components. Thus a screw connection machine is monitored to ensure that only one screw is loaded in assembly and handling processes. If a screw is not loaded the workpiece could be damaged or will not be correctly assembled. If however two screws are loaded, the screw head can be damaged.

Using inductive ring sensors task of this type can be tackled very easily and reliably. These sensors detect screws, rivets and similar small parts independently of their position within the ring due to the symmetric arrangement of the coils.

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Ring sensors are available with static and dynamic switching output as well as with an analogue voltage output.

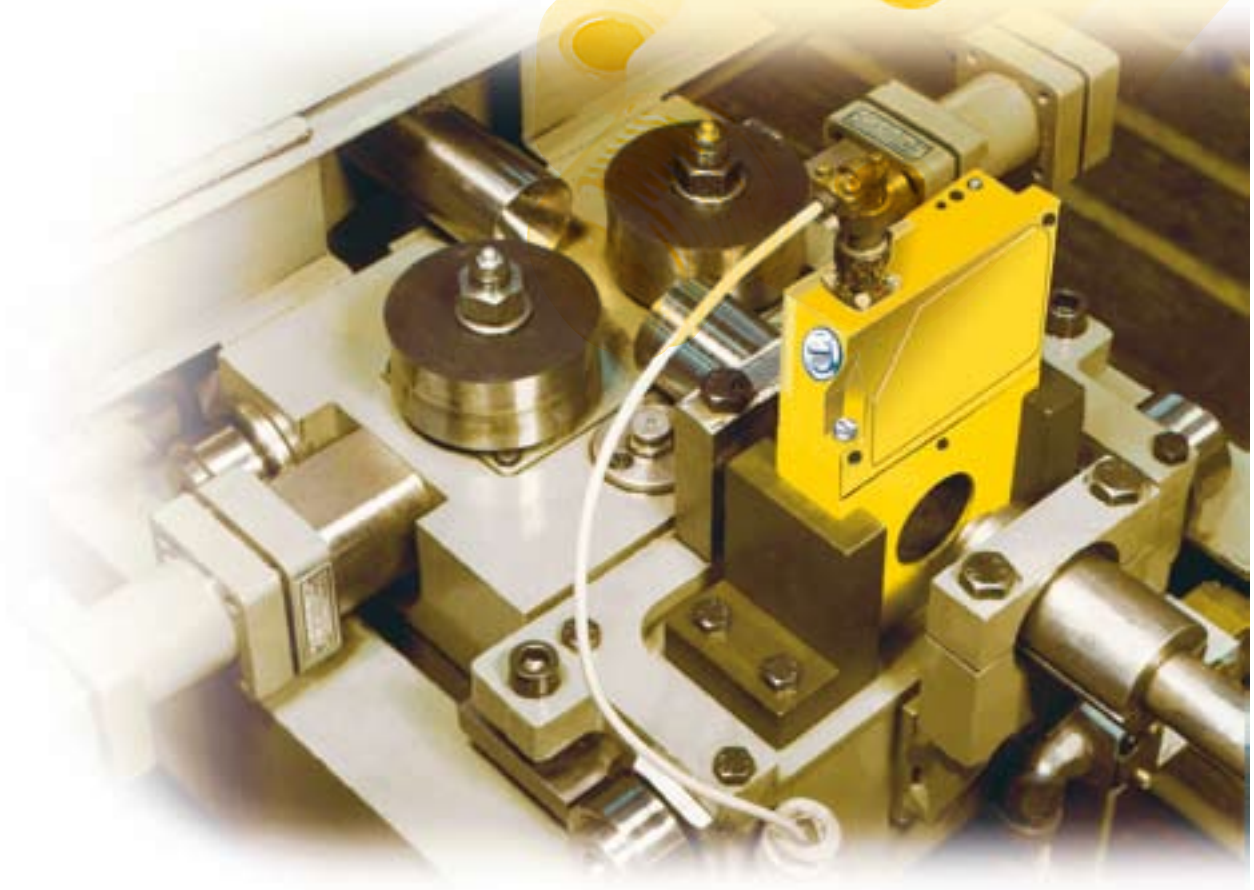
Dynamic ring sensors feature a very sensitive response and only generate a brief impulse when dampened (with TURCK ring sensors: 100 ms). In the component feed industry these sensors are used everywhere that very small and quickly moving parts are to be detected.

On the other hand static ring sensors generate a continuous pulse as long as a metal part is located in the ring. Characteristic for these sensors is the particularly wide range of applications. In connecting and riveting systems of component feeding machines, the static ring sensors are used for example to detect metallic parts in the feed tubes and can even be used to detect a blockage. Even the detection of wire breaks when drawing a wire can be easily and safely detected using static ring sensors.

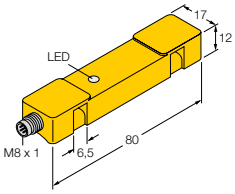
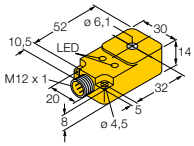
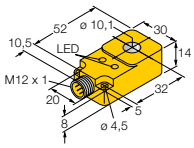
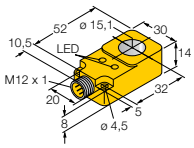
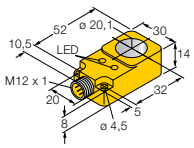
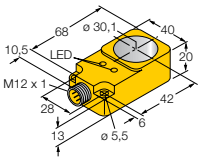
The sensor type TS12 for miniature parts is an innovative replacement option for different types of ring sensor. This *uprox*®+ sensor is designed for the detection of small, fast moving and guided parts, and features the same switching distance for all metals as a factor 1 sensor. Thus only a single sensor is necessary in order to provide solutions for applications with different small components and tube diameters. Thanks to integrated retention strap attachment the TS12 sensor can be installed – without expensive brackets – after the feed tubes have been installed in their final positions. Thanks to its compact design without awkward contours, damage is almost completely ruled out.

Tasks in the area of quality control can be tackled with analogue ring sensors. Analogue ring sensors are used for example to differentiate between different thicknesses of wires and screws, but also to differentiate between parts made of different materials. A voltage signal with varying amplitude is generated and used for evaluation purposes. A simple detection of displacement is possible using an actuation element in the form of a cone.

- Ring diameter 6…100 mm
- Static, dynamic and analogue versions
- Integrated amplifier or separate probe-amplifier combination
- High sensitivity, adjustable up to 0.1 mm wire diameter
- Compact housing styles
- Innovative housing style TS12 from the *uprox*®+ series



Ring sensors

Dimensions/Housing style		Features (☞ 356)	Internal ring diameter [mm]	Min. target diameter[1] [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**TS12**	*uprox*®+	–	–	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	–	–	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ	
	**Q14**	static output	6.1	2 K	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ	
		static output	6.1	2 K	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ	
	**Q14**	static output	10.1	2 K	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ	
		static output	10.1	2 K	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ	
	**Q14**	static output	15.1	3 K	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ	
		static output	15.1	3 K	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ	
	**Q14**	static output	20.1	4 K	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ	
		static output	20.1	4 K	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ	
	**Q20**	static output	30.1	6 K	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ	
		static output	30.1	6 K	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ	

[1] Min. target diameter K: Steel ball D: Steel wire

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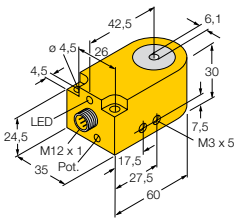
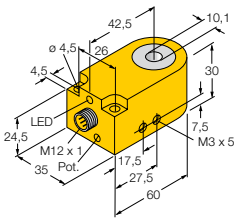
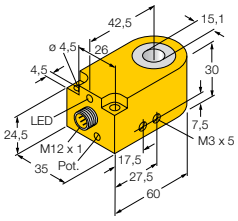
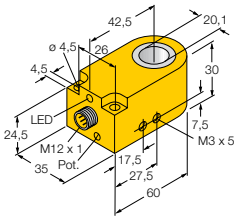
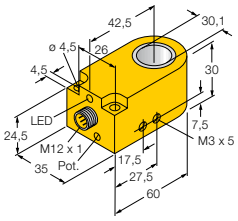
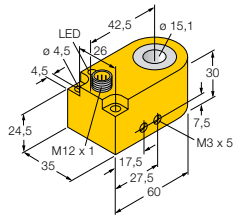
Type	Ident no.	Connection (☞ 322)	Reading rate frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI20U-TS12-AP6X2-V1131	1646640 ✘	S002	0.008	-25...+70	IP68	PBT	–	–	•	•
NI20U-TS12-AN6X2-V1131	1625822	S005	0.008	-25...+70	IP68	PBT	–	–	•	•
BI6R-Q14-AP6X2-H1141	1407000 ✘	S002	0.008	-25...+70	IP67	PBT	POM	–	•	•
BI6R-Q14-AN6X2-H1141	1407020	S005	0.008	-25...+70	IP67	PBT	POM	–	•	•
BI10R-Q14-AP6X2-H1141	1407100 ✘	S002	0.008	-25...+70	IP67	PBT	POM	–	•	•
BI10R-Q14-AN6X2-H1141	1407120	S005	0.008	-25...+70	IP67	PBT	POM	–	•	•
BI15R-Q14-AP6X2-H1141	1407200 ✘	S002	0.008	-25...+70	IP67	PBT	POM	–	•	•
BI15R-Q14-AN6X2-H1141	1407220	S005	0.008	-25...+70	IP67	PBT	POM	–	•	•
BI20R-Q14-AP6X2-H1141	1407300 ✘	S002	0.008	-25...+70	IP67	PBT	POM	–	•	•
BI20R-Q14-AN6X2-H1141	1407320 ✘	S005	0.008	-25...+70	IP67	PBT	POM	–	•	•
BI30R-Q20-AP6X2-H1141	1407500 ✘	S002	0.008	-25...+70	IP67	PBT	POM	–	•	•
BI30R-Q20-AN6X2-H1141	1407520	S005	0.008	-25...+70	IP67	PBT	POM	–	•	•

✘ = Preferred solution, available at short notice

Ring sensors

Dimensions/Housing style		Features (☞ 356)	Internal ring diameter [mm]	Min. target diameter[1] [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**W30**	dynamic output	6.1	0.6 K	⎓, PNP	10...30 VDC	200 DC, Ⓚ	
		dynamic output	6.1	0.6 K	⎓, NPN	10...30 VDC	200 DC, Ⓚ	
	**W30**	dynamic output	10.1	1 K	⎓, PNP	10...30 VDC	200 DC, Ⓚ	
		dynamic output	10.1	1 K	⎓, NPN	10...30 VDC	200 DC, Ⓚ	
	**W30**	dynamic output	15.1	1.5 K	⎓, PNP	10...30 VDC	200 DC, Ⓚ	
		dynamic output	15.1	1.5 K	⎓, NPN	10...30 VDC	200 DC, Ⓚ	
	**W30**	dynamic output	20.1	2 K	⎓, PNP	10...30 VDC	200 DC, Ⓚ	
		dynamic output	20.1	2 K	⎓, NPN	10...30 VDC	200 DC, Ⓚ	
	**W30**	dynamic output	30.1	3 K	⎓, PNP	10...30 VDC	200 DC, Ⓚ	
		dynamic output	30.1	3 K	⎓, NPN	10...30 VDC	200 DC, Ⓚ	
	**W30S**	static output	15.1	3 K	⎓, PNP	10...30 VDC	200 DC, Ⓚ	

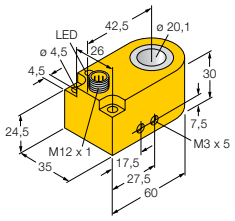
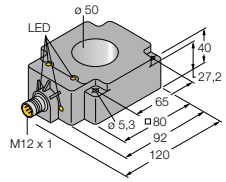
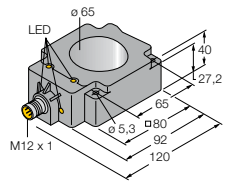
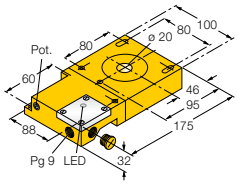
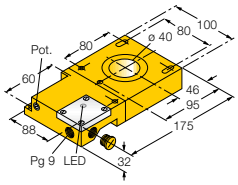
The mounting of W30 and W30S is explained on page 136

[1] Min. target diameter K: Steel ball D: Steel wire

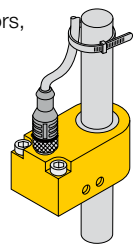
Type	Ident no.	Connection (☞ 322)	Reading rate frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI6R-W30-DAP6X-H1141	14036 ✘	S002	0.008	-25...+70	IP67	PA	POM	–	–	•
BI6R-W30-DAN6X-H1141	14037	S005	0.008	-25...+70	IP67	PA	POM	–	–	•
BI10R-W30-DAP6X-H1141	14038 ✘	S002	0.008	-25...+70	IP67	PA	POM	–	–	•
BI10R-W30-DAN6X-H1141	14039 ✘	S005	0.008	-25...+70	IP67	PA	POM	–	–	•
BI15R-W30-DAP6X-H1141	14040 ✘	S002	0.008	-25...+70	IP67	PA	POM	–	–	•
BI15R-W30-DAN6X-H1141	14041	S005	0.008	-25...+70	IP67	PA	POM	–	–	•
BI20R-W30-DAP6X-H1141	14042 ✘	S002	0.008	-25...+70	IP67	PA	POM	–	–	•
BI20R-W30-DAN6X-H1141	14043 ✘	S005	0.008	-25...+70	IP67	PA	POM	–	–	•
BI30R-W30-DAP6X-H1141	14045 ✘	S002	0.008	-25...+70	IP67	PA	POM	–	–	•
BI30R-W30-DAN6X-H1141	1404501	S005	0.008	-25...+70	IP67	PA	POM	–	–	•
BI15R-W30S-AP6X-H1141	1404031 ✘	S002	0.008	-25...+70	IP67	PA	POM	–	–	•

✘ = Preferred solution, available at short notice

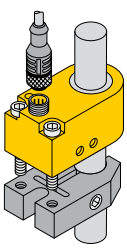
Ring sensors

Dimensions/Housing style		Features (☞ 356)	Internal ring diameter [mm]	Min. target diameter[1)] [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**W30S**	static output	20.1	4 K	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
	**Q80**	static output	50	8 K	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
	**Q80**	static output	65	10 K	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
	**S32SR**	static output	20	0.4 D	⎯◺, PNP	10...55 VDC	200 DC, Ⓚ	
	**S32SR**	static output	40	1 D	⎯◺, PNP	10...55 VDC	200 DC, Ⓚ	

Mounting accessories for W30 and W30S ring sensors, please refer to chapter accessories!



Mounting of cable and W30S ring sensor close to the tube is possilbe! No disturbing tangle of cables; only a small amount of space is required.



[1)] Min. target diameter K: Steel ball D: Steel wire

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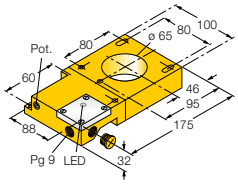
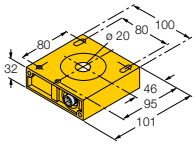
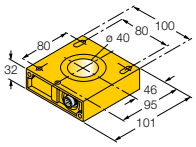
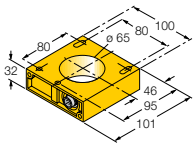
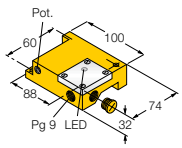
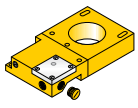
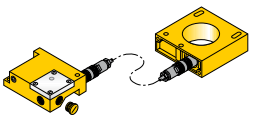
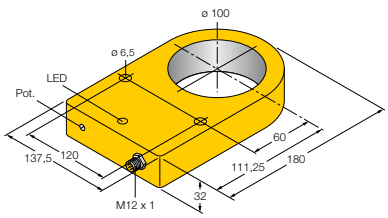
Type	Ident no.	Connection (☞ 322)	Reading rate frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI20R-W30S-AP6X-H1141	1403231 ✘	S002	0.008	-25...+70	IP67	PA	POM	–	–	•
BI50R-Q80-AP6X2-H1141	1407530 ✘	S002	0.01	-25...+70	IP67	PBT	PA	–	•	•
BI65R-Q80-AP6X2-H1141	1407531 ✘	S002	0.01	-25...+70	IP67	PBT	PA	–	•	•
NI20R-S32SR-VP44X	1440001 ✘	S009	0.008	-25...+70	IP65	ABS	ABS	–	–	•
NI40R-S32SR-VP44X	1440005 ✘	S009	0.008	-25...+70	IP65	ABS	ABS	–	–	•

✘ = Preferred solution, available at short notice

Ring sensors

Dimensions/Housing style		Features (☞ 356)	Internal ring diameter [mm]	Min. target diameter[1] [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**S32SR**	static output	65	2 D	⎓, PNP	10...55 VDC	200 DC, Ⓚ	
 Amplifier S32SR–VP44X required	**S32**	static output	20	0.4 D	–	–	–	
 Amplifier S32SR–VP44X required	**S32**	static output	40	1 D	–	–	–	
 Amplifier S32SR–VP44X required	**S32**	static output	65	2 D	–	–	–	
 Ring sensor Ni...R–... required	**S32**	static output	–	–	⎓, PNP	10...55 VDC	200 DC, Ⓚ	
		 			S32 ring sensors are avialable as compact versions or with separate amplifier. Please use the correspondent adapter cable for the ring, 1.6 m ID-Nr. 14306			
	**S32XL**	static output	100	10 K / 4 D	⎓, PNP	10...55 VDC	200 DC, Ⓚ	

[1] Min. target diameter K: Steel ball D: Steel wire

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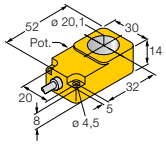
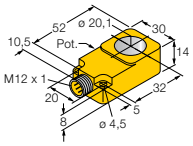
	Type	Ident no.	Connection (☞ 322)	Reading rate frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	NI65R-S32SR-VP44X	1440008 ✘	S009	0.008	-25...+70	IP65	ABS	POM	–	–	•
	NI20R-	1410001 ✘	–	–	-25...+70	IP65	ABS	ABS	–	–	–
	NI40R-	1430101 ✘	–	–	-25...+70	IP65	ABS	ABS	–	–	–
	NI65R-	1440007 ✘	–	–	-25...+70	IP65	ABS	POM	–	–	–
	S32SR-VP44X	1440010 ✘	S009	0.008	-25...+70	IP65	ABS	–	–	–	•
	NI100R-S32XL-VP44X-H1141	1510301 ✘	S008	0.008	-25...+70	IP67	POM	POM	–	–	•

✘ = Preferred solution, available at short notice

Ring sensors

Dimensions/Housing style		Features (☞ 356)	Measuring range [mm]	Measuring range lenght [mm]	Output type 1 I (mA) (PIN2, WH)	Output type 2 U (V) (PIN4, BK)	Linearity error [%]	Operational voltage U_B	
	**Q14**	analog	–	[1]	[1]	0...10 V	–	15...30 VDC	
	**Q14**	analog	–	[1]	[1]	0...10 V	–	15...30 VDC	

[1] For measuring range curve , see page 320

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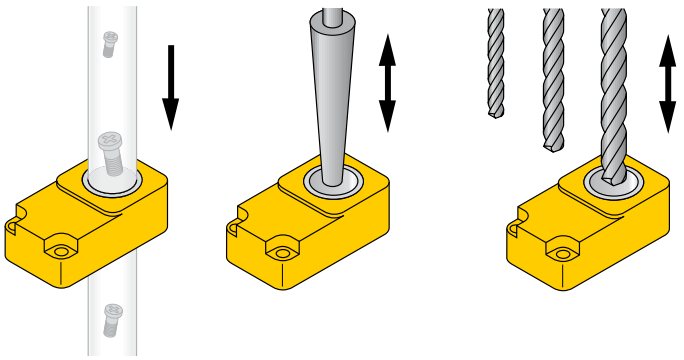
	Type	Ident no.	Connection (☞ 322)	Reading rate frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED
	BI20R-Q14-LU	1535546 ✘	S091	80	-10...+70	IP67	PBT	–	PVC 2 m	–	
	BI20R-Q14-LU-H1141	1535548 ✘	S098	80	-10...+70	IP67	PBT	–	–	–	

Functional principle

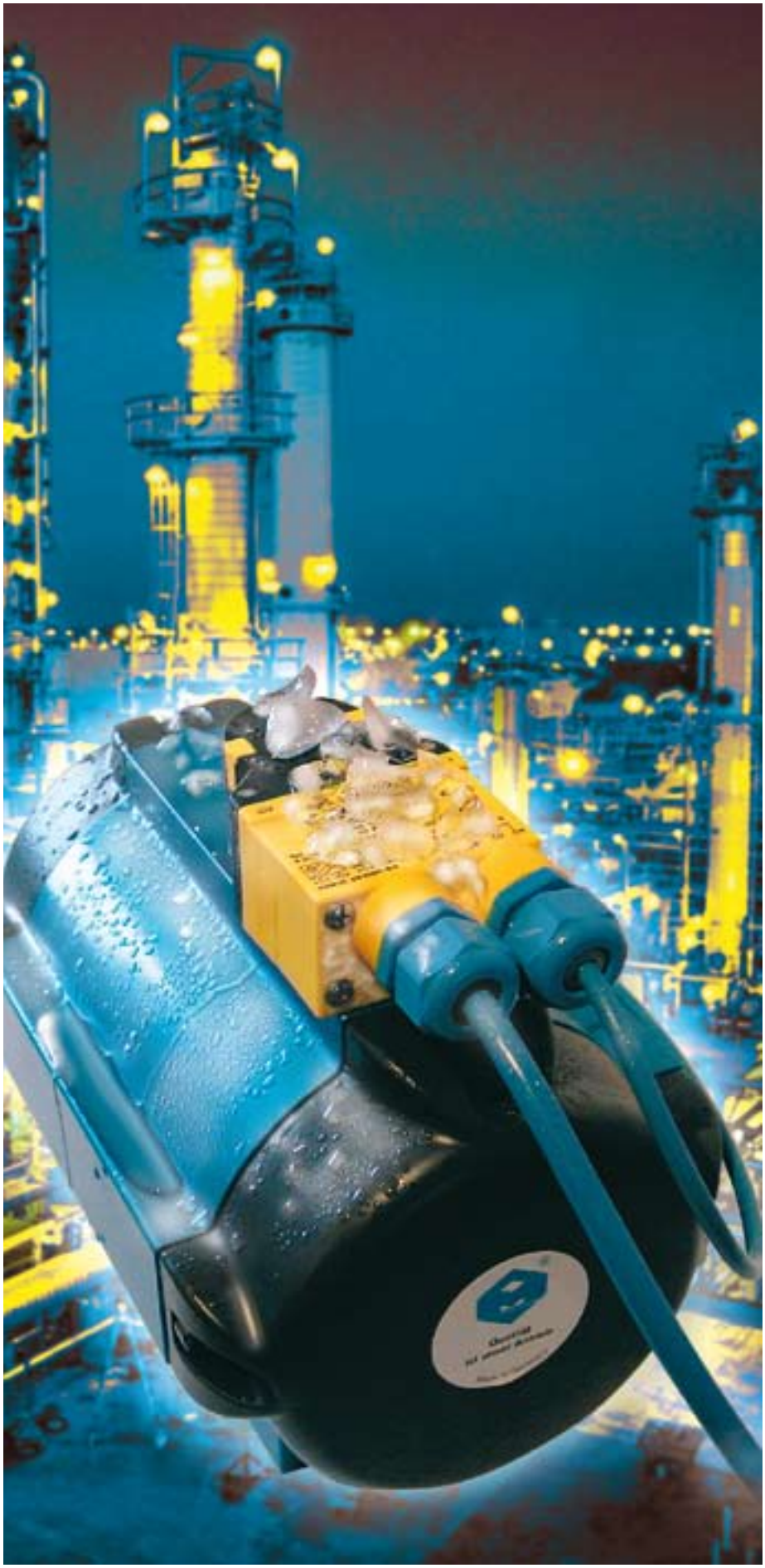


Possible applications of inductive ring sensors with analogue output:
- Thickness measurements (e.g. screws, rivets, rods)
- Displacement measurement with conical target: measuring range freely adjustable via cone length
- Tool recognition

Other ring diameters on request

✘ = Preferred solution, available at short notice

Inductive sensors for rotary drives



Binary position feedbacks, for example, the “open” / “closed” signals from flaps and ball valves are extremely common in process engineering. Generally, the position feedback indicators are installed in a plastic housing usually with a very complex mechanical construction. In addition to a large diversity of individual components which logically have an effect on the price, a cost-intensive adjustment of the switching points must usually be made.

With the introduction of the ATEX guideline in 2003 the issue has become even more complex, as all the components such as the housing, sensors or microswitches including their associated wiring, must be checked separately for their compliance to the standard or approval must be sought. If a reliability is also to be determined in the scope of the SIL directive IEC 61508, the effort and expense involved increase considerably.

Open solutions are alternatively available with dual sensors. The compact housing, the optimised connection and simple mounting features have proven to be particularly advantageous. This is why dual sensors are continuing to gain preference over conventional installations.

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TURCK offers dual sensors in different series. Each of these series is adapted exactly to the special needs of different systems and application conditions.

The dual sensors of the DSU35 series have proven themselves in numerous applications. With dimensions of just 59 x 60 x 35.4 mm this housing design is significantly smaller and more compact than the conventional modular housing. The robust and crush-resistant sensors are resistant to a whole range of different chemicals and suitable for outdoor use without additional covering. The following electrical versions are available:

- NAMUR
- PNP 4-wire
- 2-wire AC/DC
- 2-wire DC
- AS Interface V2.1
- DeviceNet™

All common conventional connection variants such as cables, terminal chambers and connectors in M12 or 7/8“ are available as well as an – optional – integrated valve connection feature.

With the respective actuation elements (“Pucks”) BTS-DSU35-EB1 and BTS-DSU35-EU2 it is possible to easily implement position feedbacks for clockwise and anticlockwise drives. Furthermore, the Pucks are clearly visible from all sides and can be rotated by 90° without the need for tools. This solves a problem if for example, the drives have to be fitted “transversely” due to space considerations, and as a result the usual optical position displays are no longer correct.

The switching points can be adjusted steplessly with the actuation element BTS-DSU35-EBE1-2. Accordingly, it is suitable particularly for systems in which the “open” and “closed” switching points change according to the application circumstances (e.g. with rubber flaps).

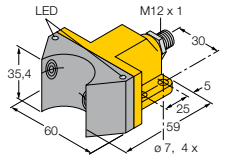
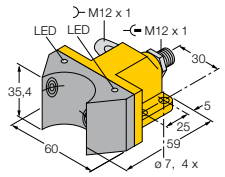
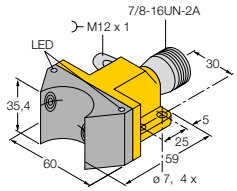
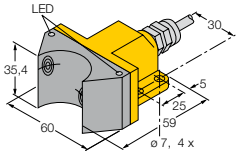
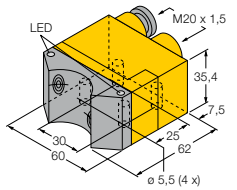
The TURCK dual sensors again prove their benefits in terms of approvals and directives.

One of the most relevant issues here is the IEC 61508 and IEC 61511 (SIL directive). In order to comply with the “Safety Integrity Level” of the systems, more and more position feedbacks compliant to IEC 61508 are in demand. Modular housing usually fail to comply with these guidelines due to their mechanical complexity. In contrast, almost all NAMUR sensors from TURCK are suitable for use in safety systems including SIL2 compliant to IEC 61508 and they feature the respective TÜV certification. The NAMUR sensors are – as all other TURCK dual sensors – compatible to all standard amplifying devices.

For the “position feedback” application area the TURCK standard range also offers a large selection of sensors and accessories. Thus, complex special solutions can be avoided and costs can be reduced during planning and commissioning, as well as during operation of a system. Using different actuation elements, applications with clockwise and anticlockwise rotating drives as well as other switching points can be easily implemented.

- Secure protection against environmental influences
- High resistance to chemicals and cleaning agents
- Easily accessible terminal chambers, connectors or cables
- Integrated valve control
- Bus-compatible
- Direct mounting onto rotary actuators
- Repair work on the drive possible without removing the wiring
- Robust and crush-resistant
- Different connector systems and cable connections as standard
- Wide range of actuation elements
- Absolutely maintenance free
- Standard compliant to world-wide standards such as ATEX and SIL.

Inductive sensors for rotary drives

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**DSU35**	Ex II 2 G SIL2	4, ⊏	NAMUR	nom. 8.2 VDC	–
		–	4, ⊏	⎯⎽⎯, PNP	10...65 VDC	200 DC, Ⓚ
	**DSU35**	AS–Interface	4, ⊏	AS–i V2.1	18...33 VDC	–
		DeviceNet	4, ⊏	⎯⎽⎯, DeviceNet	11...25 VDC	
	**DSU35**	Ex II 2 G Ex II 1 D SIL2	4, ⊏	NAMUR	nom. 8.2 VDC	–
		–	4, ⊏	⎯⎽⎯, PNP	10...65 VDC	200 DC, Ⓚ
		–	4, ⊏	2 x ⎯⎽⎯	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ
	**DSU35**	Ex II 2 G SIL2	4, ⊏	NAMUR	nom. 8.2 VDC	–
		–	4, ⊏	⎯⎽⎯, PNP	10...65 VDC	200 DC, Ⓚ
		–	4, ⊏	2 x ⎯⎽⎯	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ
	**DSU35**	Ex II 2 G Ex II 1 D SIL2	4, ⊏	NAMUR	nom. 8.2 VDC	–
		Ex II 2 G Ex II 1 D SIL2	4, ⊏	NAMUR	nom. 8.2 VDC	–
		–	4, ⊏	⎯⎽⎯, PNP	10...65 VDC	200 DC, Ⓚ
		Ex II 3 G Ex II 3 D	4, ⊏	⎯⎽⎯, PNP	10...65 VDC	200 DC, Ⓚ
		–	4, ⊏	⎯⎽⎯, 2-wire	10...65 VDC	100 DC, Ⓚ
		–	4, ⊏	2 x ⎯⎽⎯	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ
		AS–Interface	4, ⊏	AS–i V2.1	18...33 VDC	–

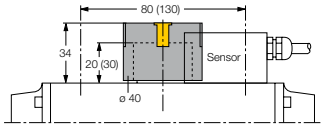
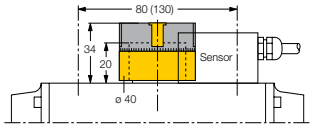
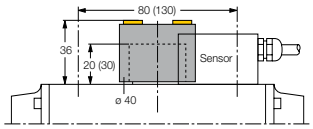
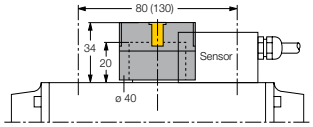
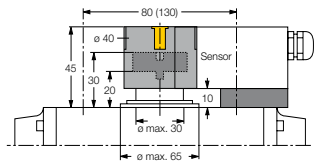
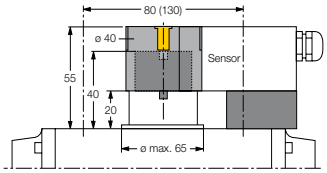
For more information please see our catalog „Inductive sensors for rotary actuators “. The catalog includes the complete product portfolio of sensors and accessories for rotary actuators as well as numerous cross-reference lists and selection guides which help you to find the right sensor for the correspondent rotary actuator.

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI4-DSU35-2Y1X2-H1140	1051003 ✘	S031	0.05	-25...+70	IP67	PP	PP	–	–	● ●
NI4-DSU35-2AP4X2-H1141	1569901 ✘	S029	0.05	-25...+70	IP67	PP	PP	–	–	● ●
NI4-DSU35-2ASIX4-H1140	1902000 ✘	S053	0.03	-25...+70	IP67	PP	PP	–	–	● ●
NI4-DSU35-2DNETX5-H1150	1569908	S131	0.05	-25...+70	IP67	PP	PP	–	–	● ●
NI4-DSU35-2Y1X2-B1160-FKE4.3	1051015	S171	0.05	-25...+70	IP67	PP	PP	–	–	● ●
NI4-DSU35-2AP4X2-B1160-FKE4.5	1569923 ✘	S168	0.05	-25...+70	IP67	PP	PP	–	–	● ●
NI4-DSU35-2ADZ30X2-B1160-FKE4.5	4290011	S169	0.03	-25...+70	IP67	PP	PP	–	–	● ●
NI4-DSU35-2Y1X2	1051002	S030	0.05	-25...+70	IP67	PP	PP	PVC 2 m	–	● ●
NI4-DSU35-2AP4X2	1569900 ✘	S028	0.05	-25...+70	IP67	PP	PP	PVC 2 m	–	● ●
NI4-DSU35-2ADZ30X2	4290000 ✘	S048	0.03	-25...+70	IP67	PP	PP	PVC 2 m	–	● ●
NI4-DSU35TC-2Y1X2	1051004 ✘	S051	0.05	-25...+70	IP67	PP	PP	–	–	● ●
NI4-DSU35TC-2Y1X2/S933	1051011 ✘	S051	0.05	-25...+70	IP67	PP	PP	–	–	● ●
NI4-DSU35TC-2AP4X2	1569902 ✘	S050	0.05	-25...+70	IP67	PP	PP	–	–	● ●
NI4-DSU35TC-2AP4X2/3GD	1569911 ✘	S050	0.05	-25...+70	IP67	PP	PP	–	–	● ●
NI4-DSU35TC-2AD4X2	4430130 ✘	S170	0.05	-25...+70	IP67	PP	PP	–	–	● ●
NI4-DSU35TC-2ADZ30X2	4290002 ✘	S052	0.03	-25...+70	IP67	PP	PP	–	–	● ●
NI4-DSU35TC-2ASIX4	1902005 ✘	S049	0.03	-25...+70	IP67	PP	PP	–	–	● ●

For actuating elements (pucks) and accessories please see page 146.

✘ = Preferred solution, available at short notice

Accessories inductive sensors for rotary drives

Dimensions/Housing style	Type	Ident no.	Materials (☞ 334)	For sensor types
	**BTS-DSU35-EB1**	6900225	PP	Actuation kit (puck); end position dampened; hole pattern on flange surface 80 x 30 mm and 130 x 30 mm; connection shaft (shaft extension) height 20 (30) mm / Ø max. 30 mm
	**BTS-DSU35-EBE1-2**	6900497	PP	Actuation kit (puck), end position dampened; „open“ and „closed“ switch-point infinitely adjustable; hole pattern on flange surface 80 x 30 mm and 130 x 30 mm; connection shaft (shaft extension) height 20 / Ø max. 30 mm
	**BTS-DSU35-EU2**	6900455	AL	Actuation kit (puck); end position not dampened for clockwise or counter-clockwise drives; hole pattern on flange surface 80 x 30 mm and 130 x 30 mm; connection shaft (shaft extension) height 20 (30) mm / Ø max. 30 mm
	**BTS-DSU35-EBE1**	6900226	PP	Actuation kit (puck), end position not dampened and adjustable switch point; hole pattern on flange surface 80 x 30 mm and 130 x 30 mm; connection shaft (shaft extension) height 20 / Ø max. 30 mm
	**BTS-DSU35-Z01**	6900229	POM	Mounting kit for larger rotary actuators: Ø disc and snap ring max. 65 mm; hole pattern on flange surface 30 x 80 mm (30 x 130 mm); connection shaft (shaft extension) height 20 mm / Ø max. 30 mm
	**BTS-DSU35-Z02**	6900230	POM	Mounting kit for larger rotary actuators: Ø disc and snap ring max. 65 mm; hole pattern on flange surface 30 x 80 mm (30 x 130 mm); connection shaft (shaft extension) height 20 (30) mm / Ø max. 40 mm

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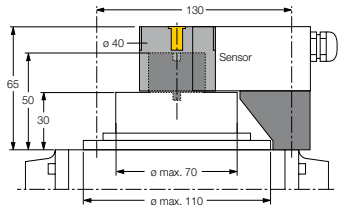
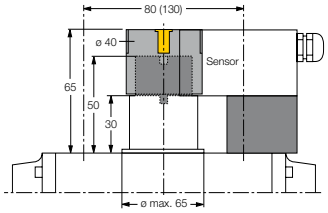
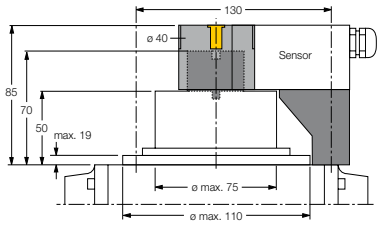
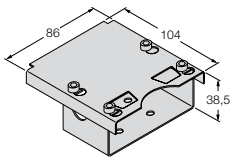
Dimensions/Housing style	Type	Ident no.	Materials (☞ 334)	For sensor types
	**BTS-DSU35-Z03**	6900231	POM	Mounting kit for larger rotary actuators: Ø disc and snap ring max.110 mm; hole pattern on flange surface 30 x 130 mm; connection shaft (shaft extension) height 30 mm / Ø max. 70 mm
	**BTS-DSU35-Z06**	6900402	POM	Mounting kit for larger rotary actuators: Ø disc and snap ring max. 65 mm; hole pattern on flange surface 30 x 80 mm (30 x 130 mm); connection shaft (shaft extension) height 30 mm / Ø max. 40 mm
	**BTS-DSU35-Z07**	6900403	POM	Mounting kit for larger rotary actuators: Ø disc and snap ring max.110 mm; hole pattern on flange surface 30 x 130 mm; connection shaft (shaft extension) height 30 mm / Ø max. 75 mm
	**SG-DSU35TC**	6900437	VA	Protective housing for dual sensors, series DSU35, for mechanically protected installation in the explosion hazardous area

3

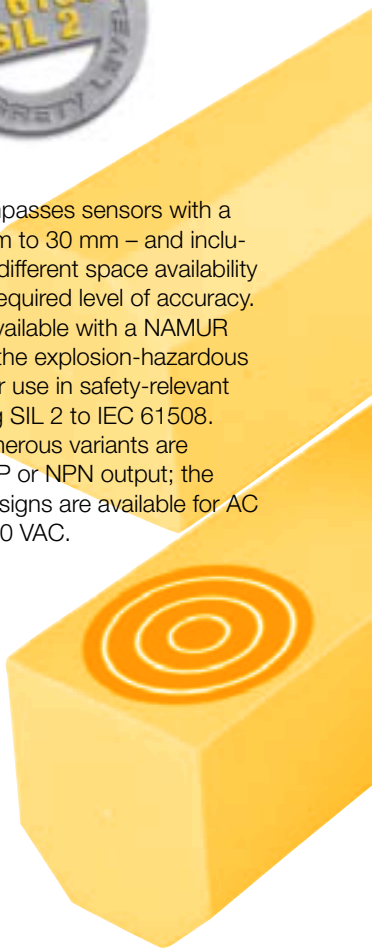
✘ = Preferred solution, available at short notice

Inductive slot sensors

The housing of the slot sensors is U shaped with the active face between the two arms. The sensor is actuated if a metal object moves into the U shaped area. The advantage of slot sensors is that they are capable of securely detecting targets whose distance from the active face is not clearly defined upon side approach.

Thus, slot sensors serve for example as threshold value encoders on analogue pointer instruments or as position encoders on chain driven conveyor systems where the actuating element can swing due to the tolerance of the chain.

The range encompasses sensors with a slot width of 2 mm to 30 mm – and includes solutions for different space availability options and the required level of accuracy. All versions are available with a NAMUR output for use in the explosion-hazardous area as well as for use in safety-relevant systems including SIL 2 to IEC 61508. Furthermore, numerous variants are available with PNP or NPN output; the larger housing designs are available for AC voltages up to 250 VAC.



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Insertion depth of a metal object (actuation element) in the slot sensor (Fig. 1 and 2)

Series	I [mm]	H [mm]	J [mm]	W [Material]	X [mm]	X [%]	Hyst. [%]	Hyst. [mm]	F [mm]
Si3,5	3,5	10	10	Alu	5…6	50…60	0…20	0...1,2	9,5
Si5	15	9	9	St37	3,7…5,2	41…58	< 40	< 1,5	8,5
Si15	30	42	30	St37	18…20	53,3…66,6	3…13,5	0,4…2,7	30
Si30	30	80	33	St37	16…18	48…54,5	3…15	0,48…2,7	40

Fig. 1

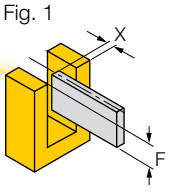
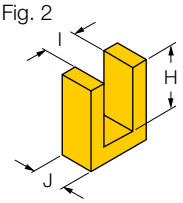


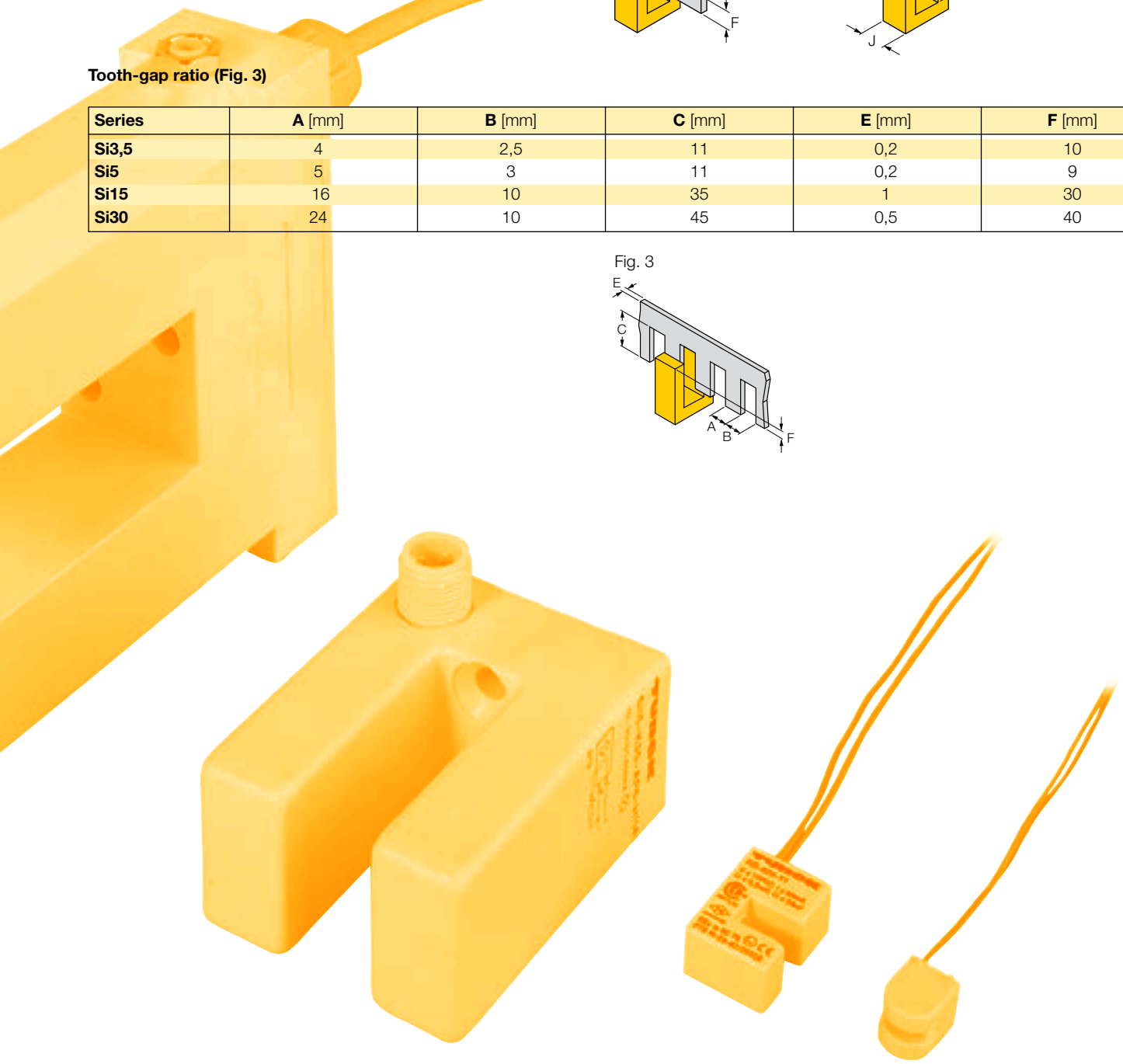
Fig. 2



Tooth-gap ratio (Fig. 3)

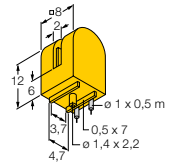
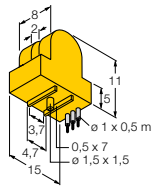
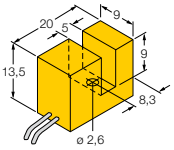
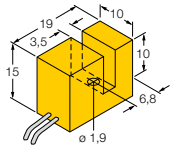
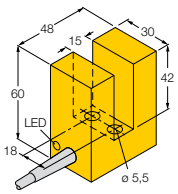
Series	A [mm]	B [mm]	C [mm]	E [mm]	F [mm]
Si3,5	4	2,5	11	0,2	10
Si5	5	3	11	0,2	9
Si15	16	10	35	1	30
Si30	24	10	45	0,5	40

Fig. 3



3

Inductive slot sensors

Dimensions/Housing style		Features (☞ 356)	Slot gap [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**K08**	Ⓔx II 1 G SIL2	2	NAMUR	nom. 8.2 VDC	–	
		–	2	⎯⌒⎯, PNP	10...30 VDC	150 DC	
	**K08**	–	2	⎯⌒⎯, NPN	10...30 VDC	150 DC	
	**K09**	Ⓔx II 2 G SIL2	5	NAMUR	nom. 8.2 VDC	–	
	**K10**	Ⓔx II 2 G SIL2	3.5	NAMUR	nom. 8.2 VDC	–	
		Ⓔx II 2 G SIL2	3.5	NAMUR	nom. 8.2 VDC	–	
		–	3.5	⎯⌒⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		–	3.5	⎯⌒⎯, NPN	10...30 VDC	200 DC	
	**K30**	Ⓔx II 2 G SIL2	15	NAMUR	nom. 8.2 VDC	–	
		–	15	⎯⌒⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		–	15	⎯⌒⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		–	15	⎯⌒⎯	20...250 VAC 10...300 VDC	400 AC 300 DC	
		–	15	⎯⊣⎯	20...250 VAC 10...300 VDC	400 AC 300 DC	

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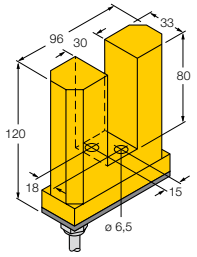
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
SI2-K08-Y1	1007700 -	S025	2.5	-25...+70	IP67	VES	VES	PVC 0.5 m	-	-
SI2-K08-AP7	1719501 ✘	S001	1	-25...+70	IP67	VES	VES	PVC 0.5 m	-	-
SI2-K08-AN7	1719601 -	S004	1	-25...+70	IP67	VES	VES	PVC 0.5 m	-	-
SI5-K09-Y1	10075 ✘	S025	5	-25...+70	IP67	PBT	PBT	PVC 0.5 m	-	-
SI3,5-K10-Y1	10090 ✘	S025	3	-25...+70	IP67	PBT	PBT	PVC 0.5 m	-	-
SI3,5-K10-Y1X	40490 ✘	S025	3	-25...+70	IP67	PBT	PBT	PVC 0.5 m	-	•
SI3,5-K10-AP6X	1650001 ✘	S001	2	-25...+70	IP67	PBT	PBT	PVC 0.5 m	-	•
SI3,5-K10-AN7	1719000 ✘	S004	2	-25...+70	IP67	PBT	PBT	PVC 0.5 m	-	-
SI15-K30-Y1X	1007601 -	S025	0.5	-25...+70	IP67	PBT	PBT	PVC 2 m	-	•
SI15-K30-AP6X	1605001 ✘	S001	0.5	-25...+70	IP67	PBT	PBT	PVC 2 m	-	•
SI15-K30-AN6X	1605003 ✘	S004	0.5	-25...+70	IP67	PBT	PBT	PVC 2 m	-	•
SI15-K30-AZ3	13069 ✘	S092	0.02	-25...+70	IP67	PBT	PBT	PVC 2 m	-	-
SI15-K30-RZ3	13169 ✘	S094	0.02	-25...+70	IP67	PBT	PBT	PVC 2 m	-	-

✘ = Preferred solution, available at short notice

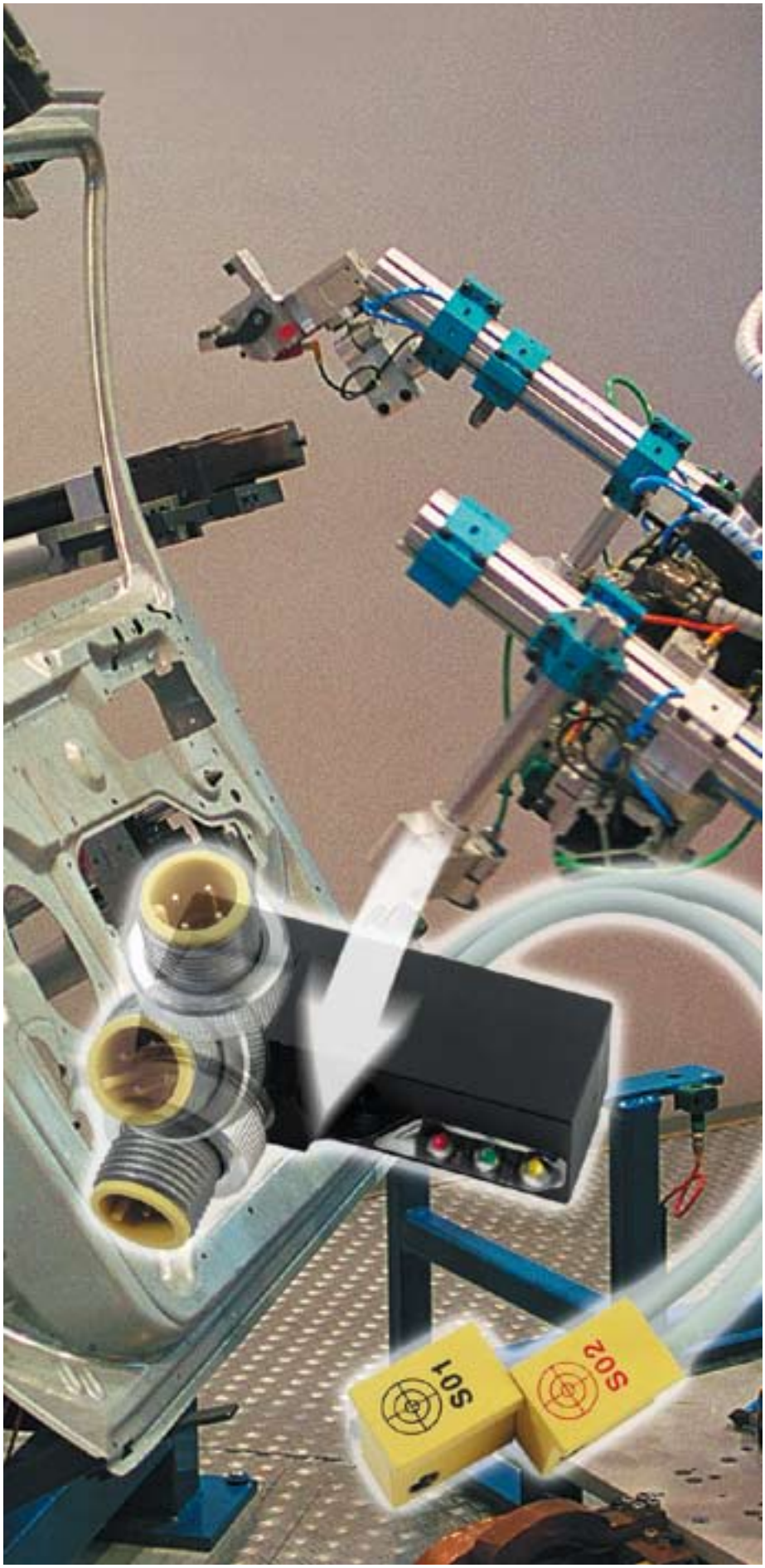
Inductive slot sensors

Dimensions/Housing style		Features (☞ 356)	Slot gap [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**K33**	Ex II 2 G SIL2	30	NAMUR	nom. 8.2 VDC	–	
		–	30	, PNP	10...30 VDC	200 DC, Ⓚ	
		–	30	, NPN	10...30 VDC	200 DC, Ⓚ	

	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED
	SI30-K33-Y1X	1007701	S025	0.1	-25...+70	IP67	PBT	PBT	PVC 2 m	–	•
	SI30-K33-VP6X	1605201 ✘	S007	0.1	-25...+70	IP67	PBT	PBT	PVC 2 m	–	•
	SI30-K33-VN6X	1605202	S010	0.1	-25...+70	IP67	PBT	PBT	PVC 2 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors for clamping and gripping technology



On every clamping system the positions “Open – Closed” on the grippers and clamps have to be continually detected and monitored in order to ensure a smooth manufacturing process. For this task TURCK offers perfectly combined sensor sets which can be used with all conventional clamping systems (e.g. in the automotive industry).

In contrast to the so-called satellite systems, both the new BMI set as well as the proven BS and BDS block feature stand-alone sensor modules. Thus, practically every TURCK sensor version can be combined with the power block. This guarantees quick matching even to future clamping systems and provides the user with the certainty of having the right system available at all times.
The customized version for enclosed clamps from Tünkers is just one example of many types of special solutions.

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A TURCK sensor set generally consists of a power block and two stand-alone sensor modules:

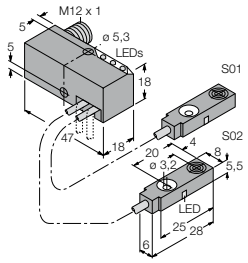
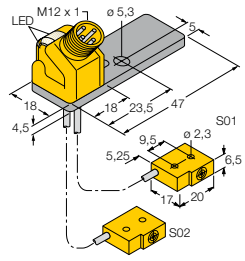
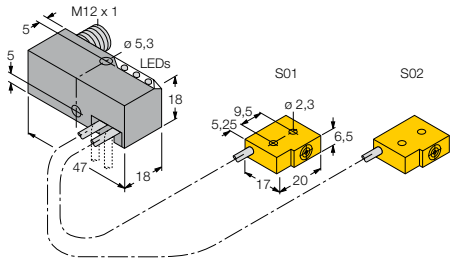
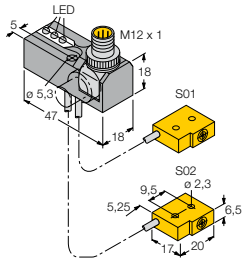
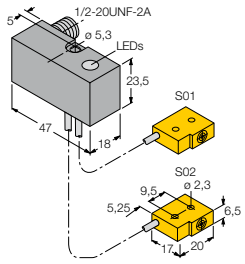
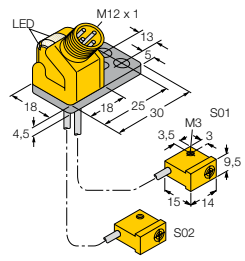
- The sensor modules detect the “Open” and “Closed” positions on grippers or clamps. The sensor design types Q5.5, Q6.5, Q9.5, K08Q and EH08/6,5 are used.
  Combinations with other housing designs can be implemented quickly as complete sensor modules are used!
- The power block is used for connection of both sensor modules via a common connector. Three LED’s visible on all sides signal the “Open” and “Closed” positions; in addition power ON indication is provided. Three power blocks are available:
- BS – robust power block with corner LED’s for highly visible display of the sensor status and operating voltage. The block can be fully implemented, the cross drilling enables the alignment of the connector exits (side and above)
- BDS – robust power block with rotatable connector. The connector can be turned without using tools by 0°, 45° or 90° via a knurled nut; thus the connection cable can be laid flexibly. The displays of the LED display window are highly visible all round.
- BMI – extremely compact and light power block. The 45° connector positioning complies with the requirement for flexible cabling concepts. The LED is also highly visible from different directions. Different mounting plates are available for mechanical matching to the clamping system.
- KS13 and KS26 are application optimised compact sensors.
  The “Open” and “Closed” positions are integrated into a housing. An M12 pigtail connector is provided as an electrical interface to the system.

The TURCK sensor sets are connected through a cassette slot or directly to the mechanical components depending on the clamp manufacturer and type. This saves mounting time and space and reduces possible mounting faults to an absolute minimum.

Let the many facets of our application-specific clamping technology products impress you: The solution for your detection problems can be found at TURCK!

- Almost unlimited combination possibilities of different power blocks and over forty different modular sensor types
- Welding field immune (magnetic-field immune) variants
- Halogen-free materials
- Approval in almost all car factories in Europe, USA and Asia
- Matched sets for clamping systems (BTM, Destaco, Festo, Genus, ISI, Tünkers etc.)
- Special solutions also for other applications with two monitoring positions possible

Inductive sensors for clamping and gripping technology

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**Q5,5**	MF immune	2,	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
	**Q6,5**	MF immune	2,	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
	**Q6,5**	MF immune	2,	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
	**Q6,5**	MF immune	2,	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
	**Q6,5**	MF immune MF immune	2, 2,	2 x ⎯⎺⎯ 2 x ⎯⎺⎯	20...250 VAC 10...300 VDC 20...250 VAC 10...300 VDC	100 AC 100 DC, Ⓚ 100 AC 100 DC, Ⓚ	
	**Q9,5**	MF immune	2,	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	

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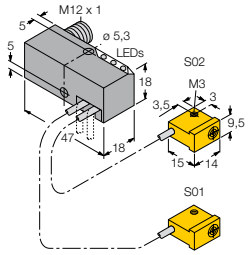
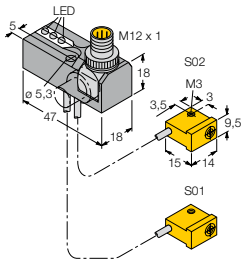
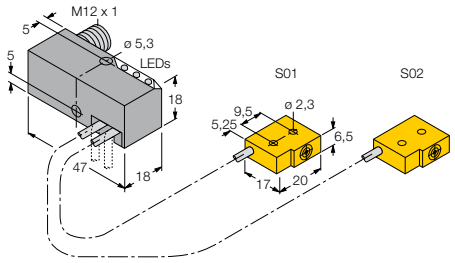
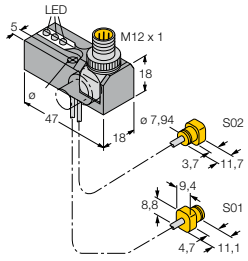
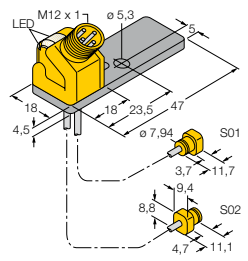
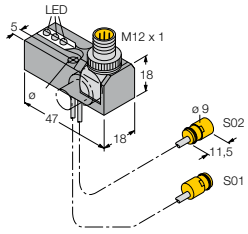
Type	Ident no.	Connection (☞ 322)	Swiching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI2-Q5,5-0,27-BS-2AP6X3-H1141/S34	1613006	S046	0.03	-25...+70	IP67	PBT	PP	PUR 0.27 m	•	• •
NI2-BMI-AP-002	1650251	S046	0.03	-25...+70	IP67	PP	PA	PUR 0.1 m / 0.1 m	•	• •
NI2-Q6,5-AP6-0,1-FS4.4X3/S304	1650048	S046	0.03	-25...+70	IP67	PBT	PA	PUR 0.1 m	•	• •
NI2-Q6,5-0,1-BDS-2AP6X3-H1141/S34	1650098 ✘	S046	0.03	-25...+70	IP67	Trogamit	PA	PUR 0.1 m	•	• •
NI2-Q6,5-ADZ32-0,16-FSB5.4X4/ S304	4200203	S047	0.03	-25...+70	IP67	PBT	PA	PUR 0.16 m	–	• •
NI2-Q6,5-ADZ32-0,1-FSB5.4X4/ S304	4200204	S047	0.03	-25...+70	IP67	PBT	PA	PUR 0.1 m	–	• •
NI2-BMI-AP-001	1650250	S046	0.03	-25...+70	IP67	PP	PA	PUR 0.1 m / 0.1 m	•	• •

✘ = Preferred solution, available at short notice

3

Inductive sensors for clamping and gripping technology

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**Q9,5**	MF immune	2,	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		MF immune	2,	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		MF immune	2,	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ	
	**Q9,5**	MF immune	2,	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ	
	**Q6,5**	MF immune	2,	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ	
	**K08Q**	MF immune	1.2,	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	**K08Q**	MF immune	2,	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ	
	**K09**	MF immune	1.2,	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ	

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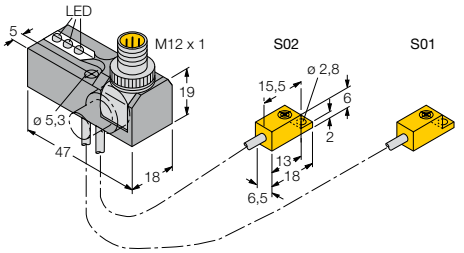
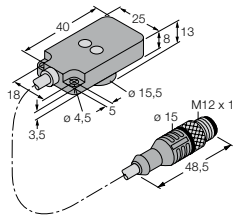
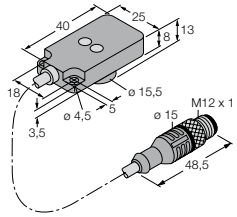
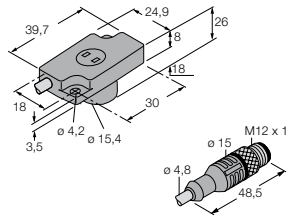
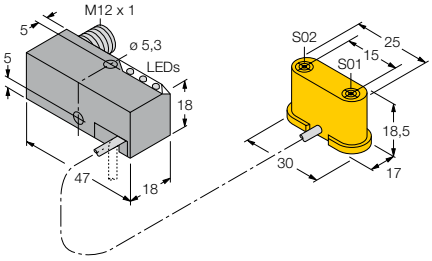
Type	Ident no.	Connection (☞ 322)	Swiching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI2-Q9,5-AP6-0,1-FS4.4X3/S304	1650060 ✘	S046	0.03	-25...+70	IP67	PBT	PA	PUR 0.1 m	•	• •
NI2-Q9,5-AP6-0,2-FS4.4X3/S304	1650062 ✘	S046	0.03	-25...+70	IP67	PBT	PA	PUR 0.2 m	•	• •
NI2-Q9,5-AP6-0,15-FS4.4X3/S304	1650065	S046	0.03	-25...+70	IP67	PBT	PA	PUR 0.15 m	•	• •
NI2-Q9,5-0,1-BDS-2AP6X3-H1141/S34	1650099 ✘	S046	0.03	-25...+70	IP67	Trogamit	PA	PUR 0.1 m	•	• •
NI2-Q6,5-AP6-0,15-FS4.4X3/S304	1650074	S046	0.03	-25...+70	IP67	PBT	PA	PUR 0.15 m	•	• •
NI2-K08Q-0,095/0,11-BDS-2AP6X3-H1141/S34	1650124 ✘	S046	0.03	-25...+70	IP67	Trogamit	PA	PUR 0.095 m / 0.11 m	•	• •
NI2-BMI-AP-003	1650252	S046	0.03	-25...+70	IP67	PP	PA	PUR 0.095 m / 0.11 m	•	• •
NI2-K09-0,095/0,11-BDS-2AP6X3-H1141/S34	1650039 ✘	S046	0.03	-25...+70	IP67	Trogamit	PA	PUR 0.095 m / 0.11 m	•	• •

✘ = Preferred solution, available at short notice

Inductive sensors for clamping and gripping technology

Dimensions/Housing style	Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
 **ISI**	MF immune	2,	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ	
 **KS13**	MF immune	1.5,	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ	
	MF immune	1.5,	⎯⎽⎯, 2-wire	10...65 VDC	100 DC, Ⓚ	
	MF immune	1.5,	⎯⎽⎯, 2-wire	10...65 VDC	100 DC, Ⓚ	
 **KSR13**	MF immune	1.5,	⎯⎽⎯, 2-wire	10...65 VDC	100 DC, Ⓚ	
	MF immune	1.5,	⎯⎽⎯, 2-wire	10...65 VDC	100 DC, Ⓚ	
 **KSR26**	MF immune	1.5,	⎯⎽⎯, 2-wire	10...65 VDC	100 DC, Ⓚ	
	MF immune	1.5,	⎯⎽⎯, 2-wire	10...65 VDC	100 DC, Ⓚ	
 **VEP**	MF immune	1.5,	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ	

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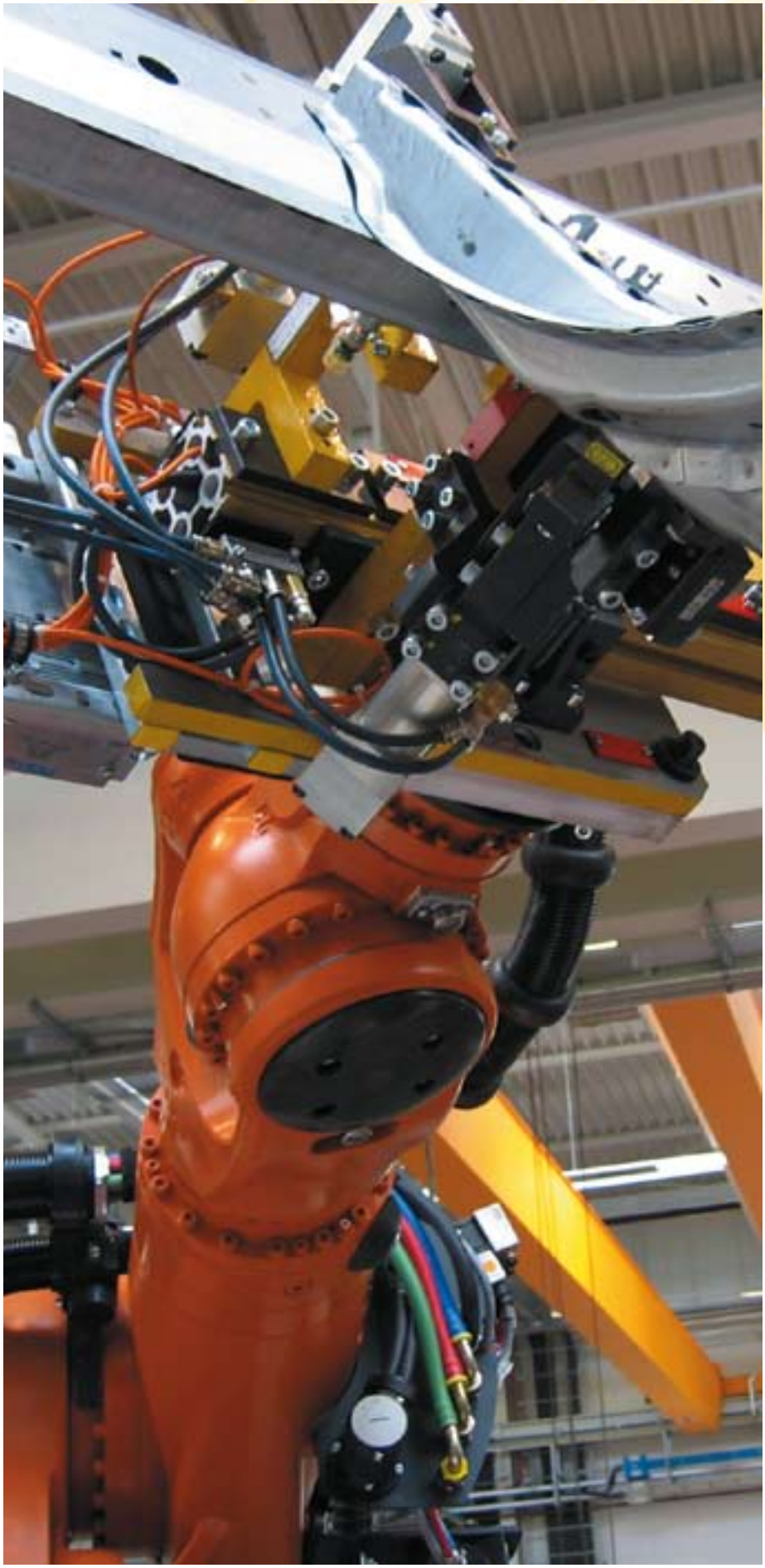
	Type	Ident no.	Connection (☞ 322)	Swiching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	NI2-ISI-0,055-BDS-2AP6X3-H1141/S34	1650130 ✘	S046	0.03	-25...+70	IP67	Trogamit	PA	PUR 0.055 m	•	• •
	NI1,5-KS13A-2AP6X3-0,2-RS4.4T /S34	4430120	S029	0.5	-25...+70	IP67	PBT	PBT	PUR 0.2 m	•	• •
	NI1,5-KS13A-2AD4X2-0,2-RS4.4T /S34	4430115 ✘	S135	0.25	-25...+70	IP67	PBT	PBT	PUR 0.2 m	–	• •
	NI1,5-KS13R-2AD4X2-0,2-RS4.4T /S34	4430116	S135	0.25	-25...+70	IP67	PBT	PBT	PUR 0.2 m	–	• •
	NI1,5-KSR13R-2AD4X2-0,2-RS4.4T/S34	4430121	S135	0.25	-25...+70	IP67	PBT	PBT	PUR 0.2 m	–	• •
	NI1,5-KSR13A-2AD4X2-0,2-RS4.4T/S34	4430122	S135	0.25	-25...+70	IP67	PBT	PBT	PUR 0.2 m	–	• •
	NI1,5-KSR26R-2AD4X2-0,2-RS4.4T/S34	4430123	S135	0.25	-25...+70	IP67	PBT	PBT	PUR 0.2 m	–	• •
	NI1,5-KSR26A-2AD4X2-0,2-RS4.4T/S34	4430124	S135	0.25	-25...+70	IP67	PBT	PBT	PUR 0.2 m	–	• •
	NI1,5-VEP-2AP6-0,185-FS4.4X3/S304	1650123	S172	0.03	-25...+70	IP67	PBT	PBT	PUR 0.185 m	•	• •

✘ = Preferred solution, available at short notice

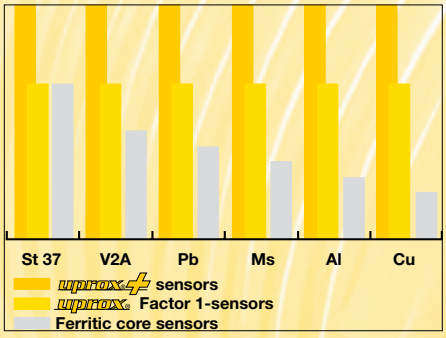
3

FACTOR 1 sensors – *uprox*® and *uprox*®+



The new generation of inductive sensors

As ferrite core sensors can only develop their high switching distances with St37, TURCK developed inductive *uprox*®+ sensors. These factor 1 sensors have the same switching distance for all metals. Regardless of it being the detection of iron, stainless steel, copper, aluminium or brass – the reduction factor is always 1.



Ferrite core sensors vs. factor 1 sensors – switching distances

The *uprox*® sensor developed by TURCK and its further development to the *uprox*®+ combines innovative coils and manufacturing technology to form a product with many highlights. All inductive sensors of the new generation no longer have reduction factors (i.e. they feature an identical switching distance for all metals), and also feature magnetic field immunity (welding resistance) and an extended temperature range, high level of EMC immunity and provide user friendly installation conditions.

With the development of the new *uprox*®+ sensors TURCK has consistently optimised the scope of performance of the *uprox*® and adapted it to the increasing demands of the customers. Benefit from the unique positive points of the new sensor generation!

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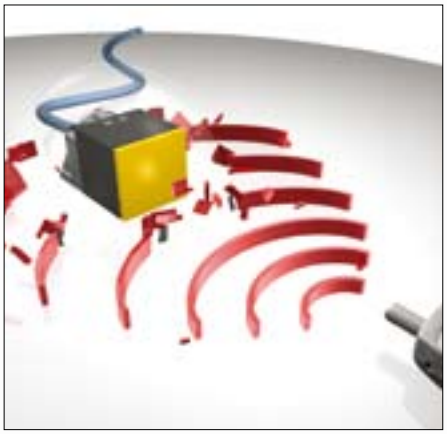
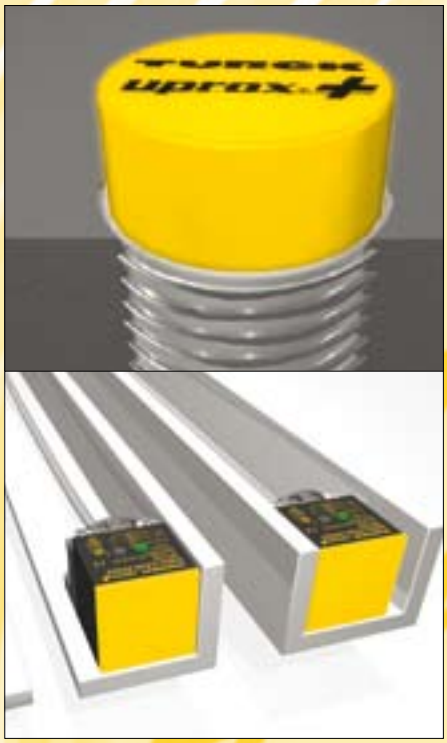
Highest switching distance
Thanks to their unique and patented coil technology, the new uprox+ sensors offer a switching distance that is up to 250 % higher than conventional inductive sensors with a ferrite core. This means that the sensor is vastly superior to any standard sensor of the same size. Make use of the high performance to optimise your applications!

Factor 1
The innovative uprox+ sensors set new standards with the detection of metals. These sensors detect at the same high distance and with the same level of accuracy, materials such as iron, stainless steel, copper, aluminium and brass.



Excellent EMC immunity
The uprox+ sensors go beyond the strict demands of the currently valid version of the EN 60947-5-2, and are compliant with the new draft version in terms of the higher demands (for tests compliant to EN 61000-4-6 “cable borne sources of interference”)

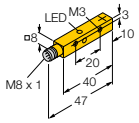
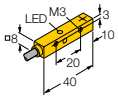
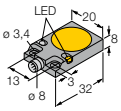
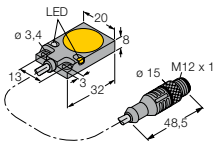
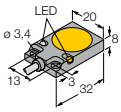
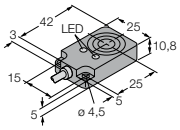
High magnetic field immunity
Due to the lack of a ferrite core the uprox+ sensor is inherently immune to interference caused by strong magnetic fields, which occur, for instance, in electric welding systems and near lifts and electric furnaces.



Partially flush mounting of non-flush sensors
Non-flush uprox+ sensors achieve a unique level of flexibility by the integrated pre-damping protection. In contrast to conventional sensors with ferrite cores the metal-free zones can be significantly smaller. The installation of non-flush sensors up to the edge of the thread is possible with a reduced switching distance.

Recessed mounting of flush-mounted sensors
Only small metal-free zones are required for the installation of the new uprox+ -sensors. In order to protect them from mechanical damage these sensors can even be installed recessed by half a thread – to ensure absolute safety in all installation positions!

FACTOR 1 sensors – *uprox*® and *uprox*®+

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]	
	**Q8SE**	*uprox*®+	4,	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®+	4,	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®+	4,	⎯⎺⎯, NPN	10...30 VDC	150 DC, Ⓚ	
	**Q8SE**	*uprox*®+	4, /	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®+	4, /	⎯⎺⎯, NPN	10...30 VDC	150 DC, Ⓚ	
	**Q08**	*uprox*®+	8,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	8,	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	5,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	5,	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	**Q08**	*uprox*®	5,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	5,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	**Q08**	*uprox*®+	8,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	8,	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	5,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	5,	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	**Q10**	*uprox*®	8,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	8,	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ	

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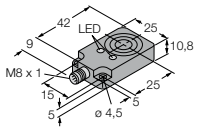
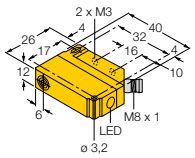
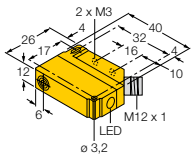
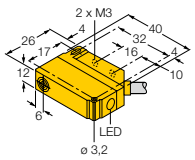
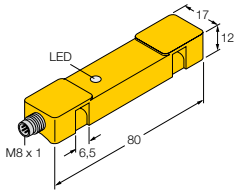
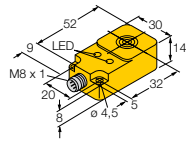
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI4U-Q8SE-AP6X-V1131	4635808 ✘	S002	1	-30...+85	IP68	PP	PP	–	–	•
NI4U-Q8SE-RP6X-V1131	4635820 ✘	S175	1	-30...+85	IP68	PP	PP	–	–	•
NI4U-Q8SE-AN6X-V1131	4635810	S005	1	-30...+85	IP68	PP	PP	–	–	•
NI4U-Q8SE-AP6X	4635807 ✘	S001	1	-30...+85	IP68	PP	PP	PUR 2 m	–	•
NI4U-Q8SE-AN6X	4635809 ✘	S004	1	-30...+85	IP68	PP	PP	PUR 2 m	–	•
BI8U-Q08-AP6X2-V1131	1662005 ✘	S002	0.25	-25...+70	IP68	GD-Zn	LCP	–	•	•
BI8U-Q08-AN6X2-V1131	1662008	S005	0.25	-25...+70	IP68	GD-Zn	LCP	–	•	•
BI5U-Q08-AP6X2-V1131	1608900 ✘	S002	0.25	-30...+85	IP67	GD-Zn	LCP	–	•	•
BI5U-Q08-AN6X2-V1131	1608910 ✘	S005	0.25	-30...+85	IP67	GD-Zn	LCP	–	•	•
BI5U-Q08-AP6X2-0,5X0R-RS4	1608925 ✘	S002	0.25	-30...+85	IP67	GD-Zn	LCP	PVC 0.5 m	•	•
BI5U-Q08-AP6X2-1X0R-RS4	1608921 ✘	S002	0.25	-30...+85	IP67	GD-Zn	LCP	PVC 1 m	•	•
BI8U-Q08-AP6X2	1662006 ✘	S001	0.25	-25...+70	IP68	GD-Zn	LCP	PUR 2 m	•	•
BI8U-Q08-AN6X2	1662007 ✘	S004	0.25	-25...+70	IP68	GD-Zn	LCP	PUR 2 m	•	•
BI5U-Q08-AP6X2	1608901 ✘	S001	0.25	-30...+85	IP67	GD-Zn	LCP	PUR 2 m	•	•
BI5U-Q08-AN6X2	1608911 ✘	S004	0.25	-30...+85	IP67	GD-Zn	LCP	PUR 2 m	•	•
BI8U-Q10-AP6X2	1662001 ✘	S001	0.25	-30...+85	IP67	PBT	PBT	PUR 2 m	•	•
BI8U-Q10-AN6X2	1662003	S004	0.25	-30...+85	IP67	PBT	PBT	PUR 2 m	•	•

✘ = Preferred solution, available at short notice

FACTOR 1 sensors – *uprox*® and *uprox*®+

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]	
	**Q10**	*uprox*®	8,	__, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	8,	__, NPN	10...30 VDC	200 DC, Ⓚ	
	**Q12**	*uprox*®+	5,	__, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	5,	__, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	5,	__, NPN	10...30 VDC	200 DC, Ⓚ	
	**Q12**	*uprox*®+	5,	__, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	5,	__, NPN	10...30 VDC	200 DC, Ⓚ	
	**Q12**	*uprox*®+	5,	__, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	5,	‾_, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	5,	__, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®+	5,	‾_, NPN	10...30 VDC	200 DC, Ⓚ	
	**TS12**	*uprox*®+ dynamic output	20,	__, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+ dynamic output	20,	__, NPN	10...30 VDC	200 DC, Ⓚ	
	**Q14**	*uprox*®	10,	__, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	10,	__, NPN	10...30 VDC	200 DC, Ⓚ	

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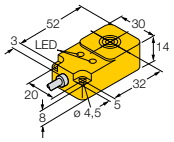
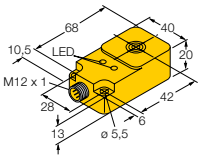
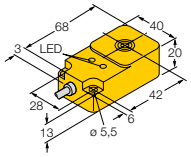
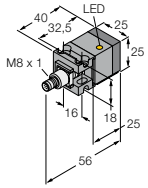
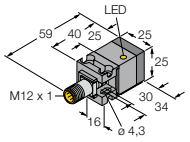
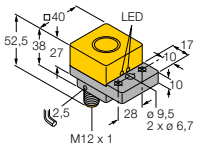
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI8U-Q10-AP6X2-V1131	1662002 ✘	S002	0.25	-30...+85	IP67	PBT	PBT	–	•	•
BI8U-Q10-AN6X2-V1131	1662004	S005	0.25	-30...+85	IP67	PBT	PBT	–	•	•
BI5U-Q12-AP6X2-V1131	1635524 ✘	S002	1	-25...+70	IP68	PA	PA	–	•	•
BI5U-Q12-AP6X2-V1131/F2	1635528 ✘	S002	1	-25...+70	IP68	PA	PA	–	•	•
BI5U-Q12-AN6X2-V1131	1635525 ✘	S005	1	-25...+70	IP68	PA	PA	–	•	•
BI5U-Q12-AP6X2-H1141	1635526 ✘	S002	1	-25...+70	IP68	PA	PA	–	•	•
BI5U-Q12-AN6X2-H1141	1635527	S005	1	-25...+70	IP68	PA	PA	–	•	•
BI5U-Q12-AP6X2	1635522 ✘	S001	1	-25...+70	IP68	PA	PA	PUR 2 m	•	•
BI5U-Q12-VP6X2 7M	1635529	S007	1	-25...+70	IP68	PA	PA	PUR 7 m	•	•
BI5U-Q12-AN6X2	1635523	S004	1	-25...+70	IP68	PA	PA	PUR 2 m	•	•
BI5U-Q12-VN6X2 7M	1635531	S010	1	-25...+70	IP68	PA	PA	PUR 7 m	•	•
NI20U-TS12-AP6X2-V1131	1646640 ✘	S002	0.008	-25...+70	IP68	PBT	–	–	•	•
NI20U-TS12-AN6X2-V1131	1625822	S005	0.008	-25...+70	IP68	PBT	–	–	•	•
BI10U-Q14-AP6X2-V1131	1608500 ✘	S002	0.25	-30...+85	IP67	PBT	PBT	–	•	•
BI10U-Q14-AN6X2-V1131	1608510 ✘	S005	0.25	-30...+85	IP67	PBT	PBT	–	•	•

✘ = Preferred solution, available at short notice

FACTOR 1 sensors – *uprox*® and *uprox*®+

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]	
	**Q14**	*uprox*®	10,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	10,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ	
	**Q20**	*uprox*®	15,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	15,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ	
	**Q20**	*uprox*®	15,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	15,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ	
 active face, variable orientation in 5 directions	**CA25**	harsh *uprox*®	10,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
		harsh *uprox*®	15,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
 active face, variable orientation in 5 directions	**CA25**	harsh *uprox*®	10,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
		harsh *uprox*®	15,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
	**Q40**	*uprox*®+	22,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	

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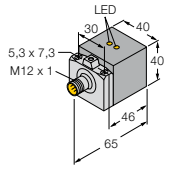
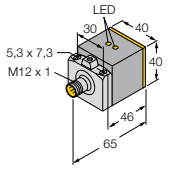
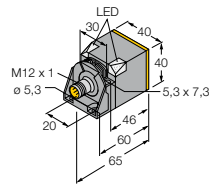
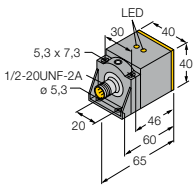
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI10U-Q14-AP6X2	1608700 ✘	S001	0.25	-30...+85	IP67	PBT	PBT	PUR 2 m	•	•
BI10U-Q14-AN6X2	1608710 ✘	S004	0.25	-30...+85	IP67	PBT	PBT	PUR 2 m	•	•
BI15U-Q20-AP6X2-H1141	1608600 ✘	S002	0.25	-30...+85	IP67	PBT	PBT	–	•	•
BI15U-Q20-AN6X2-H1141	1608610	S005	0.25	-30...+85	IP67	PBT	PBT	–	•	•
BI15U-Q20-AP6X2	1608800 ✘	S001	0.25	-30...+85	IP67	PBT	PBT	PUR 2 m	•	•
BI15U-Q20-AN6X2	1608810 ✘	S004	0.25	-30...+85	IP67	PBT	PBT	PUR 2 m	•	•
BI10U-CA25-AP6X2-V1131	1625632 ✘	S002	0.25	-30...+85	IP67	GD–CuZn	DURO	–	•	•
NI15U-CA25-AP6X2-V1131	1625642	S002	0.25	-30...+85	IP67	GD–CuZn	DURO	–	•	•
BI10U-CA25-AP6X2-H1141	1625631 ✘	S002	0.25	-30...+85	IP67	GD–CuZn	DURO	–	•	•
NI15U-CA25-AP6X2-H1141	1625641 ✘	S002	0.25	-30...+85	IP67	GD–CuZn	DURO	–	•	•
NI22U-Q40-AP6X2-H1141	4690229 ✘	S002	0.25	0...+70	IP68	PBT	PBT	–	•	•

✘ = Preferred solution, available at short notice

FACTOR 1 sensors – *uprox*® and *uprox*®+

Dimensions/Housing style	Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]
CA40  active face, variable orientation in 5 directions	harsh *uprox*®	20, ▭	⎯⎽, PNP	10...30 VDC	200 DC, Ⓚ
	harsh *uprox*®	20, ▭	⎯⎽, NPN	10...30 VDC	200 DC, Ⓚ
CK40  active face, variable orientation in 5 directions	*uprox*®+	20, ▭	⎯⎽, PNP	10...30 VDC	200 DC, Ⓚ
	uprox®+	20, ▭	⎯⎽, PNP	10...65 VDC	200 DC, Ⓚ
	uprox®+	20, ▭	⎯⎽, NPN	10...30 VDC	200 DC, Ⓚ
	uprox®+	20, ▭	⎯⎽, NPN	10...65 VDC	200 DC, Ⓚ
	uprox®	15, ▭	⎯⎽, PNP	10...30 VDC	200 DC, Ⓚ
	uprox®	15, ▭	⎯⎽, PNP	10...65 VDC	200 DC, Ⓚ
	uprox®	15, ▭	⎯⎽, NPN	10...30 VDC	200 DC, Ⓚ
	uprox®	15, ▭	⎯⎽, NPN	10...65 VDC	200 DC, Ⓚ
	uprox®	25, ▭	⎯⎽, PNP	10...30 VDC	200 DC, Ⓚ
	uprox®	25, ▭	⎯⎽, PNP	10...65 VDC	200 DC, Ⓚ
	uprox®	25, ▭	⎯⎽, NPN	10...30 VDC	200 DC, Ⓚ
CK40  active face, variable orientation in 5 directions	*uprox*®+	30, ▭	⎯⎽, PNP	10...30 VDC	200 DC, Ⓚ
	uprox®+	30, ▭	⎯⎽, NPN	10...30 VDC	200 DC, Ⓚ
	uprox®+	50, ▭	⎯⎽, PNP	10...30 VDC	200 DC, Ⓚ
	uprox®+	50, ▭	⎯⎽, PNP	10...65 VDC	200 DC, Ⓚ
	⟨Ex⟩ II 3 G ⟨Ex⟩ II 3 D *uprox*®+	50, ▭	⎯⎽, PNP	10...65 VDC	200 DC, Ⓚ
	uprox®+	50, ▭	⎯⎽, NPN	10...30 VDC	200 DC, Ⓚ
	uprox®+	50, ▭	⎯⎽, NPN	10...65 VDC	200 DC, Ⓚ
	uprox®	40, ▭	⎯⎽, PNP	10...30 VDC	200 DC, Ⓚ
	uprox®	35, ▭	⎯⎽, PNP	10...30 VDC	200 DC, Ⓚ
	uprox®	35, ▭	⎯⎽, NPN	10...30 VDC	200 DC, Ⓚ
CK40  active face, variable orientation in 5 directions	*uprox*®	35, ▭	⎯⎽	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ

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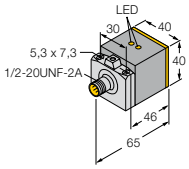
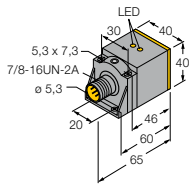
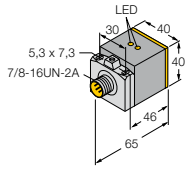
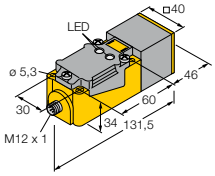
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI20U-CA40-AP6X2-H1141	1627200 ✘	S002	0.25	-30...+85	IP67	GD-Al	DURO	–	•	•
BI20U-CA40-AN6X2-H1141	1627300	S005	0.25	-30...+85	IP67	GD-Al	DURO	–	•	•
BI20U-CK40-AP6X2-H1141	1627233 ✘	S002	0.25	-20...+70	IP68	PBT	PA-X	–	•	•
BI20U-CK40-VP4X2-H1141	1627216 ✘	S008	0.25	-20...+70	IP68	PBT	PA-X	–	•	•
BI20U-CK40-AN6X2-H1141	1627231	S005	0.25	-20...+70	IP68	PBT	PA-X	–	•	•
BI20U-CK40-VN4X2-H1141	1568814	S011	0.25	-20...+70	IP68	PBT	PA-X	–	•	•
BI15U-CK40-AP6X2-H1141	1625600 ✘	S002	0.25	-30...+85	IP68	PBT	PA-X	–	•	•
BI15U-CK40-VP4X2-H1141	1568801 ✘	S008	0.25	-30...+85	IP68	PBT	PA-X	–	•	•
BI15U-CK40-AN6X2-H1141	1625610	S005	0.25	-30...+85	IP68	PBT	PA-X	–	•	•
BI15U-CK40-VN4X2-H1141	1568811	S011	0.25	-30...+85	IP68	PBT	PA-X	–	•	•
NI25U-CK40-AP6X2-H1141	1625700 ✘	S002	0.25	-30...+85	IP68	PBT	PA-X	–	•	•
NI25U-CK40-VP4X2-H1141	1568803 ✘	S008	0.25	-30...+85	IP68	PBT	PA-X	–	•	•
NI25U-CK40-AN6X2-H1141	1625710	S005	0.25	-30...+85	IP68	PBT	PA-X	–	•	•
BI30U-CK40-AP6X2-H1141	1625829 ✘	S002	0.25	-10...+60	IP68	PBT	PA-X	–	• •	• •
BI30U-CK40-AN6X2-H1141	1625820	S005	0.25	-10...+60	IP68	PBT	PA-X	–	• •	• •
NI50U-CK40-AP6X2-H1141	1625837 ✘	S002	0.25	-25...+70	IP68	PBT	PA-X	–	• •	• •
NI50U-CK40-VP4X2-H1141	1538302 ✘	S008	0.25	-25...+70	IP68	PBT	PA-X	–	• •	• •
NI50U-CK40-VP4X2-H1141/ 3GD	1514120	S008	0.25	-25...+70	IP68	PBT	PA-X	–	• •	• •
NI50U-CK40-AN6X2-H1141	1625823 ✘	S005	0.25	-25...+70	IP68	PBT	PA-X	–	• •	• •
NI50U-CK40-VN4X2-H1141	1625806	S011	0.25	-25...+70	IP68	PBT	PA-X	–	• •	• •
NI40U-CK40-AP6X2-H1141	1623641 ✘	S002	0.25	-30...+85	IP68	PBT	PA-X	–	• •	• •
NI35U-CK40-AP6X2-H1141	1625800 ✘	S002	0.25	-30...+85	IP68	PBT	PA-X	–	• •	• •
NI35U-CK40-AN6X2-H1141	1625810 ✘	S005	0.25	-30...+85	IP68	PBT	PA-X	–	• •	• •
NI35U-CK40-ADZ30X2-B3131	4280430 ✘	S152	0.06	-30...+85	IP68	PBT	PA-X	–	•	•

✘ = Preferred solution, available at short notice

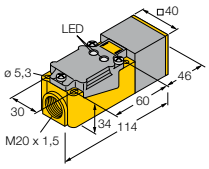
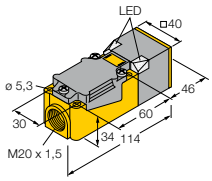
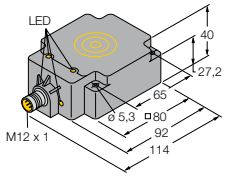
3

Dimensions/Housing style	Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]	
CK40  active face, variable orientation in 5 directions	*uprox*®	15,		20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
CK40  active face, variable orientation in 5 directions	*uprox*®	35,		20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
CK40  active face, variable orientation in 5 directions	*uprox*®	15,		20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
CP40  active face, variable orientation in 9 directions	*uprox*®	15,	, PNP	10...65 VDC	200 DC, Ⓚ	
	uprox®+	50,	, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®	40,	, PNP	10...65 VDC	200 DC, Ⓚ	

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐¬
BI15U-CK40-ADZ30X2-B3131	4280030 ✘	S152	0.06	-30...+85	IP68	PBT	PA-X	–	•	•
NI35U-CK40-ADZ30X2-B1131	4280410 ✘	S152	0.06	-30...+85	IP68	PBT	PA-X	–	•	•
BI15U-CK40-ADZ30X2-B1131	4280010	S152	0.06	-30...+85	IP68	PBT	PA-X	–	•	•
BI15U-CP40-VP4X2-H1141	1540502 ✘	S008	0.25	-30...+85	IP68	PBT	PA-X	–	•	•
NI50U-CP40-AP6X2-H1141	1625835 ✘	S002	0.25	-25...+70	IP68	PBT	PA-X	–	•	•
NI40U-CP40-VP4X2-H1141	1540602 ✘	S008	0.25	-30...+85	IP68	PBT	PA-X	–	•	•

✘ = Preferred solution, available at short notice

FACTOR 1 sensors – *uprox*® and *uprox*®+

Dimensions/Housing style	Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]	
CP40  active face, variable orientation in 9 directions	*uprox*®+	30, ▭	⎯⌇, NPN	10...30 VDC	200 DC, Ⓚ	
	uprox®+	20, ▭	⎯⌇, PNP	10...30 VDC	200 DC, Ⓚ	
	Ⓔx II 3 D *uprox*®+	20, ▭	⎯⌇, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®+	20, ▭	⎯⌇, NPN	10...30 VDC	200 DC, Ⓚ	
	uprox®+	20, ▭	⎯⊣⌇, NPN	10...65 VDC	200 DC, Ⓚ	
	uprox®	15, ▭	⎯⌇, NPN	10...30 VDC	200 DC, Ⓚ	
	uprox®	15, ▭	program.	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
	uprox®+	50, ▭	⎯⌇, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®+	50, ▭	⎯⊣⌇, PNP	10...65 VDC	200 DC, Ⓚ	
	uprox®+	50, ▭	⎯⌇, NPN	10...30 VDC	200 DC, Ⓚ	
	uprox®+	50, ▭	⎯⊣⌇, NPN	10...65 VDC	200 DC, Ⓚ	
	uprox®	40, ▭	⎯⊣⌇, PNP	10...65 VDC	200 DC, Ⓚ	
	uprox®	40, ▭	⎯⊣⌇, NPN	10...65 VDC	200 DC, Ⓚ	
	uprox®	40, ▭	program.	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
CP40  active face, variable orientation in 9 directions	*uprox*®+	30, ▭	⎯⌇, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®+	20, ▭	⎯⊣⌇, PNP	10...65 VDC	200 DC, Ⓚ	
	uprox®	15, ▭	⎯⌇, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®	15, ▭	⎯⊣⌇, PNP	10...65 VDC	200 DC, Ⓚ	
Q80  	*uprox*®+	50, ▭	⎯⌇, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®+	50, ▭	⎯⊣⌇, PNP	10...65 VDC	200 DC, Ⓚ	
	Ⓔx II 3 G Ⓔx II 3 D *uprox*®+	50, ▭	⎯⊣⌇, PNP	10...65 VDC	200 DC, Ⓚ	
	uprox®+	50, ▭	⎯⌇, NPN	10...30 VDC	200 DC, Ⓚ	
	uprox®+	50, ▭	⎯⊣⌇, NPN	10...65 VDC	200 DC, Ⓚ	
	uprox®+	70, ▭	⎯⌇, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®+	70, ▭	⎯⊣⌇, PNP	10...65 VDC	200 DC, Ⓚ	

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Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI30U-CP40-AN6X2	1625102	S006	0.25	-10...+60	IP68	PBT	PA-X	–	•	•
BI20U-CP40-AP6X2	1627232 ✘	S003	0.25	-20...+70	IP68	PBT	PA-X	–	•	•
BI20U-CP40-AP6X2/3D	1627236 ✘	S003	0.25	-20...+70	IP68	PBT	PA-X	–	•	•
BI20U-CP40-AN6X2	1627230	S006	0.25	-20...+70	IP68	PBT	PA-X	–	•	•
BI20U-CP40-VN4X2	1627237	S012	0.25	-20...+70	IP68	PBT	PA-X	–	•	•
BI15U-CP40-AN6X2	1623510	S006	0.25	-30...+85	IP68	PBT	PA-X	–	•	•
BI15U-CP40-FDZ30X2	4280600 ✘	S016	0.06	-30...+85	IP68	PBT	PA-X	–	•	•
NI50U-CP40-AP6X2	1625831 ✘	S003	0.25	-25...+70	IP68	PBT	PA-X	–	•	•
NI50U-CP40-VP4X2	1538303 ✘	S009	0.25	-25...+70	IP68	PBT	PA-X	–	•	•
NI50U-CP40-AN6X2	1625846 ✘	S006	0.25	-25...+70	IP68	PBT	PA-X	–	•	•
NI50U-CP40-VN4X2	1625847	S012	0.25	-25...+70	IP68	PBT	PA-X	–	•	•
NI40U-CP40-VP4X2	1540600 ✘	S009	0.25	-30...+85	IP68	PBT	PA-X	–	•	•
NI40U-CP40-VN4X2	1540610 ✘	S012	0.25	-30...+85	IP68	PBT	PA-X	–	•	•
NI40U-CP40-FDZ30X2	4280800 ✘	S016	0.06	-30...+85	IP68	PBT	PA-X	–	•	•
BI30U-CP40-AP6X2	1625830 ✘	S003	0.25	-10...+60	IP68	PBT	PA-X	–	• •	• •
BI20U-CP40-VP4X2	1627240 ✘	S009	0.25	-20...+70	IP68	PBT	PA-X	–	• •	• •
BI15U-CP40-AP6X2	1623500 ✘	S003	0.25	-30...+85	IP68	PBT	PA-X	–	• •	• •
BI15U-CP40-VP4X2	1540500 ✘	S009	0.25	-30...+85	IP68	PBT	PA-X	–	• •	• •
BI50U-Q80-AP6X2-H1141	1608940 ✘	S002	0.25	-25...+70	IP68	PBT	PBT	–	•	•
BI50U-Q80-VP4X2-H1141	1562000 ✘	S008	0.25	-25...+70	IP68	PBT	PBT	–	•	•
BI50U-Q80-VP4X2-H1141/3GD	1562004	S008	0.25	0...+50	IP68	PBT	PBT	–	•	•
BI50U-Q80-AN6X2-H1141	1608944	S005	0.25	-25...+70	IP68	PBT	PBT	–	•	•
BI50U-Q80-VN4X2-H1141	1562001	S011	0.25	-25...+70	IP68	PBT	PBT	–	•	•
NI70U-Q80-AP6X2-H1141	1625832 ✘	S002	0.25	-25...+70	IP68	PBT	PBT	–	•	•
NI70U-Q80-VP4X2-H1141	1625833 ✘	S008	0.25	-25...+70	IP68	PBT	PBT	–	•	•

✘ = Preferred solution, available at short notice

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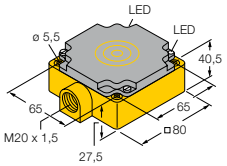
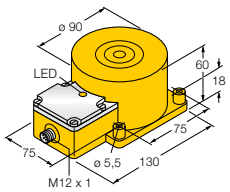
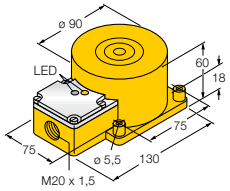
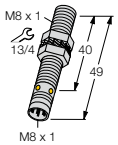
FACTOR 1 sensors – *uprox*® and *uprox*®+

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]	
	**CP80**	*uprox*®	75,	__, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	75,	⊼⊼, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®	75,	⊼⊼, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®	75,	__, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	75,	⊼⊼, NPN	10...65 VDC	200 DC, Ⓚ	
		uprox®	75,	program.	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
	**K90**	*uprox*®+	100,	⊼⊼, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®+	100,	⊼⊼, NPN	10...65 VDC	200 DC, Ⓚ	
	**K90**	*uprox*®+	100,	⊼⊼, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®+	100,	⊼⊼, NPN	10...65 VDC	200 DC, Ⓚ	
	**M8 x 1**	*uprox*®+	2,	__, PNP	10...30 VDC	150 DC, Ⓚ	
		teflon *uprox*®+	2,	__, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®+	2,	⊼⊼, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®+	2,	__, NPN	10...30 VDC	150 DC, Ⓚ	
		uprox®	1.5,	__, PNP	10...30 VDC	150 DC, Ⓚ	
		teflon *uprox*®	1.5,	__, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®	1.5,	__, NPN	10...30 VDC	150 DC, Ⓚ	

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Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI75U-CP80-AP6X2	1623800 ✘	S003	0.25	-30...+85	IP67	PBT	PBT	–	•	•
NI75U-CP80-VP4X2	1540800 ✘	S009	0.25	-30...+85	IP67	PBT	PBT	–	•	•
NI75U-CP80-VP4X2-H1141	1540802	S008	0.25	-30...+85	IP67	PBT	PBT	–	•	•
NI75U-CP80-AN6X2	1623810 ✘	S006	0.25	-30...+85	IP67	PBT	PBT	–	•	•
NI75U-CP80-VN4X2	1540810 ✘	S012	0.25	-30...+85	IP67	PBT	PBT	–	•	•
NI75U-CP80-FDZ30X2	4280900 ✘	S016	0.06	-30...+85	IP67	PBT	PBT	–	•	•
NI100U-K90SR-VP4X2-H1141	1625844	S008	0.25	-30...+85	IP68	PBT	PBT	–	•	•
NI100U-K90SR-VN4X2-H1141	1515510	S011	0.25	-30...+85	IP68	PBT	PBT	–	•	•
NI100U-K90SR-VP4X2	1625834 ✘	S009	0.25	-30...+85	IP68	PBT	PBT	–	•	•
NI100U-K90SR-VN4X2	1515503 ✘	S012	0.25	-30...+85	IP68	PBT	PBT	–	•	•
BI2U-EG08-AP6X-V1131	4602033 ✘	S002	1	-30...+85	IP68	VA	PA	–	–	•
BI2U-EGT08-AP6X-V1131	4602070 ✘	S002	1	-30...+85	IP68	VA–T	PA	–	–	•
BI2U-EG08-RP6X-V1131	4602091 ✘	S175	1	-30...+85	IP68	VA	PA	–	–	•
BI2U-EG08-AN6X-V1131	4602036	S005	1	-30...+85	IP68	VA	PA	–	–	•
BI1,5U-EG08-AP6X-V1131	4600520 ✘	S002	2	-30...+85	IP68	VA	PA	–	–	•
BI1,5U-EGT08-AP6X-V1131	4600556 ✘	S002	2	-30...+85	IP67	VA–T	PA	–	–	•
BI1,5U-EG08-AN6X-V1131	4600530 ✘	S005	2	-30...+85	IP68	VA	PA	–	–	•

✘ = Preferred solution, available at short notice

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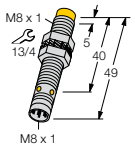
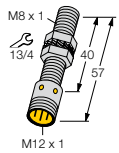
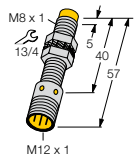
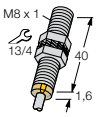
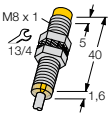
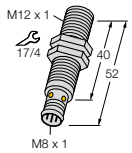
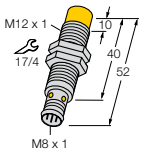
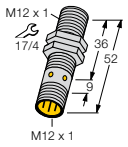
FACTOR 1 sensors – *uprox*® and *uprox*®+

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]	
	**M8 x 1**	*uprox*®+	6, ▭	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®+	6, ▭	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®+	6, ▭	⎯⎺⎯, NPN	10...30 VDC	150 DC, Ⓚ	
		uprox®	4, ▭	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®	4, ▭	⎯⎺⎯, NPN	10...30 VDC	150 DC, Ⓚ	
	**M8 x 1**	*uprox*®+	2, ▭	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		teflon *uprox*®+	2, ▭	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®+	2, ▭	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®+	2, ▭	⎯⎺⎯, NPN	10...30 VDC	150 DC, Ⓚ	
		uprox®	1.5, ▭	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		teflon *uprox*®	1.5, ▭	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®	1.5, ▭	⎯⎺⎯, NPN	10...30 VDC	150 DC, Ⓚ	
	**M8 x 1**	*uprox*®+	6, ▭	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®+	6, ▭	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®+	6, ▭	⎯⎺⎯, NPN	10...30 VDC	150 DC, Ⓚ	
		uprox®	4, ▭	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®	4, ▭	⎯⎺⎯, NPN	10...30 VDC	150 DC, Ⓚ	
	**M8 x 1**	*uprox*®+	2, ▭	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®+	2, ▭	⎯⎺⎯, NPN	10...30 VDC	150 DC, Ⓚ	
		uprox®	1.5, ▭	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®	1.5, ▭	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®	1.5, ▭	⎯⎺⎯, NPN	10...30 VDC	150 DC, Ⓚ	
		uprox®	1.5, ▭	⎯⎺⎯, NPN	10...30 VDC	150 DC, Ⓚ	
	**M8 x 1**	*uprox*®+	6, ▭	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®+	6, ▭	⎯⎺⎯, NPN	10...30 VDC	150 DC, Ⓚ	
		uprox®	4, ▭	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
		uprox®	4, ▭	⎯⎺⎯, NPN	10...30 VDC	150 DC, Ⓚ	

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI6U-EG08-AP6X-V1131	4635801 ✘	S002	1	0...+70	IP68	VA	PA	–	–	•
NI6U-EG08-RP6X-V1131	4635831 ✘	S175	1	0...+70	IP68	VA	PA	–	–	•
NI6U-EG08-AN6X-V1131	4635804	S005	1	0...+70	IP68	VA	PA	–	–	•
NI4U-EG08-AP6X-V1131	4600620 ✘	S002	2	-30...+85	IP68	VA	PA	–	–	•
NI4U-EG08-AN6X-V1131	4600630 ✘	S005	2	-30...+85	IP68	VA	PA	–	–	•
BI2U-EG08-AP6X-H1341	4602034 ✘	S002	1	-30...+85	IP68	VA	PA	–	–	•
BI2U-EGT08-AP6X-H1341	4602071 ✘	S002	1	-30...+85	IP68	VA–T	PA	–	–	•
BI2U-EG08-RP6X-H1341	4602080 ✘	S056	1	-30...+85	IP68	VA	PA	–	–	•
BI2U-EG08-AN6X-H1341	4602037	S005	1	-30...+85	IP68	VA	PA	–	–	•
BI1,5U-EG08-AP6X-H1341	4600540 ✘	S002	2	-30...+85	IP68	VA	PA	–	–	•
BI1,5U-EGT08-AP6X-H1341	4600555 ✘	S002	2	-30...+85	IP68	VA–T	PA	–	–	•
BI1,5U-EG08-AN6X-H1341	4600550	S005	2	-30...+85	IP68	VA	PA	–	–	•
NI6U-EG08-AP6X-H1341	4635802 ✘	S002	1	0...+70	IP68	VA	PA	–	–	•
NI6U-EG08-RP6X-H1341	4635830 ✘	S056	1	0...+70	IP68	VA	PA	–	–	•
NI6U-EG08-AN6X-H1341	4635805	S005	1	0...+70	IP68	VA	PA	–	–	•
NI4U-EG08-AP6X-H1341	4600640 ✘	S002	2	-30...+85	IP68	VA	PA	–	–	•
NI4U-EG08-AN6X-H1341	4600650	S005	2	-30...+85	IP68	VA	PA	–	–	•
BI2U-EG08-AP6X	4602032 ✘	S001	1	-30...+85	IP68	VA	PA	PUR 2 m	–	•
BI2U-EG08-AN6X	4602035 ✘	S004	1	-30...+85	IP68	VA	PA	PUR 2 m	–	•
BI1,5U-EG08-AP6X	4600500 ✘	S001	2	-30...+85	IP68	VA	PA	PUR 2 m	–	•
BI1,5U-EG08-AP6X 7M	4600501	S001	2	-30...+85	IP68	VA	PA	PUR 7 m	–	•
BI1,5U-EG08-AN6X	4600510 ✘	S004	2	-30...+85	IP68	VA	PA	PUR 2 m	–	•
BI1,5U-EG08-AN6X 7M	4600504	S004	2	-30...+85	IP68	VA	PA	PUR 7 m	–	•
NI6U-EG08-AP6X	4635800 ✘	S001	1	0...+70	IP68	VA	PA	PUR 2 m	–	•
NI6U-EG08-AN6X	4635803 ✘	S004	1	0...+70	IP68	VA	PA	PUR 2 m	–	•
NI4U-EG08-AP6X	4600600 ✘	S001	2	-30...+85	IP68	VA	PA	PUR 2 m	–	•
NI4U-EG08-AN6X	4600610 ✘	S004	2	-30...+85	IP68	VA	PA	PUR 2 m	–	•

✘ = Preferred solution, available at short notice

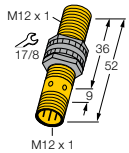
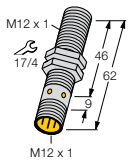
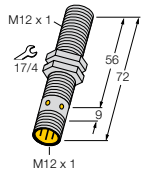
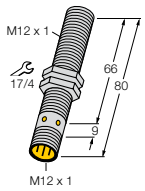
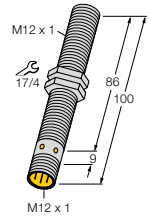
Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]	
	**M12 x 1**	*uprox*®+	4,	_⌒‾, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	4,	_⌒‾, NPN	10...30 VDC	200 DC, Ⓚ	
	**M12 x 1**	*uprox*®+	10,	_⌒‾, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	10,	_⌒‾, NPN	10...30 VDC	200 DC, Ⓚ	
	**M12 x 1**	*uprox*®+	4,	_⌒‾, PNP	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®+	4,	_⌒‾, PNP	10...30 VDC	200 DC, Ⓚ	
		20 bar *uprox*®+ wash down	4,	_⌒‾, PNP	10...30 VDC	200 DC, Ⓚ	
		⟨Ex⟩ II 3 D 20 bar *uprox*®+ wash down	4,	_⌒‾, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	4,	⊥⌒‾, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	4,	_⌒‾, NPN	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®+	4,	_⌒‾, NPN	10...30 VDC	200 DC, Ⓚ	
		20 bar *uprox*®+ wash down	4,	_⌒‾, NPN	10...30 VDC	200 DC, Ⓚ	
		⟨Ex⟩ II 3 D 20 bar *uprox*®+ wash down	4,	_⌒‾, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	3,	_⌒‾, PNP	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®	3,	_⌒‾, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	3,	_⌒‾, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	3,	_⌒‾, NPN	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®	3,	_⌒‾, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	3,	_⌒‾, NPN	10...30 VDC	200 DC, Ⓚ	

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI4U-M12-AP6X-V1131	1634780 ✘	S002	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI4U-M12-AN6X-V1131	1635430	S005	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI10U-M12-AP6X-V1131	1634790 ✘	S002	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI10U-M12-AN6X-V1131	1634795	S005	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI4U-M12-AP6X-H1141	1634804 ✘	S002	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI4U-MT12-AP6X-H1141	1634809 ✘	S002	2	-30...+85	IP68	CuZn-T	LCP	–	–	•
BI4U-EM12WD-AP6X-H1141	1634812 ✘	S002	2	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI4U-EM12WD-AP6X-H1141/3D	1634851 ✘	S002	2	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
Bi4U-M12-RP6X-H1141	1634846 ✘	S056	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI4U-M12-AN6X-H1141	1634824 ✘	S005	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI4U-MT12-AN6X-H1141	1634829	S005	2	-30...+85	IP68	CuZn-T	LCP	–	–	•
BI4U-EM12WD-AN6X-H1141	1634841	S005	2	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI4U-EM12WD-AN6X-H1141/3D	1634852	S005	2	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI3U-M12-AP6X-H1141	1634140 ✘	S002	3	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
BI3U-MT12-AP6X-H1141	1634240 ✘	S002	0.25	-30...+85	IP67	CuZn-T	PBT	–	–	•
BI3U-EM12-AP6X-H1141	1634340 ✘	S002	3	-30...+85	IP68	VA	PBT	–	–	•
BI3U-M12-AN6X-H1141	1634150 ✘	S005	3	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
BI3U-MT12-AN6X-H1141	1634250 ✘	S005	0.25	-30...+85	IP67	CuZn-T	PBT	–	–	•
BI3U-EM12-AN6X-H1141	1634350 ✘	S005	3	-30...+85	IP68	VA	PBT	–	–	•

✘ = Preferred solution, available at short notice

3

FACTOR 1 sensors – *uprox*® and *uprox*®+

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]	
	**M12 x 1**	*uprox*®	3, ⊐	⎽◺, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	3, ⊐	⎽◺, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	8, ⊐	⎽◺, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	8, ⊐	⎽◺, NPN	10...30 VDC	200 DC, Ⓚ	
	**M12 x 1**	*uprox*®+	4, ⊐	⎽◺, PNP	10...55 VDC	200 DC, Ⓚ	
		20 bar *uprox*®+ wash down	4, ⊐	⎽◺, PNP	10...55 VDC	200 DC, Ⓚ	
		uprox®+	4, ⊐	⎽◺, NPN	10...55 VDC	200 DC, Ⓚ	
		uprox®	3, ⊐	⎽◺, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®	3, ⊐	⎽◺, NPN	10...65 VDC	200 DC, Ⓚ	
		uprox®	3, ⊐	⎽◺, NPN	10...65 VDC	200 DC, Ⓚ	
	**M12 x 1**	*uprox*®	3, ⊐	⎽◺, PNP	10...30 VDC	200 DC, Ⓚ	
	**M12 x 1**	*uprox*®+	4, ⊐	⎽◺, PNP	10...55 VDC	200 DC, Ⓚ	
	**M12 x 1**	*uprox*®+	4, ⊐	⎽◺, PNP	10...55 VDC	200 DC, Ⓚ	

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Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI3U-S12-AP6X-H1141	1634600 ✘	S002	3	-30...+85	IP68	PBT	PBT	–	–	•
BI3U-S12-AN6X-H1141	1634620	S005	3	-30...+85	IP68	PBT	PBT	–	–	•
NI8U-S12-AP6X-H1141	1644600 ✘	S002	2	-30...+85	IP68	PBT	PBT	–	–	•
NI8U-S12-AN6X-H1141	1644620	S005	2	-30...+85	IP68	PBT	PBT	–	–	•
BI4U-M12E-VP44X-H1141	1634869 ✘	S008	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI4U-EM12EWD-VP44X-H1141	1634905 ✘	S008	2	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI4U-M12E-VN44X-H1141	1634873 ✘	S011	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI3U-M12E-VP4X-H1141	1580252 ✘	S008	3	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
BI3U-EM12E-VN4X-H1141	1580363	S011	3	-30...+85	IP68	VA	PBT	–	–	•
BI3U-M12E-VN4X-H1141	1580354	S011	3	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
BI3U-M12EE-AP6X-H1141	1634149 ✘	S002	3	-30...+85	IP67	CuZn-Cr	PA	–	–	•
BI4U-M12-VP44X-H1141 L80	1634918 ✘	S008	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI4U-M12-VP44X-H1141 L100	1634917 ✘	S008	2	-30...+85	IP68	CuZn-Cr	LCP	–	–	•

✘ = Preferred solution, available at short notice

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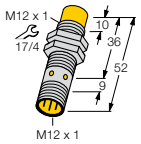
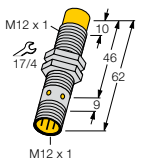
Dimensions/Housing style	Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]
M12 x 1 	teflon *uprox*®+	10, ▭	⎯⌒⎯, PNP	10...30 VDC	200 DC, Ⓚ
	20 bar *uprox*®+ wash down	10, ▭	⎯⌒⎯, PNP	10...30 VDC	200 DC, Ⓚ
	Ⓔx II 3 D 20 bar *uprox*®+ wash down	10, ▭	⎯⌒⎯, PNP	10...30 VDC	200 DC, Ⓚ
	uprox®+	10, ▭	⎯⌒⎯, PNP	10...30 VDC	200 DC, Ⓚ
	teflon *uprox*®+	10, ▭	⎯⌒⎯, NPN	10...30 VDC	200 DC, Ⓚ
	20 bar *uprox*®+ wash down	10, ▭	⎯⌒⎯, NPN	10...30 VDC	200 DC, Ⓚ
	Ⓔx II 3 D 20 bar *uprox*®+ wash down	10, ▭	⎯⌒⎯, NPN	10...30 VDC	200 DC, Ⓚ
	uprox®+	10, ▭	⎯⌒⎯, NPN	10...30 VDC	200 DC, Ⓚ
	uprox®+	10, ▭	⎯⌒⎯, PNP	10...30 VDC	200 DC, Ⓚ
	uprox®	8, ▭	⎯⌒⎯, PNP	10...30 VDC	200 DC, Ⓚ
	uprox®	8, ▭	⎯⌒⎯, PNP	10...30 VDC	200 DC, Ⓚ
	teflon *uprox*®	8, ▭	⎯⌒⎯, PNP	10...30 VDC	200 DC, Ⓚ
	uprox®	8, ▭	⎯⌒⎯, NPN	10...30 VDC	200 DC, Ⓚ
	uprox®	8, ▭	⎯⌒⎯, NPN	10...30 VDC	200 DC, Ⓚ
	teflon *uprox*®	8, ▭	⎯⌒⎯, NPN	10...30 VDC	200 DC, Ⓚ
M12 x 1 	*uprox*®+	10, ▭	⎯⌒⎯, PNP	10...30 VDC	200 DC, Ⓚ
	uprox®+	10, ▭	⎯⌒⎯, PNP	10...55 VDC	200 DC, Ⓚ
	20 bar *uprox*®+ wash down	10, ▭	⎯⌒⎯, PNP	10...55 VDC	200 DC, Ⓚ
	uprox®+	10, ▭	⎯⌒⎯, NPN	10...55 VDC	200 DC, Ⓚ
	uprox®	8, ▭	⎯⌒⎯, PNP	10...65 VDC	200 DC, Ⓚ
	uprox®	8, ▭	⎯⌒⎯, NPN	10...65 VDC	200 DC, Ⓚ

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Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI10U-MT12-AP6X-H1141	1634810 ✘	S002	1	-30...+85	IP68	CuZn-T	LCP	–	–	•
NI10U-EM12WD-AP6X-H1141	1634814 ✘	S002	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI10U-EM12WD-AP6X-H1141/3D	1634857 ✘	S002	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI10U-M12-AP6X-H1141	1634806 ✘	S002	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI10U-MT12-AN6X-H1141	1634830	S005	1	-30...+85	IP68	CuZn-T	LCP	–	–	•
NI10U-EM12WD-AN6X-H1141	1634837	S005	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI10U-EM12WD-AN6X-H1141/3D	1634858	S005	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI10U-M12-AN6X-H1141	1634826 ✘	S005	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI10U-M12-RP6X-H1141	1634848 ✘	S056	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI8U-M12-AP6X-H1141	1644140 ✘	S002	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
NI8U-EM12-AP6X-H1141	1644340 ✘	S002	2	-30...+85	IP68	VA	PBT	–	–	•
NI8U-MT12-AP6X-H1141	1644240 ✘	S002	2	-30...+85	IP67	CuZn-T	PBT	–	–	•
NI8U-M12-AN6X-H1141	1644150 ✘	S005	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
NI8U-EM12-AN6X-H1141	1644350 ✘	S005	2	-30...+85	IP68	VA	PBT	–	–	•
NI8U-MT12-AN6X-H1141	1644250	S005	2	-30...+85	IP67	CuZn-T	PBT	–	–	•
NI10U-M12E-AP6X-H1141	1634901	S002	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI10U-M12E-VP44X-H1141	1634871 ✘	S008	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI10U-EM12EWD-VP44X-H1141	1634896	S008	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI10U-M12E-VN44X-H1141	1634875 ✘	S011	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI8U-M12E-VP4X-H1141	1580454 ✘	S008	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
NI8U-M12E-VN4X-H1141	1580552 ✘	S011	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•

✘ = Preferred solution, available at short notice

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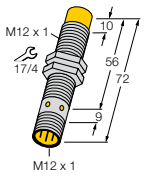
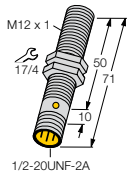
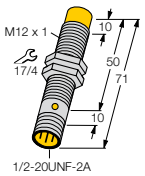
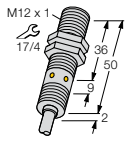
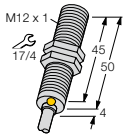
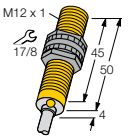
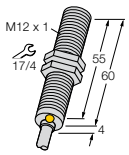
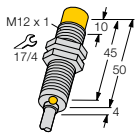
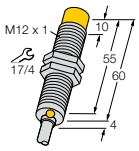
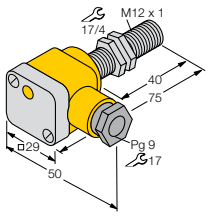
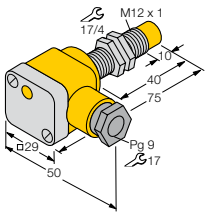
FACTOR 1 sensors – *uprox*® and *uprox*®+

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]	
	**M12 x 1**	*uprox*®	8,	⎯◟⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	**M12 x 1**	*uprox*®	2,	⎯◟⎯	20...250 VAC 10...300 VDC	100 AC 100 DC, Ⓚ	
	**M12 x 1**	*uprox*®	8,	⎯◟⎯	20...250 VAC 10...300 VDC	100 AC 100 DC, Ⓚ	
	**M12 x 1**	20 bar *uprox*®+ wash down	4,	⎯◟⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		20 bar *uprox*®+ wash down	4,	⎯◟⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	**M12 x 1**	*uprox*®+	4,	⎯◟⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	4,	⎯◟⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	3,	⎯◟⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	3,	⎯◟⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	3,	⎯◟⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	3,	⎯◟⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	**M12 x 1**	*uprox*®	3,	⎯◟⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	3,	⎯◟⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	8,	⎯◟⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	8,	⎯◟⎯, NPN	10...30 VDC	200 DC, Ⓚ	

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI8U-M12EE-AP6X-H1141	1644147 ✘	S002	2	-30...+85	IP67	CuZn-Cr	PA	–	–	•
BI2U-G12-ADZ32X-B3131	4281005 ✘	S019	0.06	-30...+85	IP67	CuZn-Cr	PA	–	–	•
NI8U-G12-ADZ32X-B3131	4281105 ✘	S019	0.02	-30...+85	IP67	CuZn-Cr	PA	–	–	•
BI4U-EM12WD-AP6X	1634811 ✘	S001	2	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
BI4U-EM12WD-AN6X	1634842	S004	2	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
BI4U-M12-AP6X	1634803 ✘	S001	2	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
BI4U-M12-AN6X	1634823	S004	2	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
BI3U-M12-AP6X	1634100 ✘	S001	3	-30...+85	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI3U-EM12-AP6X	1634300 ✘	S001	3	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
BI3U-M12-AN6X	1634120 ✘	S004	3	-30...+85	IP67	CuZn-Cr	PA	PVC 2 m	–	•
BI3U-EM12-AN6X	1634320	S004	3	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
BI3U-S12-AP6X	1634500 ✘	S001	3	-30...+85	IP68	PBT	PBT	PVC 2 m	–	•
BI3U-S12-AN6X	1634520	S004	3	-30...+85	IP68	PBT	PBT	PVC 2 m	–	•
NI8U-S12-AP6X	1644500 ✘	S001	2	-30...+85	IP68	PBT	PBT	PVC 2 m	–	•
NI8U-S12-AN6X	1644520	S004	2	-30...+85	IP68	PBT	PBT	PVC 2 m	–	•

✘ = Preferred solution, available at short notice

FACTOR 1 sensors – *uprox*® and *uprox*®+

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]
	**M12 x 1**	*uprox*®+	4,	, PNP	10...55 VDC	200 DC, Ⓚ
		uprox®+	4,	, NPN	10...55 VDC	200 DC, Ⓚ
		uprox®	3,	, PNP	10...65 VDC	200 DC, Ⓚ
		uprox®	3,	, NPN	10...65 VDC	200 DC, Ⓚ
		uprox®	3,	, NPN	10...65 VDC	200 DC, Ⓚ
	M12 x 1	20 bar *uprox*®+ wash down	10,	, PNP	10...30 VDC	200 DC, Ⓚ
		20 bar *uprox*®+ wash down	10,	, NPN	10...30 VDC	200 DC, Ⓚ
	**M12 x 1**	*uprox*®+	10,	, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®+	10,	, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®	8,	, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	8,	, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	8,	, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®	8,	, NPN	10...30 VDC	200 DC, Ⓚ
	**M12 x 1**	*uprox*®+	10,	, PNP	10...55 VDC	200 DC, Ⓚ
		uprox®+	10,	, NPN	10...55 VDC	200 DC, Ⓚ
		uprox®	8,	, PNP	10...65 VDC	200 DC, Ⓚ
		uprox®	8,	, NPN	10...65 VDC	200 DC, Ⓚ
	**M12 x 1**	*uprox*®	3,	, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	3,	, PNP	10...65 VDC	200 DC, Ⓚ
		uprox®	3,	, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®	3,	, NPN	10...65 VDC	200 DC, Ⓚ
	**M12 x 1**	*uprox*®	8,	, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	8,	, PNP	10...65 VDC	200 DC, Ⓚ
		uprox®	8,	, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®	8,	, NPN	10...65 VDC	200 DC, Ⓚ

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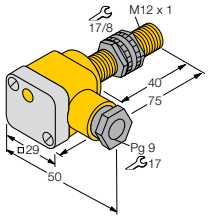
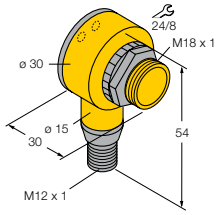
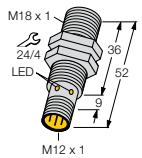
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI4U-M12E-VP44X	1634868 ✘	S007	2	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
BI4U-M12E-VN44X	1634872	S010	2	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
BI3U-M12E-VP4X	1580203 ✘	S007	3	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
BI3U-EM12E-VN4X	1580362	S010	3	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
BI3U-M12E-VN4X	1580302	S010	3	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
NI10U-EM12WD-AP6X	1634813 ✘	S001	1	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
NI10U-EM12WD-AN6X	1634838	S004	1	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
NI10U-M12-AP6X	1634805 ✘	S001	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
NI10U-M12-AN6X	1634825 ✘	S004	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
NI8U-M12-AP6X	1644100 ✘	S001	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
NI8U-EM12-AP6X	1644300 ✘	S001	2	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
NI8U-M12-AN6X	1644120 ✘	S004	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
NI8U-EM12-AN6X	1644320	S004	2	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
NI10U-M12E-VP44X	1634870 ✘	S007	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
NI10U-M12E-VN44X	1634874	S010	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
NI8U-M12E-VP4X	1580406 ✘	S007	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
NI8U-M12E-VN4X	1580501 ✘	S010	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
BI3U-EG12SK-AP6X	1634400 ✘	S003	3	-30...+85	IP68	VA	PBT	–	–	•
BI3U-EG12SK-VP4X	1580601 ✘	S009	3	-30...+85	IP68	VA	PBT	–	–	•
BI3U-EG12SK-AN6X	1634420	S006	3	-30...+85	IP68	VA	PBT	–	–	•
BI3U-EG12SK-VN4X	1580701	S012	3	-30...+85	IP68	VA	PBT	–	–	•
NI8U-EG12SK-AP6X	1644400 ✘	S003	2	-30...+85	IP68	VA	PBT	–	–	•
NI8U-EG12SK-VP4X	1580901 ✘	S009	2	-30...+85	IP68	VA	PBT	–	–	•
NI8U-EG12SK-AN6X	1644420	S006	2	-30...+85	IP68	VA	PBT	–	–	•
NI8U-EG12SK-VN4X	1580902	S012	2	-30...+85	IP68	VA	PBT	–	–	•

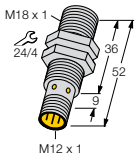
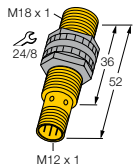
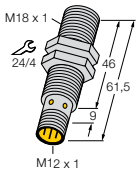
✘ = Preferred solution, available at short notice

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]	
	**M12 x 1**	*uprox*®	3,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	3,	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	8,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	8,	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	*uprox*®	5,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	*uprox*®+	8,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	8,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	8,	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	5,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	5,	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ	

	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	BI3U-P12SK-AP6X	1634700 ✘	S003	3	-30...+85	IP68	PA	PA	–	–	•
	BI3U-P12SK-AN6X	1634720	S006	3	-30...+85	IP68	PA	PA	–	–	•
	NI8U-P12SK-AP6X	1644700 ✘	S003	2	-30...+85	IP68	PA	PA	–	–	•
	NI8U-P12SK-AN6X	1644720	S006	2	-30...+85	IP68	PA	PA	–	–	•
	BI5U-T18-AP6X2-H1141	1635136 ✘	S002	2	-30...+85	IP68	PBT	PBT	–	•	•
	BI8U-M18-AP6X-H1141	1644731 ✘	S002	1.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
	BI8U-M18-RP6X-H1141	1644750 ✘	S056	1.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
	BI8U-M18-AN6X-H1141	1644737 ✘	S005	1.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
	BI5U-M18-AP6X-H1141	1635140 ✘	S002	2.5	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
	BI5U-M18-AN6X-H1141	1635150 ✘	S005	2.5	-30...+85	IP67	CuZn-Cr	PBT	–	–	•

✘ = Preferred solution, available at short notice

FACTOR 1 sensors – *uprox*® and *uprox*®+

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]	
	**M18 x 1**	teflon *uprox*®+	8, ▭	⎯◟, PNP	10...30 VDC	200 DC, Ⓚ	
		15 bar *uprox*®+ wash down	8, ▭	⎯◟, PNP	10...30 VDC	200 DC, Ⓚ	
		Ⓔx II 3 G Ⓔx II 3 D 15 bar *uprox*®+ wash down	8, ▭	⎯◟, PNP	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®+	8, ▭	⎯◟, NPN	10...30 VDC	200 DC, Ⓚ	
		15 bar *uprox*®+ wash down	8, ▭	⎯◟, NPN	10...30 VDC	200 DC, Ⓚ	
		Ⓔx II 3 G Ⓔx II 3 D 15 bar *uprox*®+ wash down	8, ▭	⎯◟, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	5, ▭	⎯◟, PNP	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®	5, ▭	⎯◟, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	5, ▭	⎯◟, NPN	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®	5, ▭	⎯◟, NPN	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	*uprox*®	5, ▭	⎯◟, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	5, ▭	⎯◟, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	12, ▭	⎯◟, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	12, ▭	⎯◟, NPN	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	*uprox*®+	8, ▭	⎯◟, PNP	10...55 VDC	200 DC, Ⓚ	
		15 bar *uprox*®+ wash down	8, ▭	⎯◟, PNP	10...55 VDC	200 DC, Ⓚ	
		uprox®+	8, ▭	⎯◟, NPN	10...55 VDC	200 DC, Ⓚ	
		uprox®	5, ▭	⎯◟, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®	5, ▭	⎯◟, NPN	10...65 VDC	200 DC, Ⓚ	

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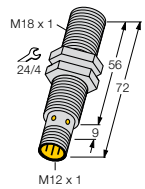
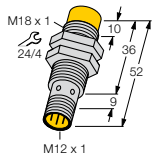
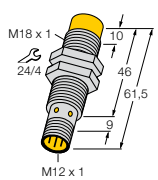
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED
BI8U-MT18-AP6X-H1141	1644730 ✘	S002	1.5	-30...+85	IP68	CuZn-T	LCP	–	–	•
BI8U-EM18WD-AP6X-H1141	1634816 ✘	S002	1.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI8U-EM18WD-AP6X-H1141/3GD	1634853 ✘	S002	1.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI8U-MT18-AN6X-H1141	1644739	S005	1.5	-30...+85	IP68	CuZn-T	LCP	–	–	•
BI8U-EM18WD-AN6X-H1141	1634839	S005	1.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI8U-EM18WD-AN6X-H1141/3GD	1634854	S005	1.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI5U-EM18-AP6X-H1141	1635340 ✘	S002	2.5	-30...+85	IP68	VA	PBT	–	–	•
BI5U-MT18-AP6X-H1141	1635240 ✘	S002	0.25	-30...+85	IP67	CuZn-T	PBT	–	–	•
BI5U-EM18-AN6X-H1141	1635350 ✘	S005	2.5	-30...+85	IP68	VA	PBT	–	–	•
BI5U-MT18-AN6X-H1141	1635250	S005	2.5	-30...+85	IP67	CuZn-T	PBT	–	–	•
BI5U-S18-AP6X-H1141	1635600 ✘	S002	2.5	-30...+85	IP68	PBT	PBT	–	–	•
BI5U-S18-AN6X-H1141	1635620	S005	2.5	-30...+85	IP68	PBT	PBT	–	–	•
NI12U-S18-AP6X-H1141	1645600 ✘	S002	2	-30...+85	IP68	PBT	PBT	–	–	•
NI12U-S18-AN6X-H1141	1645620	S005	2	-30...+85	IP68	PBT	PBT	–	–	•
BI8U-M18M-VP44X-H1141	1634877 ✘	S008	1.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI8U-EM18MWD-VP44X-H1141	1634897	S008	1.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI8U-M18M-VN44X-H1141	1634881 ✘	S011	1.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI5U-M18M-VP4X-H1141	1581255 ✘	S008	2.5	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
BI5U-M18M-VN4X-H1141	1581311	S011	2.5	-30...+85	IP67	CuZn-Cr	PBT	–	–	•

✘ = Preferred solution, available at short notice

3

FACTOR 1 sensors – *uprox*® and *uprox*®+

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]	
	**M18 x 1**	teflon *uprox*®+	8, ▭	⎯⟋⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	8, ▭	⎯⟋⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	8, ▭	⎯⟋⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®	5, ▭	⎯⟋⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	*uprox*®+	15, ▭	⎯⟋⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®+	15, ▭	⎯⟋⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		15 bar *uprox*®+ wash down	15, ▭	⎯⟋⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		Ⓔx II 3 D 15 bar *uprox*®+ wash down	15, ▭	⎯⟋⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	15, ▭	⎯⟋⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	15, ▭	⎯⟋⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®+	15, ▭	⎯⟋⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		15 bar *uprox*®+ wash down	15, ▭	⎯⟋⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		Ⓔx II 3 D 15 bar *uprox*®+ wash down	15, ▭	⎯⟋⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	12, ▭	⎯⟋⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	12, ▭	⎯⟋⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®	12, ▭	⎯⟋⎯, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	12, ▭	⎯⟋⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		teflon *uprox*®	12, ▭	⎯⟋⎯, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	12, ▭	⎯⟋⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	*uprox*®+	15, ▭	⎯⟋⎯, PNP	10...55 VDC	200 DC, Ⓚ	
		15 bar *uprox*®+ wash down	15, ▭	⎯⟋⎯, PNP	10...55 VDC	200 DC, Ⓚ	
		uprox®+	15, ▭	⎯⟋⎯, NPN	10...55 VDC	200 DC, Ⓚ	
		uprox®	12, ▭	⎯⟋⎯, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®	12, ▭	⎯⟋⎯, NPN	10...65 VDC	200 DC, Ⓚ	

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Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI8U-MT18E-AP6X-H1141	1644752	S002	2.5	-30...+85	IP68	CuZn-T	LCP	–	–	•
BI8U-M18E-AP6X-H1141	1644735 ✘	S002	1.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI8U-M18E-AN6X-H1141	1644751	S005	1.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI5U-MT18E-AP6X-H1141	1635248 ✘	S002	2.5	-30...+85	IP67	CuZn-T	PBT	–	–	•
NI15U-M18-AP6X-H1141	1635331 ✘	S002	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI15U-MT18-AP6X-H1141	1635333 ✘	S002	1	-30...+85	IP68	CuZn-T	LCP	–	–	•
NI15U-EM18WD-AP6X-H1141	1634818 ✘	S002	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI15U-EM18WD-AP6X-H1141/3D	1634859 ✘	S002	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI15U-M18-RP6X-H1141	1635450 ✘	S056	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI15U-M18-AN6X-H1141	1635335 ✘	S005	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI15U-MT18-AN6X-H1141	1635337	S005	1	-30...+85	IP68	CuZn-T	LCP	–	–	•
NI15U-EM18WD-AN6X-H1141	1634835	S005	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI15U-EM18WD-AN6X-H1141/3D	1634860	S005	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI12U-EM18-AP6X-H1141	1645340 ✘	S002	2	-30...+85	IP68	VA	PBT	–	–	•
NI12U-M18-AP6X-H1141	1645140 ✘	S002	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
NI12U-MT18-AP6X-H1141	1645240 ✘	S002	2	-30...+85	IP67	CuZn-T	PBT	–	–	•
NI12U-EM18-AN6X-H1141	1645350 ✘	S005	2	-30...+85	IP68	VA	PBT	–	–	•
NI12U-MT18-AN6X-H1141	1645250 ✘	S005	2	-30...+85	IP67	CuZn-T	PBT	–	–	•
NI12U-M18-AN6X-H1141	1645150 ✘	S005	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
NI15U-M18M-VP44X-H1141	1634879 ✘	S008	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI15U-EM18MWD-VP44X-H1141	1634898	S008	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI15U-M18M-VN44X-H1141	1634883 ✘	S011	1	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI12U-M18M-VP4X-H1141	1581458 ✘	S008	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
NI12U-M18M-VN4X-H1141	1581552 ✘	S011	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•

✘ = Preferred solution, available at short notice

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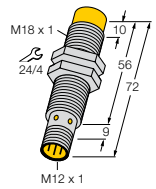
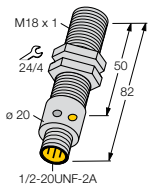
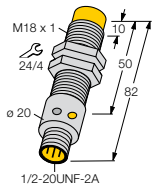
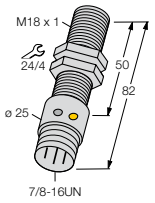
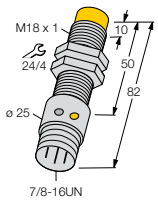
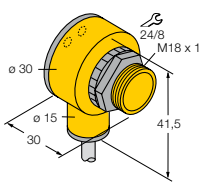
Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]	
	**M18 x 1**	*uprox*®	12,	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	*uprox*®	5,	⎯⎽⎯	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
	**M18 x 1**	*uprox*®	12,	⎯⎽⎯	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
	**M18 x 1**	*uprox*®	5,	⎯⎽⎯	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
	**M18 x 1**	*uprox*®	12,	⎯⎽⎯	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
	**M18 x 1**	*uprox*®	5,	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ	

	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED
	NI12U-M18E-AP6X-H1141	1645143 ✘	S002	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
	BI5U-G18-ADZ30X2-B3331	4281213	S153	0.02	-30...+85	IP67	CuZn-Cr	PBT	–	•	•
	NI12U-G18-ADZ30X2-B3331	4281413	S153	0.02	-30...+85	IP67	CuZn-Cr	PA	–	•	•
	BI5U-G18-ADZ30X2-B1331	4281212 ✘	S153	0.02	-30...+85	IP67	CuZn-Cr	PBT	–	•	•
	NI12U-G18-ADZ30X2-B1331	4281412 ✘	S153	0.02	-30...+85	IP67	CuZn-Cr	PBT	–	•	•
	BI5U-T18-AP6X2/S90	1635135 ✘	S001	2	-30...+85	IP68	PBT	PBT	PUR 2 m	•	•

✘ = Preferred solution, available at short notice

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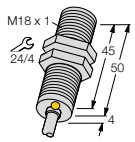
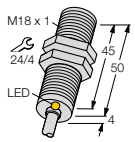
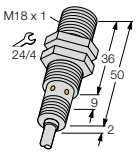
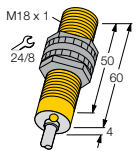
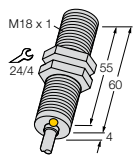
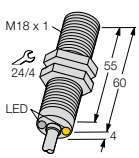
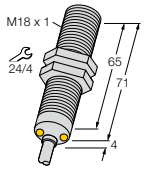
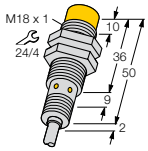
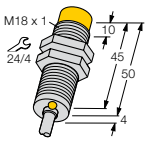
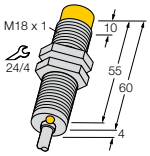
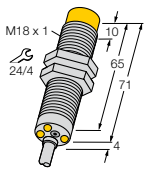
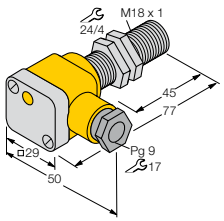
Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]
	**M18 x 1**	*uprox*®	5,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	5,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ
	**M18 x 1**	*uprox*®+	8,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®+	8,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®	5,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	5,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ
	**M18 x 1**	15 bar *uprox*®+ wash down	8,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		15 bar *uprox*®+ wash down	8,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ
	**M18 x 1**	*uprox*®	5,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	5,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®	12,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	12,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ
	**M18 x 1**	*uprox*®+	8,	⌐⌒, PNP	10...55 VDC	200 DC, Ⓚ
		uprox®+	8,	⌐⌒, NPN	10...55 VDC	200 DC, Ⓚ
		uprox®	5,	⌐⌒, PNP	10...65 VDC	200 DC, Ⓚ
		uprox®	5,	⌐⌒, NPN	10...65 VDC	200 DC, Ⓚ
	**M18 x 1**	*uprox*®	5,	_⌒_	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI5U-EM18-AP6X	1635300 ✘	S001	2.5	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
BI5U-EM18-AN6X	1635320 ✘	S004	2.5	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
BI8U-M18-AP6X	1644733 ✘	S001	1.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
BI8U-M18-AN6X	1644736	S004	1.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
BI5U-M18-AP6X	1635100 ✘	S001	2.5	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
BI5U-M18-AN6X	1635120 ✘	S004	2.5	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
BI8U-EM18WD-AP6X	1634815 ✘	S001	1.5	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
BI8U-EM18WD-AN6X	1634840	S004	1.5	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
BI5U-S18-AP6X	1635500 ✘	S001	2.5	-30...+85	IP68	PBT	PBT	PVC 2 m	–	•
BI5U-S18-AN6X	1635520	S004	2.5	-30...+85	IP68	PBT	PBT	PVC 2 m	–	•
NI12U-S18-AP6X	1645500 ✘	S001	2	-30...+85	IP68	PBT	PBT	PVC 2 m	–	•
NI12U-S18-AN6X	1645520	S004	2	-30...+85	IP68	PBT	PBT	PVC 2 m	–	•
BI8U-M18M-VP44X	1634876 ✘	S007	1.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
BI8U-M18M-VN44X	1634880	S010	1.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
BI5U-M18M-VP4X	1581201 ✘	S007	2.5	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
BI5U-M18M-VN4X	1581310	S010	2.5	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
BI5U-M18-ADZ30X2	4282210 ✘	S155	0.02	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•

✘ = Preferred solution, available at short notice

FACTOR 1 sensors – *uprox*® and *uprox*®+

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]
	**M18 x 1**	rotation monitoring	5, ▭	⎯◺, PNP	10...65 VDC	200 DC, Ⓚ
		rotation monitoring	5, ▭	⎯◺, PNP	10...65 VDC	200 DC, Ⓚ
		rotation monitoring	5, ▭	⎯◺, PNP	10...65 VDC	200 DC, Ⓚ
		rotation monitoring	5, ▭	⎯◺, PNP	10...65 VDC	200 DC, Ⓚ
	**M18 x 1**	15 bar *uprox*®+ wash down	15, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ
		15 bar *uprox*®+ wash down	15, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ
	**M18 x 1**	*uprox*®+	15, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®+	15, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®	12, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	12, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	12, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®	12, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ
	**M18 x 1**	*uprox*®+	15, ▭	⎯◺, PNP	10...55 VDC	200 DC, Ⓚ
		uprox®+	15, ▭	⎯◺, NPN	10...55 VDC	200 DC, Ⓚ
		uprox®	12, ▭	⎯◺, PNP	10...65 VDC	200 DC, Ⓚ
		uprox®	12, ▭	⎯◺, NPN	10...65 VDC	200 DC, Ⓚ
		uprox®	12, ▭	⎯◺	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ
	**M18 x 1**	rotation monitoring	12, ▭	⎯◺, PNP	10...65 VDC	200 DC, Ⓚ
		rotation monitoring	12, ▭	⎯◺, PNP	10...65 VDC	200 DC, Ⓚ
	**M18 x 1**	*uprox*®	5, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	5, ▭	⎯◺, PNP	10...65 VDC	200 DC, Ⓚ
		uprox®	5, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®	5, ▭	⎯◺, NPN	10...65 VDC	200 DC, Ⓚ

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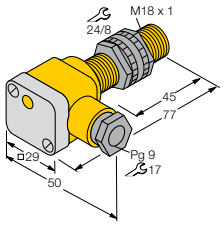
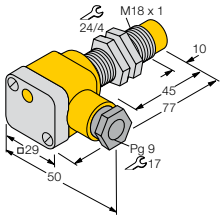
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
DBI5U-M18E-AP4X2 50/MIN	1582239 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
DBI5U-M18E-AP4X2 500/MIN	1582229	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
DBI5U-M18E-AP4X3	1582236 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
DTBI5U-M18E-AP4X3	1582237 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
NI15U-EM18WD-AP6X	1634817 ✘	S001	1	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
NI15U-EM18WD-AN6X	1634836	S004	1	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
NI15U-M18-AP6X	1635330 ✘	S001	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
NI15U-M18-AN6X	1635334	S004	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
NI12U-M18-AP6X	1645100 ✘	S001	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
NI12U-EM18-AP6X	1645300 ✘	S001	2	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
NI12U-M18-AN6X	1645120 ✘	S004	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
NI12U-EM18-AN6X	1645320 ✘	S004	2	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
NI15U-M18M-VP44X	1634878 ✘	S007	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
NI15U-M18M-VN44X	1634882	S010	1	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
NI12U-M18M-VP4X	1581403 ✘	S007	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
NI12U-M18M-VN4X	1581501	S010	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
NI12U-M18-ADZ30X2	4282410 ✘	S155	0.02	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
DNI12U-M18E-AP4X3	1582235 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
DTNI12U-M18E-AP4X3	1582234 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
BI5U-EG18SK-AP6X	1635400 ✘	S003	2.5	-30...+85	IP68	VA	PBT	–	–	•
BI5U-EG18SK-VP4X	1581601 ✘	S009	2.5	-30...+85	IP68	VA	PBT	–	–	•
BI5U-EG18SK-AN6X	1635420	S006	2.5	-30...+85	IP68	VA	PBT	–	–	•
BI5U-EG18SK-VN4X	1581701	S012	2.5	-30...+85	IP68	VA	PBT	–	–	•

✘ = Preferred solution, available at short notice

FACTOR 1 sensors – *uprox*® and *uprox*®+

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]	
	**M18 x 1**	*uprox*®	5,	, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	5,	, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	12,	, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	12,	, NPN	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	*uprox*®	12,	, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	12,	, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®	12,	, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	12,	, NPN	10...65 VDC	200 DC, Ⓚ	

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	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	BI5U-P18SK-AP6X	1635700 ✘	S003	3	-30...+85	IP68	PBT	PBT	–	–	•
	BI5U-P18SK-AN6X	1635720	S006	3	-30...+85	IP68	PBT	PBT	–	–	•
	NI12U-P18SK-AP6X	1645700 ✘	S003	2	-30...+85	IP68	PBT	PBT	–	–	•
	NI12U-P18SK-AN6X	1645720	S006	2	-30...+85	IP68	PBT	PBT	–	–	•
	NI12U-EG18SK-AP6X	1645400 ✘	S003	2	-30...+85	IP68	VA	PBT	–	–	•
	NI12U-EG18SK-VP4X	1581801 ✘	S009	2	-30...+85	IP68	VA	PBT	–	–	•
	NI12U-EG18SK-AN6X	1645420	S006	2	-30...+85	IP68	VA	PBT	–	–	•
	NI12U-EG18SK-VN4X	1581901	S012	2	-30...+85	IP68	VA	PBT	–	–	•

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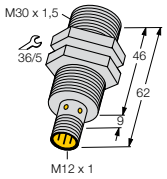
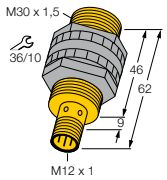
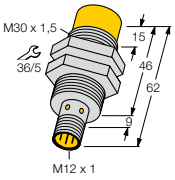
✘ = Preferred solution, available at short notice

Dimensions/Housing style	Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]	
M30 x 1,5 	*uprox*®+	15, ▭	⎯⌒⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	teflon *uprox*®+	15, ▭	⎯⌒⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	10 bar *uprox*®+ wash down	15, ▭	⎯⌒⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	Ⓔx II 3 G Ⓔx II 3 D 10 bar *uprox*®+ wash down	15, ▭	⎯⌒⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®+	15, ▭	⎯⌒⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®+	15, ▭	⎯⌒⎯, PNP	10...55 VDC	200 DC, Ⓚ	
	10 bar *uprox*®+ wash down	15, ▭	⎯⌒⎯, PNP	10...55 VDC	200 DC, Ⓚ	
	uprox®+	15, ▭	⎯⌒⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	teflon *uprox*®+	15, ▭	⎯⌒⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	10 bar *uprox*®+ wash down	15, ▭	⎯⌒⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	Ⓔx II 3 G Ⓔx II 3 D 10 bar *uprox*®+ wash down	15, ▭	⎯⌒⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	uprox®+	15, ▭	⎯⌒⎯, NPN	10...55 VDC	200 DC, Ⓚ	
	uprox®	10, ▭	⎯⌒⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®	10, ▭	⎯⌒⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	teflon *uprox*®	10, ▭	⎯⌒⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®	10, ▭	⎯⌒⎯, PNP	10...65 VDC	200 DC, Ⓚ	
	uprox®	10, ▭	⎯⌒⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	uprox®	10, ▭	⎯⌒⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	teflon *uprox*®	10, ▭	⎯⌒⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	uprox®	10, ▭	⎯⌒⎯, NPN	10...65 VDC	200 DC, Ⓚ	

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI15U-M30-AP6X-H1141	1636732 ✘	S002	0.75	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI15U-MT30-AP6X-H1141	1636734 ✘	S002	0.75	-30...+85	IP68	CuZn-T	LCP	–	–	•
BI15U-EM30WD-AP6X-H1141	1634820 ✘	S002	0.75	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI15U-EM30WD-AP6X-H1141/ 3GD	1634855 ✘	S002	0.75	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI15U-M30-RP6X-H1141	1636739 ✘	S056	0.75	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI15U-M30-VP44X-H1141	1634885 ✘	S008	0.75	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI15U-EM30WD-VP44X-H1141	1634899	S008	0.75	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI15U-M30-AN6X-H1141	1636736 ✘	S005	0.75	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI15U-MT30-AN6X-H1141	1636738	S005	0.75	-30...+85	IP68	CuZn-T	LCP	–	–	•
BI15U-EM30WD-AN6X-H1141	1634834	S005	0.75	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI15U-EM30WD-AN6X-H1141/ 3GD	1634856	S005	0.75	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI15U-M30-VN44X-H1141	1634889 ✘	S011	0.75	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
BI10U-M30-AP6X-H1141	1636140 ✘	S002	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
BI10U-EM30-AP6X-H1141	1636340 ✘	S002	2	-30...+85	IP68	VA	PBT	–	–	•
BI10U-MT30-AP6X-H1141	1636240 ✘	S002	0.25	-30...+85	IP67	CuZn-T	PBT	–	–	•
BI10U-M30-VP4X-H1141	1582253 ✘	S008	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
BI10U-M30-AN6X-H1141	1636150 ✘	S005	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
BI10U-EM30-AN6X-H1141	1636350 ✘	S005	2	-30...+85	IP68	VA	PBT	–	–	•
BI10U-MT30-AN6X-H1141	1636250	S005	2	-30...+85	IP67	CuZn-T	PBT	–	–	•
BI10U-M30-VN4X-H1141	1582352	S011	2	-30...+85	IP67	CuZn-Cr	PBT	–	–	•

✘ = Preferred solution, available at short notice

FACTOR 1 sensors – *uprox*® and *uprox*®+

Dimensions/Housing style	Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]	
 **M30 x 1,5**	*uprox*®	10,	_⌒‾, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®	10,	_⌒‾, NPN	10...30 VDC	200 DC, Ⓚ	
	uprox®	20,	_⌒‾, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®	20,	_⌒‾, NPN	10...30 VDC	200 DC, Ⓚ	
 **M30 x 1,5**	*uprox*®+	30,	_⌒‾, PNP	10...30 VDC	200 DC, Ⓚ	
	teflon *uprox*®+	30,	_⌒‾, PNP	10...30 VDC	200 DC, Ⓚ	
	Ⓔx II 3 D 10 bar *uprox*®+ wash down	30,	_⌒‾, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®+	30,	_⌒‾, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®+	30,	_⌒‾, PNP	10...55 VDC	200 DC, Ⓚ	
	10 bar *uprox*®+ wash down	30,	_⌒‾, PNP	10...55 VDC	200 DC, Ⓚ	
	uprox®+	30,	_⌒‾, NPN	10...30 VDC	200 DC, Ⓚ	
	teflon *uprox*®+	30,	_⌒‾, NPN	10...30 VDC	200 DC, Ⓚ	
	Ⓔx II 3 D 10 bar *uprox*®+ wash down	30,	_⌒‾, NPN	10...30 VDC	200 DC, Ⓚ	
	uprox®+	30,	_⌒‾, NPN	10...55 VDC	200 DC, Ⓚ	
	uprox®	20,	_⌒‾, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®	20,	_⌒‾, PNP	10...30 VDC	200 DC, Ⓚ	
	teflon *uprox*®	20,	_⌒‾, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®	20,	_⌒‾, PNP	10...65 VDC	200 DC, Ⓚ	
	uprox®	20,	_⌒‾, NPN	10...30 VDC	200 DC, Ⓚ	
	teflon *uprox*®	20,	_⌒‾, NPN	10...30 VDC	200 DC, Ⓚ	
	uprox®	20,	_⌒‾, NPN	10...30 VDC	200 DC, Ⓚ	
	uprox®	20,	_⌒‾, NPN	10...65 VDC	200 DC, Ⓚ	

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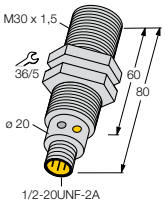
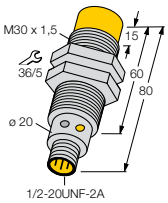
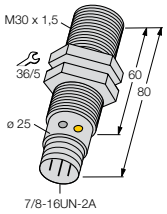
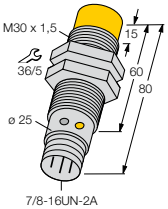
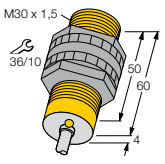
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI10U-S30-AP6X-H1141	1636600 ✘	S002	2	-30...+85	IP68	PBT	PA	–	–	•
BI10U-S30-AN6X-H1141	1636620	S005	2	-30...+85	IP68	PBT	PA	–	–	•
NI20U-S30-AP6X-H1141	1646600 ✘	S002	1.5	-30...+85	IP68	PBT	PA	–	–	•
NI20U-S30-AN6X-H1141	1646620	S005	1.5	-30...+85	IP68	PBT	PA	–	–	•
NI30U-M30-AP6X-H1141	1646631 ✘	S002	0.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI30U-MT30-AP6X-H1141	1646633 ✘	S002	0.5	-30...+85	IP68	CuZn-T	LCP	–	–	•
NI30U-EM30WD-AP6X-H1141/3D	1634861 ✘	S002	0.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI30U-M30-RP6X-H1141	1646636 ✘	S056	0.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI30U-M30-VP44X-H1141	1634887 ✘	S008	0.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI30U-EM30WD-VP44X-H1141	1634904	S008	0.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI30U-M30-AN6X-H1141	1644635 ✘	S005	0.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI30U-MT30-AN6X-H1141	1644637	S005	0.5	-30...+85	IP68	CuZn-T	LCP	–	–	•
NI30U-EM30WD-AN6X-H1141/3D	1634862	S005	0.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI30U-M30-VN44X-H1141	1634891 ✘	S011	0.5	-30...+85	IP68	CuZn-Cr	LCP	–	–	•
NI20U-M30-AP6X-H1141	1646140 ✘	S002	1.5	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
NI20U-EM30-AP6X-H1141	1646340 ✘	S002	1.5	-30...+85	IP68	VA	PBT	–	–	•
NI20U-MT30-AP6X-H1141	1646240 ✘	S002	1.5	-30...+85	IP67	CuZn-T	PBT	–	–	•
NI20U-M30-VP4X-H1141	1582457 ✘	S008	1.5	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
NI20U-M30-AN6X-H1141	1646150 ✘	S005	1.5	-30...+85	IP67	CuZn-Cr	PBT	–	–	•
NI20U-MT30-AN6X-H1141	1646250	S005	1.5	-30...+85	IP67	CuZn-T	PBT	–	–	•
NI20U-EM30-AN6X-H1141	1646350	S005	1.5	-30...+85	IP68	VA	PBT	–	–	•
NI20U-M30-VN4X-H1141	1582552	S011	1.5	-30...+85	IP67	CuZn-Cr	PBT	–	–	•

✘ = Preferred solution, available at short notice

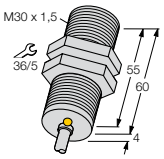
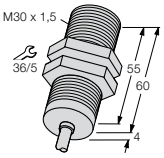
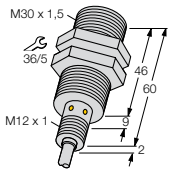
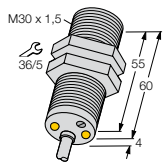
3

Dimensions/Housing style	Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]	
 **M30 x 1,5**	*uprox*®	10,	⎓	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
 **M30 x 1,5**	*uprox*®	20,	⎓	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
 **M30 x 1,5**	*uprox*®	10,	⎓	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
 **M30 x 1,5**	*uprox*®	20,	⎓	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
	*uprox*®	10,	⎓, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®	10,	⎓, NPN	10...30 VDC	200 DC, Ⓚ	
	uprox®	20,	⎓, PNP	10...30 VDC	200 DC, Ⓚ	
	uprox®	20,	⎓, NPN	10...30 VDC	200 DC, Ⓚ	

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED
BI10U-G30-ADZ30X2-B3131	4281613	S153	0.02	-30...+85	IP67	CuZn-Cr	PBT	–	•	•
NI20U-G30-ADZ30X2-B3131	4281813	S153	0.02	-30...+85	IP67	CuZn-Cr	PBT	–	•	•
BI10U-G30-ADZ30X2-B1131	4281612	S153	0.02	-30...+85	IP67	CuZn-Cr	PBT	–	•	•
NI20U-G30-ADZ30X2-B1131	4281812	S153	0.02	-30...+85	IP67	CuZn-Cr	PBT	–	•	•
BI10U-S30-AP6X	1636500 ✘	S001	2	-30...+85	IP68	PA	PA	PVC 2 m	–	•
BI10U-S30-AN6X	1636520	S004	2	-30...+85	IP68	PA	PA	PVC 2 m	–	•
NI20U-S30-AP6X	1646500 ✘	S001	1.5	-30...+85	IP68	PA	PA	PVC 2 m	–	•
NI20U-S30-AN6X	1646520	S004	1.5	-30...+85	IP68	PA	PA	PVC 2 m	–	•

✘ = Preferred solution, available at short notice

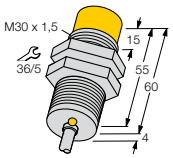
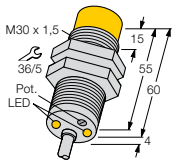
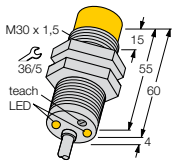
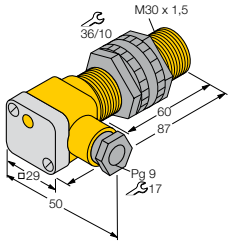
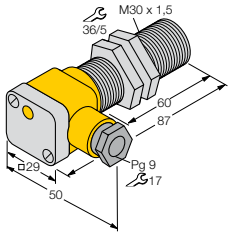
3

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]	
	**M30 x 1,5**	*uprox*®+	15,	, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®+	15,	, PNP	10...55 VDC	200 DC, Ⓚ	
		uprox®+	15,	, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®+	15,	, NPN	10...55 VDC	200 DC, Ⓚ	
		uprox®	10,	, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	10,	, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	10,		20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ	
	**M30 x 1,5**	*uprox*®	10,	, PNP	10...30 VDC	200 DC, Ⓚ	
		uprox®	10,	, PNP	10...65 VDC	200 DC, Ⓚ	
		uprox®	10,	, NPN	10...30 VDC	200 DC, Ⓚ	
		uprox®	10,	, NPN	10...65 VDC	200 DC, Ⓚ	
	**M30 x 1,5**	10 bar *uprox*®+ wash down	15,	, PNP	10...30 VDC	200 DC, Ⓚ	
		10 bar *uprox*®+ wash down	15,	, NPN	10...30 VDC	200 DC, Ⓚ	
	**M30 x 1,5**	rotation monitoring	10,	, PNP	10...65 VDC	200 DC, Ⓚ	
		rotation monitoring	10,	, PNP	10...65 VDC	200 DC, Ⓚ	

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI15U-M30-AP6X	1636731 ✘	S001	0.75	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
BI15U-M30-VP44X	1634884 ✘	S007	0.75	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
BI15U-M30-AN6X	1636735	S004	0.75	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
BI15U-M30-VN44X	1634888	S010	0.75	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
BI10U-EM30-AP6X	1636300 ✘	S001	2	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
BI10U-EM30-AN6X	1636320 ✘	S004	2	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
BI10U-M30-ADZ30X2	4282610 ✘	S155	0.02	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
BI10U-M30-AP6X	1636100 ✘	S001	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
BI10U-M30-VP4X	1582201 ✘	S007	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
BI10U-M30-AN6X	1636120 ✘	S004	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
BI10U-M30-VN4X	1582303	S010	2	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
BI15U-EM30WD-AP6X	1634819 ✘	S001	0.75	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
BI15U-EM30WD-AN6X	1634843	S004	0.75	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
DBI10U-M30-AP4X2	1582231 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
DTBI10U-M30-AP4X2	1582230 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•

✘ = Preferred solution, available at short notice

FACTOR 1 sensors – *uprox*® and *uprox*®+

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]
	**M30 x 1,5**	*uprox*®+	30, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®+	30, ▭	⎯◺, PNP	10...55 VDC	200 DC, Ⓚ
		uprox®+	30, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®+	30, ▭	⎯◺, NPN	10...55 VDC	200 DC, Ⓚ
		uprox®	20, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	20, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	20, ▭	⎯◺, PNP	10...65 VDC	200 DC, Ⓚ
		uprox®	20, ▭	⎯◺, PNP	10...65 VDC	200 DC, Ⓚ
		uprox®	20, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®	20, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®	20, ▭	⎯◺, NPN	10...65 VDC	200 DC, Ⓚ
		uprox®	20, ▭	⎯◺	20...250 VAC 10...300 VDC	400 AC 300 DC, Ⓚ
	**M30 x 1,5**	rotation monitoring	20, ▭	⎯◺, PNP	10...65 VDC	200 DC, Ⓚ
	**M30 x 1,5**	rotation monitoring	20, ▭	⎯◺, PNP	10...65 VDC	200 DC, Ⓚ
	**M30 x 1,5**	*uprox*®	10, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	10, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®	20, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	20, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ
	**M30 x 1,5**	*uprox*®	10, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	10, ▭	⎯◺, PNP	10...65 VDC	200 DC, Ⓚ
		uprox®	10, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ
		uprox®	10, ▭	⎯◺, NPN	10...65 VDC	200 DC, Ⓚ
		uprox®	20, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	20, ▭	⎯◺, PNP	10...65 VDC	200 DC, Ⓚ
		uprox®	20, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ

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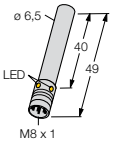
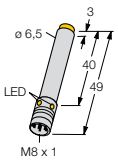
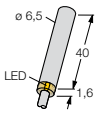
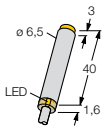
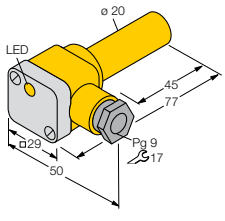
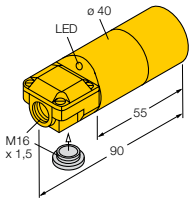
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI30U-M30-AP6X	1646630 ✘	S001	0.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
NI30U-M30-VP44X	1634886 ✘	S007	0.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
NI30U-M30-AN6X	1644634	S004	0.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
NI30U-M30-VN44X	1634890	S010	0.5	-30...+85	IP68	CuZn-Cr	LCP	PVC 2 m	–	•
NI20U-M30-AP6X	1646100 ✘	S001	1.5	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
NI20U-EM30-AP6X	1646300 ✘	S001	1.5	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
NI20U-M30-VP4X	1582401 ✘	S007	1.5	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
NI20U-EM30-VP4X	1582462	S007	1.5	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
NI20U-M30-AN6X	1646120 ✘	S004	1.5	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
NI20U-EM30-AN6X	1646320	S004	1.5	-30...+85	IP68	VA	PBT	PVC 2 m	–	•
NI20U-M30-VN4X	1582501	S010	1.5	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	–	•
NI20U-M30-ADZ30X2	4282810 ✘	S155	0.02	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
DNI20U-M30-AP4X2	1582233 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
DTNI20U-M30-AP4X2	1582232 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
BI10U-P30SK-AP6X	1636700 ✘	S003	2	-30...+85	IP68	PA	PA	–	–	•
BI10U-P30SK-AN6X	1636720	S006	2	-30...+85	IP68	PA	PA	–	–	•
NI20U-P30SK-AP6X	1646700 ✘	S003	1.5	-30...+85	IP68	PA	PA	–	–	•
NI20U-P30SK-AN6X	1646720	S006	1.5	-30...+85	IP68	PA	PA	–	–	•
BI10U-EG30SK-AP6X	1636400 ✘	S003	2	-30...+85	IP68	VA	PBT	–	–	•
BI10U-EG30SK-VP4X	1582601 ✘	S009	2	-30...+85	IP68	VA	PBT	–	–	•
BI10U-EG30SK-AN6X	1636420	S006	2	-30...+85	IP68	VA	PBT	–	–	•
BI10U-EG30SK-VN4X	1582701	S012	2	-30...+85	IP68	VA	PBT	–	–	•
NI20U-EG30SK-AP6X	1646400 ✘	S003	1.5	-30...+85	IP68	VA	PBT	–	–	•
NI20U-EG30SK-VP4X	1582801 ✘	S009	1.5	-30...+85	IP68	VA	PBT	–	–	•
NI20U-EG30SK-AN6X	1646420	S006	1.5	-30...+85	IP68	VA	PBT	–	–	•

✘ = Preferred solution, available at short notice

FACTOR 1 sensors – *uprox*® and *uprox*®+

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operatinal voltage U_B	Operational current I_e [mA]
	**Ø6,5**	*uprox*®+	2,	_⌒_, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®+	2,	_⌒_, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®+	2,	_⌒_, NPN	10...30 VDC	150 DC, Ⓚ
	**Ø6,5**	*uprox*®+	6,	_⌒_, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®+	6,	_⌒_, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®+	6,	_⌒_, NPN	10...30 VDC	150 DC, Ⓚ
	**Ø6,5**	*uprox*®+	2,	_⌒_, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®+	2,	_⌒_, NPN	10...30 VDC	150 DC, Ⓚ
	**Ø6,5**	*uprox*®+	6,	_⌒_, PNP	10...30 VDC	150 DC, Ⓚ
		uprox®+	6,	_⌒_, NPN	10...30 VDC	150 DC, Ⓚ
 Fixing clamp BS20 included in delivery	**Ø20**	*uprox*®	5,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ
		uprox®	5,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ
 Fixing clamp BS40 included in delivery	**Ø40**	rotation monitoring	15,	_⌒_, PNP	10...65 VDC	200 DC, Ⓚ
		rotation monitoring	30,	_⌒_, PNP	10...65 VDC	200 DC, Ⓚ

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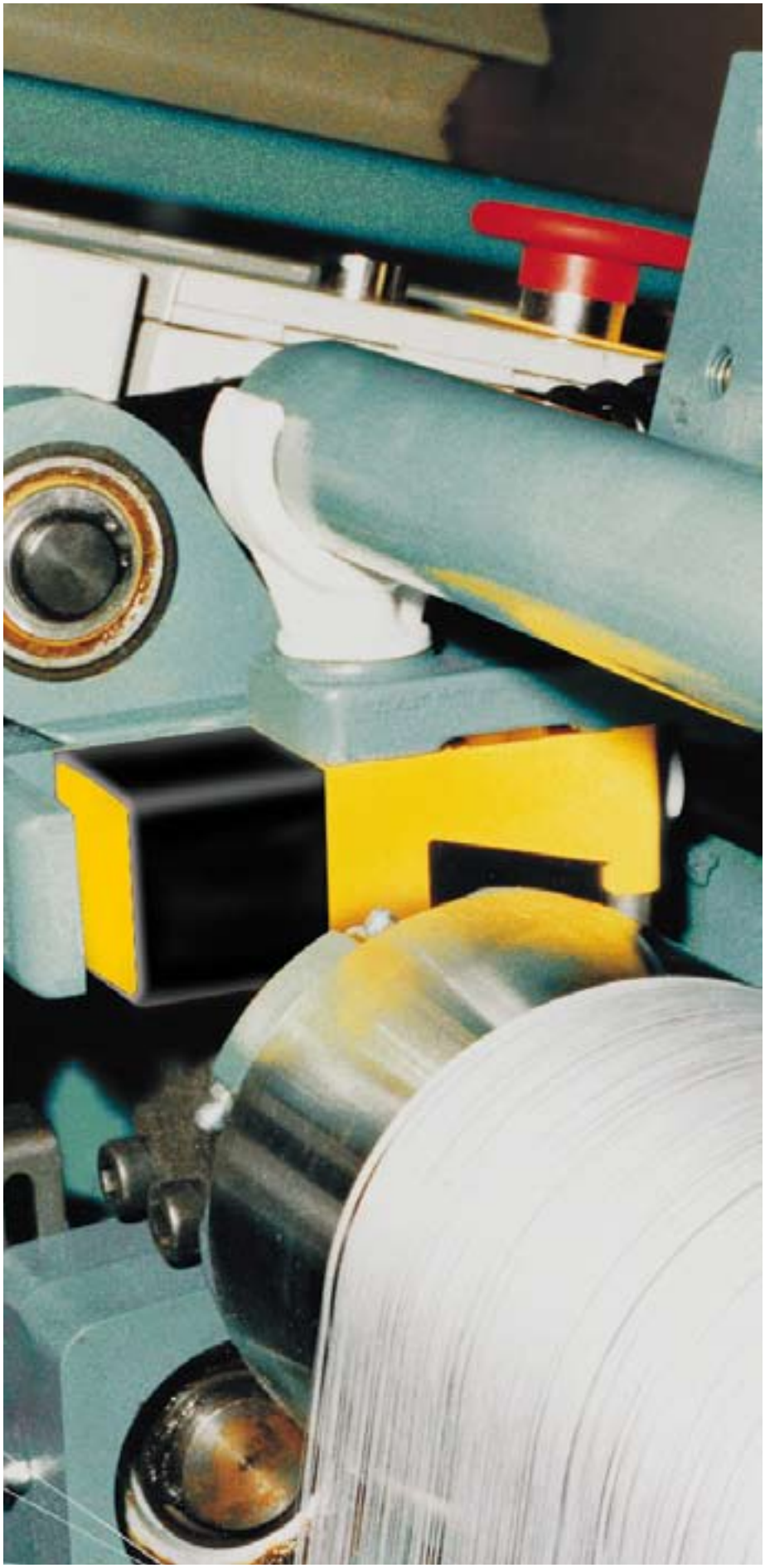
	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Connection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED
	BI2U-EH6,5-AP6X-V1131	4281160 ✘	S002	1	-25...+70	IP68	VA	PA	–	–	•
	BI2U-EH6,5-RP6X-V1131	1637151	S175	1	-25...+70	IP68	VA	PA	–	–	•
	BI2U-EH6,5-AN6X-V1131	4281180	S005	1	-25...+70	IP68	VA	PA	–	–	•
	NI6U-EH6,5-AP6X-V1131	4631510 ✘	S002	1	0...+70	IP68	VA	PA	–	–	•
	NI6U-EH6,5-RP6X-V1131	4635832	S175	1	0...+70	IP68	VA	PA	–	–	•
	NI6U-EH6,5-AN6X-V1131	4631530	S005	1	0...+70	IP68	VA	PA	–	–	•
	BI2U-EH6,5-AP6X	4281150 ✘	S001	1	-25...+70	IP68	VA	PA	PUR 2 m	–	•
	BI2U-EH6,5-AN6X	4281170 ✘	S004	1	-25...+70	IP68	VA	PA	PUR 2 m	–	•
	NI6U-EH6,5-AP6X	4631500 ✘	S001	1	0...+70	IP68	VA	PA	PUR 2 m	–	•
	NI6U-EH6,5-AN6X	4631520	S004	1	0...+70	IP68	VA	PA	PUR 2 m	–	•
	BI5U-K20SK-AP6X	1635130 ✘	S003	1	-30...+85	IP68	PBT	PBT	–	–	•
	BI5U-K20SK-AN6X	1635131	S006	1	-30...+85	IP68	PBT	PBT	–	–	•
	DBI15U-K40SR-AP4X2	1500201	S058	–	-30...+85	IP67	ABS	ABS	–	•	•
	DNI30U-K40SR-AP4X2	1500202	S058	–	-30...+85	IP67	ABS	ABS	–	•	•

✘ = Preferred solution, available at short notice

Inductive sensors with analogue output



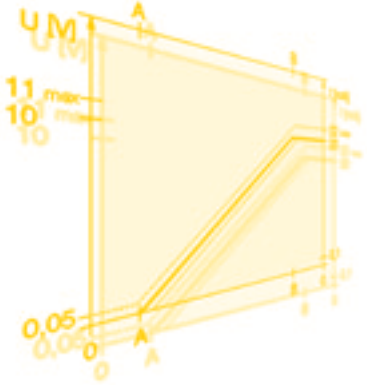
Inductive sensors with an analogue output provide a current, voltage or frequency signal, which is proportional to the target distance, and are suited for simple control tasks. With TURCK's analogue sensors, this output signal is linear to the distance of the target object to the active face over the entire sensing range.

The TURCK analogue sensors are used in many applications which require more than just simple digital positioning. Typical areas of application are for example:

- Tensile strength control
- Monitoring of winding and unwinding processes
- Differentiation of workpieces according to size and material
- Thickness, gap or distance measurement
- Band width measurements
- Band eccentricity measurements
- Positioning
- Position control
- Absolute position or angle detection

In order to complete the range of proven and tested analogue sensors, TURCK has developed the new sensor series analog+ and has yet again extended the measurement range. These sensors are particularly recommended for applications where large mechanical path differences are to be resolved by analogue means.

If however the highest possible accuracy is required for the smallest of movements or differences, analogue sensors from the standard series are preferred. They have even a better linearity and a physically larger accuracy because of their smaller full scale measurement range.



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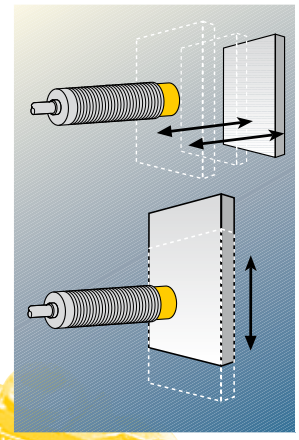
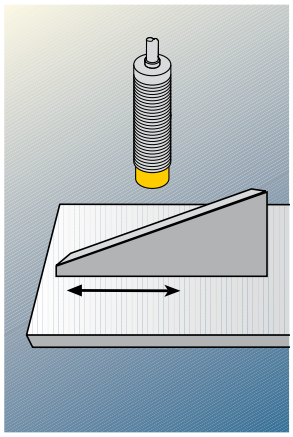
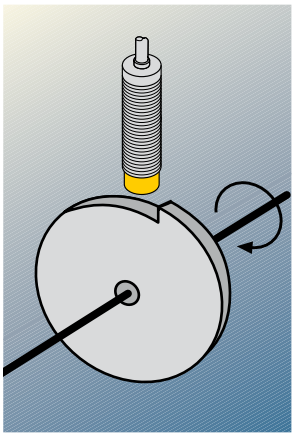
- **High repeat accuracy (R ≤ 1 %)**
- **Large measurement ranges**
- **Current, voltage and frequency output**
- **Optional: Additionally adjustable switched output**
- **Large range of available housings**
- **Higher EMC protection**
- **Short-circuit and reverse polarity protection**
- **All connection types available**







Sensor actuation – possibilities and applications
A simple solution for positioning in the mechanical engineering field is offered by the inductive position sensors of the Wi series. The devices with a measurement length of 40 or 70 mm are actuated by a ring made of non-ferrous metal. Alternatively a sink hole used in the construction of the machine can be used for actuation.

As with inductive position sensors the position can be reliably detected as with magnetically actuated position sensors. The actuating magnet can either be a magnet from the TURCK range or also the magnets which are located in the float of the flow meter.

Direct actuation
If the sensor is directly actuated by the actuation element, a high level of accuracy can be achieved. Actuation both from the front and side is possible here.

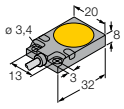
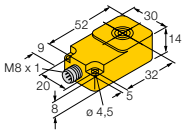
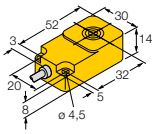
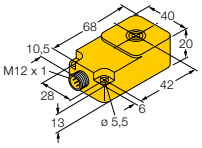
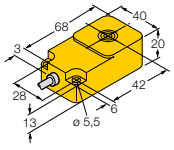
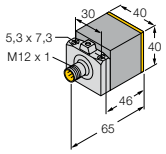
Actuation on a sloped surface
In order to cost-effectively resolve a large linear motion, the large distance can be diverted via a sloped surface to the measuring range of the sensor.

Actuation by a screw
A rotary motion is detected using a worm screw. Every angular position of the axis can be assigned with a measured value, even with partial rotary movements.

3

Detection of metals
In many areas a speedy detection of the different metals employed is required. Typical examples are the sorting of aluminium and tinplate drink cans or distinguishing between the different metals used for the tubing produced in a plant.
For this purpose TURCK have developed an analogue inductive sensor that not only analyses the signal amplitude but also the signal phase. Both signals are emitted as an analogue value and can be analysed mathematically by the higher-level control unit. The great advantage of this inductive analogue measuring procedure is the distance-independent recognition of metals.

Inductive sensors with analogue output

Dimensions/Housing style	Features (☞ 356)	Measuring range [mm]	Measuring range lenght [mm]	Output type 1 (PIN2, WH)	Output type 2 (PIN4, BK)	Linearity error [%]	Operational voltage U_B
Q08 	analog+	1...4,	3	I = 0...20 mA	U = 0...10 V	3	15...30 VDC
Q14 	analog	3...8,	5	I = 0...20 mA	U = 0...10 V	3	15...30 VDC
Q14 	analog	3...8,	5	I = 0...20 mA	U = 0...10 V	3	15...30 VDC
Q20 	analog	4...11,	7	I = 0...20 mA	U = 0...10 V	3	15...30 VDC
Q20 	analog	4...11,	7	I = 0...20 mA	U = 0...10 V	3	15...30 VDC
CK40  active face, variable orientation in 5 directions	analog	4...11,	7	I = 0...20 mA	U = 0...10 V	3	15...30 VDC
	analog+	5...25,	20	I = 0...20 mA	U = 0...10 V	3	15...30 VDC
	analog+	5...25,	20	I = 4...20 mA	U = 2...10 V	3	15...30 VDC

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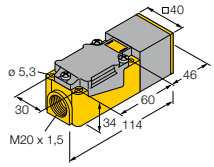
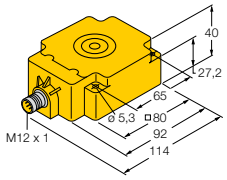
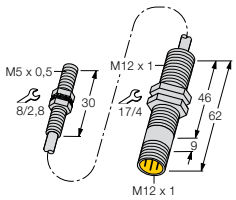
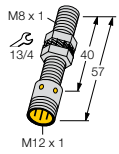
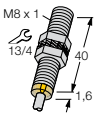
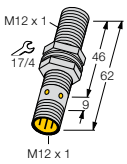
Type	Ident no.	Connection (☞ 322)	Reading rate frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED
BI7-Q08-LIU	1534605 ✘	S033	200	-10...+70	IP67	GD-Zn	PA	PUR 2 m	–	–
BI10-Q14-LIU-V1141	1534603 ✘	S034	140	-10...+70	IP67	PBT	PBT	–	–	–
BI10-Q14-LIU	1534602	S033	140	-10...+70	IP67	PBT	PBT	PUR 2 m	–	–
BI15-Q20-LIU-H1141	1534601 ✘	S034	110	-10...+70	IP67	PBT	PBT	–	–	–
BI15-Q20-LIU	1534600	S033	110	-10...+70	IP67	PBT	PBT	PUR 2 m	–	–
BI15-CK40-LIU-H1141	1537800 ✘	S034	110	-10...+70	IP67	PBT	PA	–	–	–
NI25-CK40-LIU-H1141	1537802 ✘	S034	30	-10...+70	IP67	PBT	PA	–	–	–
NI25-CK40-LIU2-H1141	1537821 ✘	S034	30	-10...+70	IP67	PBT	PA	–	–	–

✘ = Preferred solution, available at short notice

Inductive sensors with analogue output

Dimensions/Housing style	Features (☞ 356)	Measuring range [mm]	Measuring range lenght [mm]	Output type 1 (PIN2, WH)	Output type 2 (PIN4, BK)	Linearity error [%]	Operational voltage U_B
CP40  active face, variable orientation in 9 directions	analog	4...11,	7	I = 0...20 mA	U = 0...10 V	3	15...30 VDC
	analog+	5...25,	20	I = 0...20 mA	U = 0...10 V	3	15...30 VDC
Q80  	analog+	10...50,	40	I = 0...20 mA	U = 0...10 V	5	15...30 VDC
M5 x 0,5  	analog+	0.1...1.5,	1.4	I = 0...20 mA	U = 0...10 V	nicht linear	15...30 VDC
M8 x 1  	analog	0.25...1.25,	1	–	U = 0...10 V	3	15...30 VDC
M8 x 1  	analog	0.25...1.25,	1	–	U = 0...10 V	3	15...30 VDC
M12 x 1  	analog	1...2.5	1.5	I = 0...20 mA	U = 0...10 V	3	15...30 VDC
	analog+	0.5...3	2.5	I = 0...20 mA	U = 0...10 V	5	15...30 VDC

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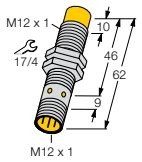
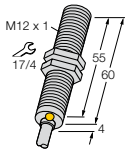
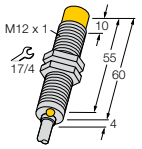
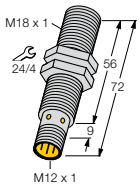
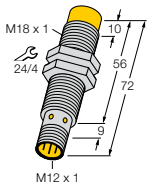
	Type	Ident no.	Connection (☞ 322)	Reading rate frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED
	BI15-CP40-LIU	15356 ✘	S035	110	-10...+70	IP67	PBT	PBT	–	–	–
	NI25-CP40-LIU	1535544 ✘	S035	30	-10...+70	IP67	PBT	PBT	–	–	
	NI50-Q80-LIU-H1141	1535545 ✘	S034	30	-10...+70	IP67	PBT	PBT	–	–	–
	BI1,5-EG05-0,3-M12-SIU-H1141	1533005 ✘	S034	200	-10...+70	IP67	VA	PA	PVC 0.3 m	–	–
	BI1,5-EG08-LU-H1341	1533004 ✘	S098	200	-10...+70	IP67	VA	PA	–	–	–
	BI1,5-EG08-LU	1533003 ✘	S091	200	-10...+70	IP67	VA	PA	PUR 2 m	–	–
	BI2-M12-LIU-H1141	1535533	S034	200	-10...+70	IP67	CuZn-Cr	PA	–	–	–
	BI4-M12-LIU-H1141	1535531 ✘	S034	200	-10...+70	IP67	CuZn-Cr	PA	–	–	–

✘ = Preferred solution, available at short notice

Inductive sensors with analogue output

Dimensions/Housing style		Features (☞ 356)	Measuring range [mm]	Measuring range lenght [mm]	Output type 1 (PIN2, WH)	Output type 2 (PIN4, BK)	Linearity error [%]	Operational voltage U_B	
	**M12 x 1**	analog	0.5...4,	3.5	I = 0...20 mA	U = 0...10 V	3	15...30 VDC	
	**M12 x 1**	analog	1...2.5	1.5	I = 0...20 mA	U = 0...10 V	3	15...30 VDC	
		analog+	0.5...3	2.5	I = 0...20 mA	U = 0...10 V	5	15...30 VDC	
	**M12 x 1**	analog	0.5...4,	3.5	I = 0...20 mA	U = 0...10 V	3	15...30 VDC	
	**M18 x 1**	analog	2...4,	2	I = 0...20 mA	U = 0...10 V	3	15...30 VDC	
		analog+	1...5,	4	I = 0...20 mA	U = 0...10 V	5	15...30 VDC	
	**M18 x 1**	analog	1...5,	4	I = 0...20 mA	U = 0...10 V	3	15...30 VDC	
		analog+	1...7,	6	I = 0...20 mA	U = 0...10 V	5	15...30 VDC	

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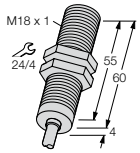
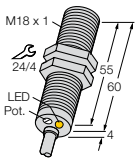
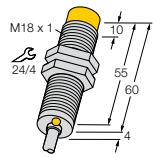
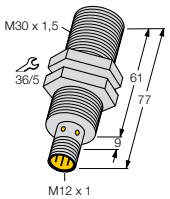
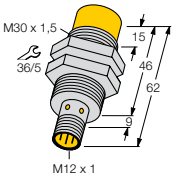
Type	Ident no.	Connection (☞ 322)	Reading rate frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI5-M12-LIU-H1141	1535535 ✘	S034	100	-10...+70	IP67	CuZn-Cr	PA	–	–	–
BI2-M12-LIU	1535534 ✘	S033	200	-10...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	–
BI4-M12-LIU	1535532	S033	200	-10...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	–
NI5-M12-LIU	1535536	S033	100	-10...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	–
BI5-M18E-LIU-H1141	1536205 ✘	S034	200	-10...+70	IP67	CuZn-Cr	PA	–	–	–
BI8-M18E-LIU-H1141	1535561 ✘	S034	200	-10...+70	IP67	CuZn-Cr	PA	–	–	–
NI8-M18E-LIU-H1141	1536302 ✘	S034	100	-10...+70	IP67	CuZn-Cr	PA	–	–	–
NI10-M18E-LIU-H1141	1535562 ✘	S034	100	-10...+70	IP67	CuZn-Cr	PA	–	–	–

✘ = Preferred solution, available at short notice

Inductive sensors with analogue output

Dimensions/Housing style		Features (☞ 356)	Measuring range [mm]	Measuring range lenght [mm]	Output type 1 (PIN2, WH)	Output type 2 (PIN4, BK)	Linearity error [%]	Operational voltage U_B	
	**M18 x 1**	analog	2...4,	2	I = 0...20 mA	U = 0...10 V	3	15...30 VDC	
		analog+	1...5,	4	I = 0...20 mA	U = 0...10 V	5	15...30 VDC	
		Ex II 1 G analog+	1...5,	4	I = 4...20 mA	–	5	14...30 VDC	
		analog+	1...5,	4	–	1...10 kHz	5	15...30 VDC	
	**M18 x 1**	analog+	1...5,	4	_⟍, PNP	U = 0...10 V	5	15...30 VDC	
	**M18 x 1**	analog	1...5,	4	I = 0...20 mA	U = 0...10 V	3	15...30 VDC	
		analog+	1...7,	6	I = 0...20 mA	U = 0...10 V	5	15...30 VDC	
	**M30 x 1,5**	analog	3...8,	5	I = 0...20 mA	U = 0...10 V	3	15...30 VDC	
		analog+	2...10,	8	I = 0...20 mA	U = 0...10 V	5	15...30 VDC	
	**M30 x 1,5**	analog	2...12,	10	I = 0...20 mA	U = 0...10 V	3	15...30 VDC	

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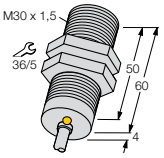
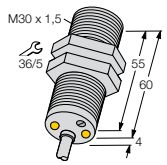
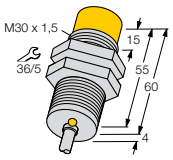
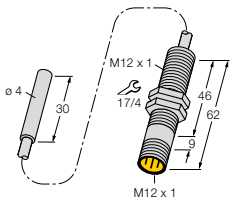
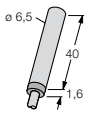
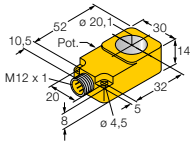
Type	Ident no.	Connection (☞ 322)	Reading rate frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI5-M18-LIU	1536000 ✘	S033	200	-10...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	–
BI8-M18-LIU	1535538 ✘	S033	200	-10...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	–
BI8-M18-LI-EXI	1535528 ✘	S097	200	-10...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	–
BI8-M18-LF10	1535529 ✘	S089	200	-10...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	–
BI8-M18-LUAP6X	4615010 ✘	S090	200	-10...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	–
NI8-M18-LIU	1536100 ✘	S033	100	-10...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	–
NI10-M18-LIU	1535540 ✘	S033	100	-10...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	–
BI10-M30E-LIU-H1141	1537003 ✘	S034	140	-10...+70	IP67	CuZn-Cr	PA	–	–	–
BI15-M30E-LIU-H1141	1535563 ✘	S034	140	-10...+70	IP67	CuZn-Cr	PA	–	–	–
NI15-M30-LIU-H1141	1535541	S034	60	-10...+70	IP67	CuZn-Cr	PA	–	–	–

✘ = Preferred solution, available at short notice

Inductive sensors with analogue output

Dimensions/Housing style		Features (☞ 356)	Measuring range [mm]	Measuring range lenght [mm]	Output type 1 (PIN2, WH)	Output type 2 (PIN4, BK)	Linearity error [%]	Operational voltage U_B	
	**M30 x 1,5**	analog	3...8,	5	I = 0...20 mA	U = 0...10 V	3	15...30 VDC	
		analog+	2...10,	8	I = 0...20 mA	U = 0...10 V	5	15...30 VDC	
		II 1 G analog+	2...10,	8	I = 4...20 mA	–	5	14...30 VDC	
	**M30 x 1,5**	analog+	2...10,	8	__, PNP	U = 0...10 V	5	15...30 VDC	
	**M30 x 1,5**	analog	2...12,	10	I = 0...20 mA	U = 0...10 V	3	15...30 VDC	
	**Ø4**	analog+	0.1...1.5,	1.4	I = 0...20 mA	U = 0...10 V	nicht linear	15...30 VDC	
	**Ø6,5**	analog	0.25...1.25,	1	–	U = 0...10 V	3	15...30 VDC	
	**Q14**	analog	[1]	[1]	–	U = 0...10 V	–	15...30 VDC	

[1] see characteristic on page 320

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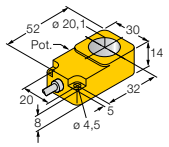
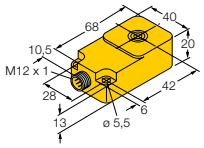
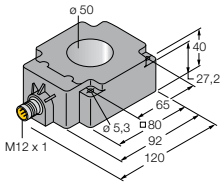
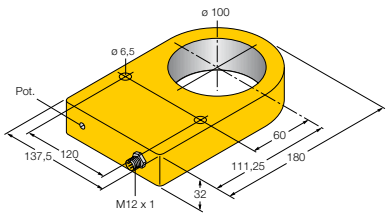
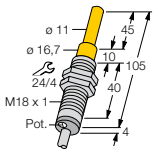
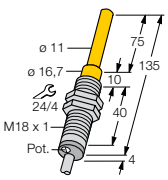
Type	Ident no.	Connection (☞ 322)	Reading rate frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI10-M30-LIU	15355 ✘	S033	140	-10...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	–
BI15-M30-LIU	1535543	S033	140	-10...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	–
BI15-M30-LI-EXI	1535554 ✘	S097	140	-10...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	–
BI15-M30-LUAP6X	4618510 ✘	S090	140	-10...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	–
NI15-M30-LIU	1535300 ✘	S033	60	-10...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	–
BI1,5-EH04-0,3-M12-SIU-H1141	1533001 ✘	S034	200	-10...+70	IP67	VA	PA	PVC 0.3 m	–	–
BI1,5-EH6,5-LU	1533002	S091	200	-10...+70	IP67	VA	PA	PUR 2 m	–	–
BI20R-Q14-LU-H1141	1535548 ✘	S098	80	-10...+70	IP67	PBT	–	–	–	–

✘ = Preferred solution, available at short notice

Inductive sensors with analogue output

Dimensions/Housing style		Features (☞ 356)	Measuring range [mm]	Measuring range lenght [mm]	Output type 1 (PIN2, WH)	Output type 2 (PIN4, BK)	Linearity error [%]	Operational voltage U_B	
	**Q14**	analog	–	1)	1)	U = 0...10 V	–	15...30 VDC	
	**Q20**	analog metall distinction	4...11,	7	I = 0...10 V	U = 0...10 V	3	15...30 VDC	
	**Q80**	analog metall distinction	–	0	I = 0...10 V	U = 0...10 V	3	15...30 VDC	
	**S32XL**	analog metall distinction	–	0	I = 0...10 V	U = 0...10 V	3	15...30 VDC	
	**M18 x 1**	analog	0...40,	40	I = 4...20 mA	U = 0...10 V	2	15...30 VDC	
	**M18 x 1**	analog	0...70,	70	I = 4...20 mA	U = 0...10 V	3	15...30 VDC	

1) see characteristic on page 318

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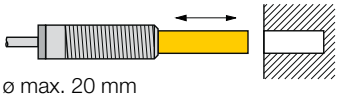
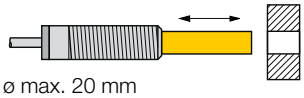
	Type	Ident no.	Connection (☞ 322)	Reading rate frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED
	BI20R-Q14-LU	1535546 ✘	S091	80	-10...+70	IP67	PBT	–	PVC 2 m	–	–
	BI15-Q20-2LU-H1141/S950	1534611 ✘	S177	110	-10...+70	IP67	PBT	PBT	–	–	–
	BI50R-Q80-2LU-H1141/S950	1534609	S177	80	-10...+70	IP67	PBT	–	–	–	–
	NI100R-S32XL-2LU-H1141/S950	1534610	S177	80	-10...+70	IP67	POM	–	–	–	–
	WI40-M18-LIU5	1536603 ✘	S033	40	-10...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	–
	WI70-M18-LIU5	1536600 ✘	S033	40	-10...+70	IP67	CuZn-Cr	PA	PVC 2 m	–	–



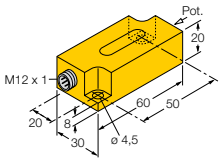
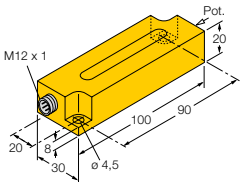


Inductive position sensor
Actuation via short-circuiting ring, blind hole or similar

✘ = Preferred solution, available at short notice

3

Inductive sensors with analogue output

Dimensions/Housing style		Features (☞ 356)	Measuring range [mm]	Measuring range lenght [mm]	Output type 1 (PIN2, WH)	Output type 2 (PIN4, BK)	Linearity error [%]	Operational voltage U_B	
	**Q20L**	analog	10...50,	40	I = 4...20 mA	U = 0...10 V	2	15...30 VDC	
	**Q20L**	analog	15...85,	70	I = 4...20 mA	U = 0...10 V	8	15...30 VDC	

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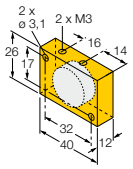
	Type	Ident no.	Connection (☞ 322)	Reading rate frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED
	WIM40-Q20L60-LIU5-H1141	1539280 ✘	S034	1000	-25...+70	IP67	PBT	PBT	–	–	–
	WIM70-Q20L100-LIU5-H1141	1539276 ✘	S034	1000	-25...+70	IP67	PBT	PBT	–	–	–

Accessories

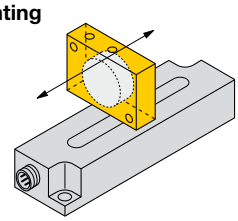
DM-Q12



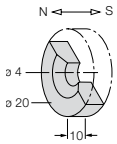
6900367

Positioning magnet. Actuation by permanent magnet

Example for mounting



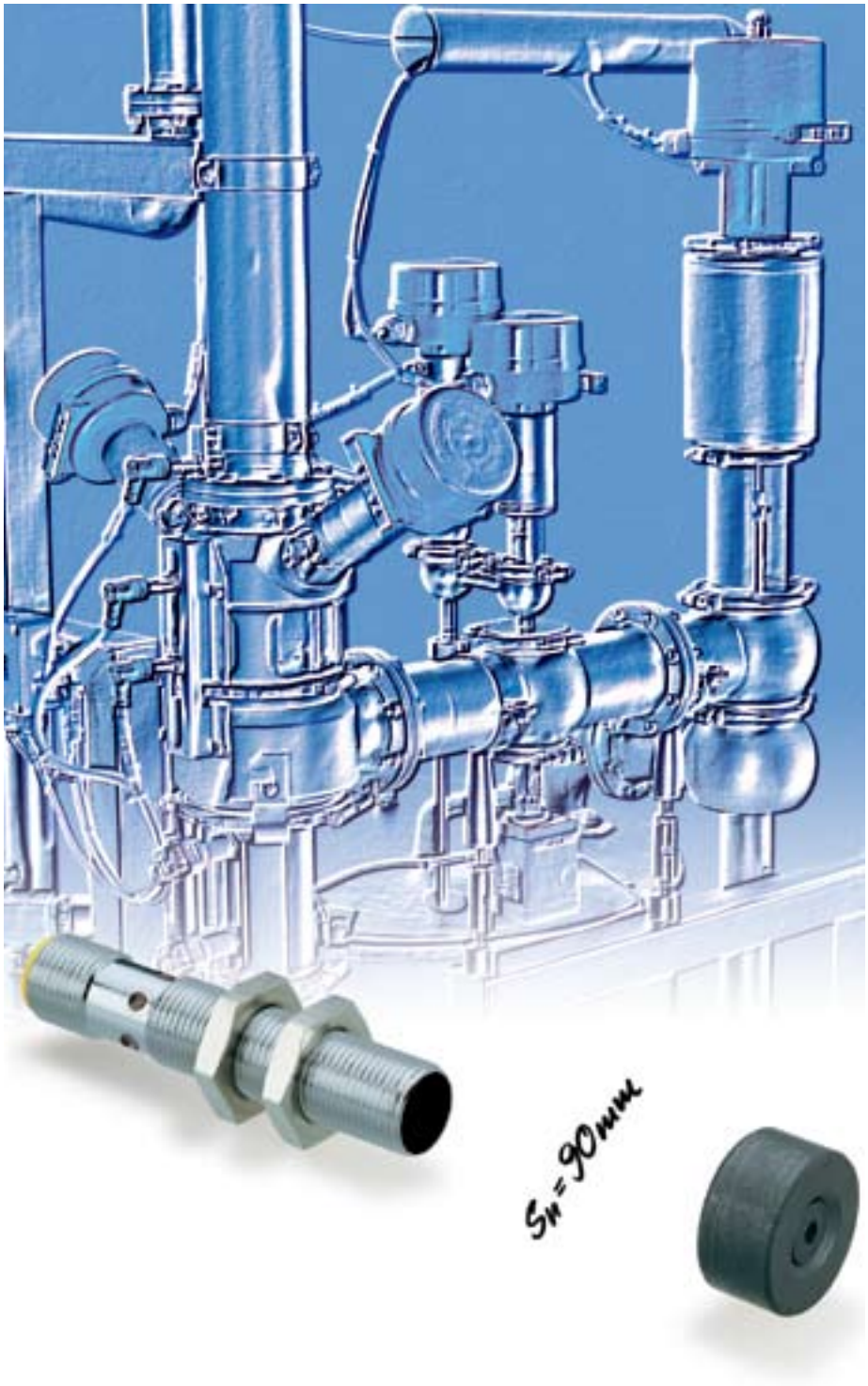
DM20-30-4



6900214

✘ = Preferred solution, available at short notice

Magnet-inductive proximity sensors



Magnet-inductive proximity sensors are actuated by magnetic fields and are thus capable of detecting permanent magnets through non-magnetic materials (such as wood, plastic, non-ferrous metals, aluminium, stainless steel).

Even with smaller housing designs the magnet-inductive sensors achieve larger ranges than inductive sensors. Thus, there are numerous detection possibilities, particularly if mounting space is limited or other difficult conditions, e.g. for large targets with poor guidance such as hanger doors. In pigging systems, e.g. pigs with integrated magnets can be reliably and cost-effectively detected without too much effort. The proven and tested magnetic field sensors are also used as proximity sensors in conjunction with the actuating magnets of different strengths and sizes. With the actuation magnets DMR31-15-5, TURCK's M12 style sensors feature a nominal switching distance of 90 mm, and furthermore magnets for distances up to 36 mm and 59 mm are in the range.

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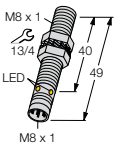
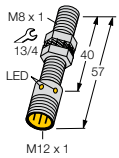
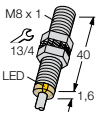
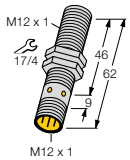
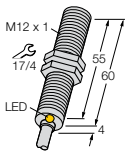
Of course, all other permanent magnets (e.g. pigs in pipe systems) are reliably detected.

The magnetic field sensors with NAMUR output are unique. These devices feature an ATEX approval for use in the explosion hazardous area and are even suitable as standard for use in safety-relevant systems up to and including SIL 2 compliant to IEC 61508.

Magnet-inductive proximity sensors

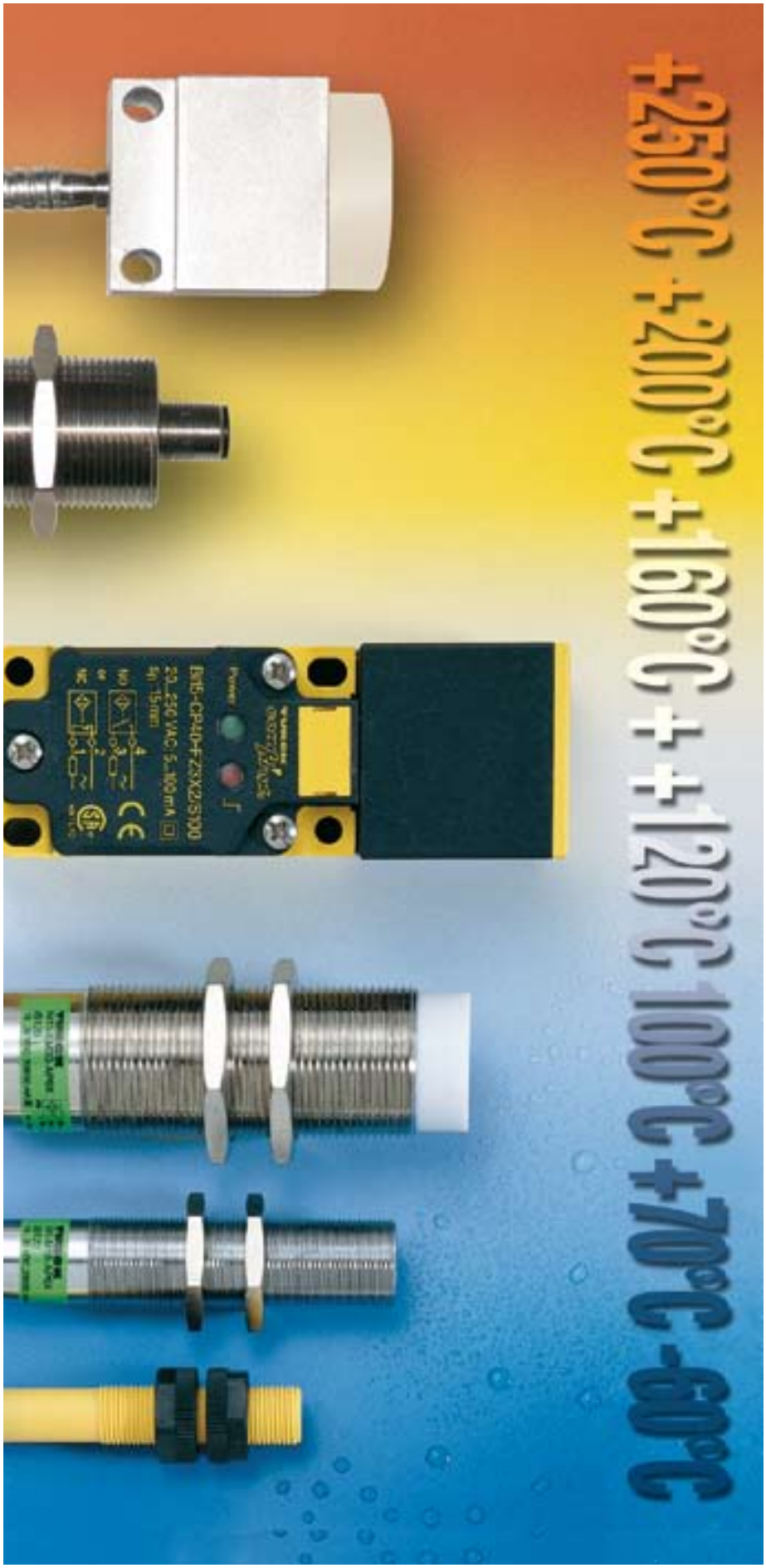
Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [1] max. [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**M8 x 1**	–	78	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ
	**M8 x 1**	Ⓔx II 2 G SIL2	78	NAMUR	nom. 8.2 VDC	–
		–	78	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ
		–	78	⎯⎽⎯, NPN	10...30 VDC	150 DC, Ⓚ
	**M8 x 1**	Ⓔx II 2 G SIL2	78	NAMUR	nom. 8.2 VDC	–
		–	78	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ
		–	78	⎯⎽⎯, NPN	10...30 VDC	150 DC, Ⓚ
	**M12 x 1**	Ⓔx II 2 G SIL2	90	NAMUR	nom. 8.2 VDC	–
		–	90	⎯⎽⎯, PNP	10...65 VDC	200 DC, Ⓚ
		–	90	⎯⎽⎯, NPN	10...65 VDC	200 DC, Ⓚ
		–	90	⎯⎽⎯, 2-wire	10...65 VDC	200 DC, Ⓚ
	**M12 x 1**	Ⓔx II 1 G Ⓔx II 1 D SIL2	90	NAMUR	nom. 8.2 VDC	–
		–	90	⎯⎽⎯, PNP	10...65 VDC	200 DC, Ⓚ
		–	90	⎯⎽⎯, NPN	10...65 VDC	200 DC, Ⓚ

[1] Depending on the strength of the actuating magnet, indications in connection with DMR31-15-5

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BIM-EG08-AP6X-V1131	4621314 ✘	S002	1	-25...+70	IP67	VA	PA	–	–	•
BIM-EG08-Y1X-H1341	1074001 ✘	S026	1	-25...+70	IP67	VA	PA	–	–	•
BIM-EG08-AP6X-H1341	4621311 ✘	S002	1	-25...+70	IP67	VA	PA	–	–	•
BIM-EG08-AN6X-H1341	4621301	S005	1	-25...+70	IP67	VA	PA	–	–	•
BIM-EG08-Y1X	1074000 ✘	S025	1	-25...+70	IP67	VA	PA	PUR 2 m	–	•
BIM-EG08-AP6X	4621310 ✘	S001	1	-25...+70	IP67	VA	PA	PUR 2 m	–	•
BIM-EG08-AN6X	4621300	S004	1	-25...+70	IP67	VA	PA	PUR 2 m	–	•
BIM-M12E-Y1X-H1141	1074003 ✘	S026	1	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BIM-EM12E-AP4X-H1141	1579915	S002	1	-25...+70	IP67	VA	POM	–	–	•
BIM-M12E-AN4X-H1141	1579914	S005	1	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BIM-M12E-AG4X-H1144	1579910 ✘	S110	0.3	-25...+70	IP67	CuZn-Cr	PA	–	–	•
BIM-EM12E-Y1X	1070036	S025	1	-25...+70	IP67	VA	POM	PUR 2 m	–	•
BIM-EM12E-AP4X	1579918	S001	1	-25...+70	IP67	VA	POM	PVC 2 m	–	•
BIM-M12E-AN4X	1579912	S004	1	-25...+70	IP67	CuZn-Cr	PA	PUR 2 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors with extended temperature range



Lower temperatures up to -60 °C
Almost all inductive sensors are available as a special version in a plastic housing for applications with very low ambient temperatures. These devices are marked with the special identification number “S97” and feature a temperature range of -40...+70 °C. Devices of the “S929” series are suitable for use down to -60 °C for even lower temperatures. These sensors also feature the enhanced degree of protection IP68/IP69K as standard.

These sensors are used for example in
- Refrigeration systems
- Freeze-drying systems
- Open air applications in extreme climates

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High temperatures up to +100 °C
Most inductive sensors are available as special versions in metal and plastic housings for temperatures up to +100 °C. These devices feature the marking “S100” in the type designation and are suitable for a temperature range of -25...+100 °C.

Typical areas of application are for example:
- Breweries and dairies
- Plastic injection moulding machines
- Metal foundry equipment
- Glass industry
- Kibbler rolls and sheet mills

The sensors in plastic housings are ideal for outdoor applications. Even rapid temperature changes in damp environments are mastered effortlessly.

Sensors in metal barrels are used particularly in applications which are subject to mechanical stress.

High temperatures up to +120 °C
Some sensors with nickel-plated brass housings are designed for temperatures up to +120 °C. These types are labeled “S120” and cover a temperature range from -25...+120 °C.

Climate-change proofed versions in stainless steel housings
Sensors designed with climate change proofing are ideally suited for high humidity environments with rapid temperature changes. The materials employed are stainless steels for the threaded barrel as well as Teflon for the front cap, end cup and connection cable. The sensors are thus particularly resistant to chemicals. The type designations of these devices in addition to the special identification number “S120” indicating a temperature range of -25...+120 °C, also includes the letter “D” behind the identifier for the thread diameter, e.g ... EM18D or … EM30D.

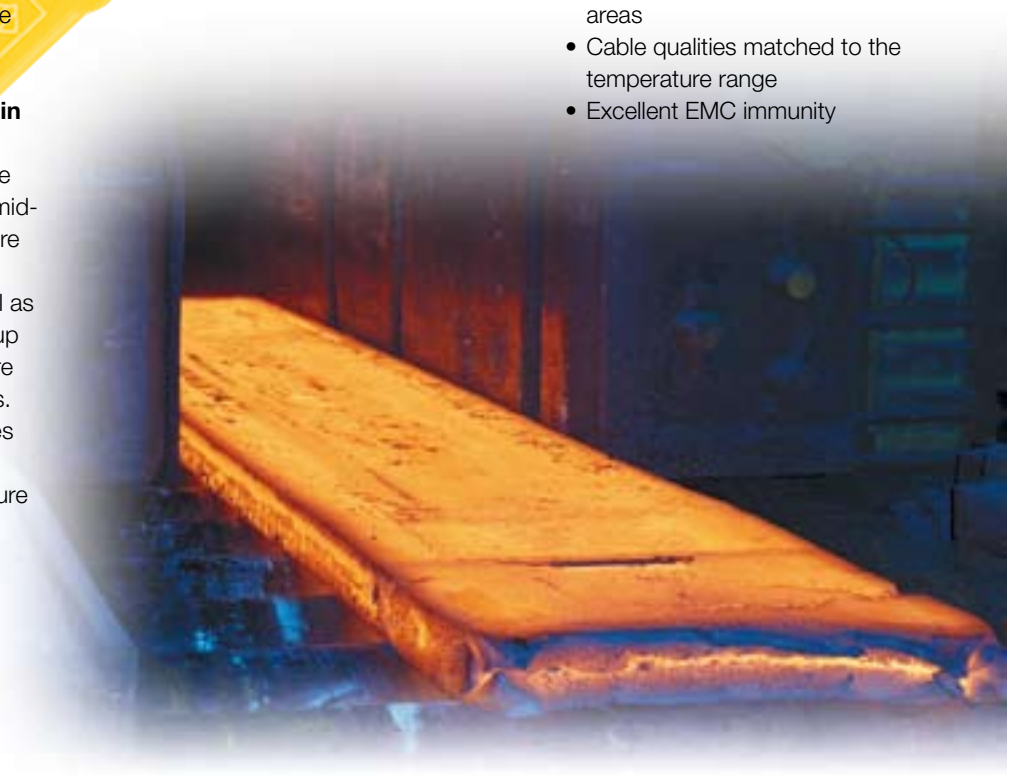
High temperatures up to +160 °C
TURCK inductive sensors specially for temperatures up to +160 °C provide safe position control even with increasingly extreme ambient conditions. These sensors can even be used in high temperature operation without a downstream amplifier. The special identification number is “S907”.

Very high temperatures up to +200 °C
Sensors with external amplifiers suitable for hat-rail mounting are used at very high temperatures up to +200 °C. In this combination of sensor and separate amplifier it is possible not just to set the switching distance but also to program the output (PNP/NPN). The special identification number for these sensors is “S200”.

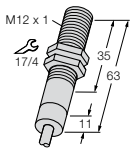
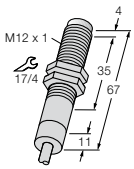
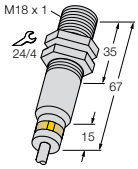
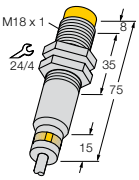
Extremely high temperatures up to +250 °C
Sensors with external amplifiers are also used for temperatures up to +250 °C Sensors as well as amplifiers can be separately connected quickly without errors via an M12 connector. The amplifier is installed in a robust M30 stainless steel housing designed with IP67 degree of protection and can thus be mounted directly in the field. The connecting cable of the sensor is provided with an aluminium protection tube. The switching point can be easily set via a potentiometer on the amplifier. Should a replacement be required the sensor tip can be replaced without having to replace the amplifier!

A typical application of this device is for example, the use in drying ovens in painting shops in the automotive industry. The special identification number for the sensor and amplifier is “S1102”

- Six series for temperatures from -60 °C to +250 °C
- Complete product families with all housing designs: M8, M12, M18, M30, 40 x 40, 80 x 80
- Specially sealed sensor types for wet areas
- Cable qualities matched to the temperature range
- Excellent EMC immunity



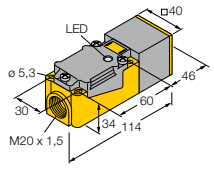
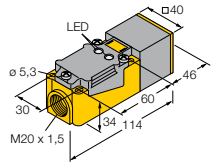
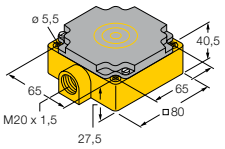
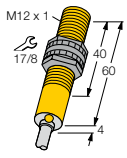
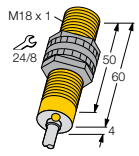
Inductive sensors with extended temperature range up to -60 °C

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M12 x 1**	20 bar wash down T -60°C	2,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
	**M12 x 1**	20 bar wash down T -60°C	4,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	15 bar wash down T -60°C	5,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	15 bar wash down T -60°C	7,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI2-EM12WD-AP6/S929	4614515	S001	1	-60...+60	IP68 / IP69K	VA	PTFE	FEP 2 m	–	–
NI4-EM12WD-AP6/S929	1633111	S001	1	-60...+60	IP68 / IP69K	VA	PTFE	FEP 2 m	–	–
BI5-EM18WD-AP6X/S929	4614902	S001	1	-60...+60	IP68 / IP69K	VA	PTFE	FEP 2 m	–	•
NI7-EM18WD-AP6X/S929	4632001	S001	1	-60...+60	IP68 / IP69K	VA	PTFE	FEP 2 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors with extended temperature range up to -40 °C

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**CP40**	Ⓔx II 2 G SIL2 T -40°C	15,	NAMUR	nom. 8.2 VDC	–
		Ⓔx II 2 G SIL2 T -40°C	20,	NAMUR	nom. 8.2 VDC	–
	**CP40**	T -40°C	15,	, PNP	10...65 VDC	200 DC, Ⓚ
		T -40°C	15,	program.	20...250 VAC 10...300 VDC	400 AC 300 DC
		T -40°C	20,	, PNP	10...65 VDC	200 DC, Ⓚ
		T -40°C	20,	program.	20...250 VAC 10...300 VDC	400 AC 300 DC
	**CP80**	Ⓔx II 2 G SIL2 T -40°C	40,	NAMUR	nom. 8.2 VDC	–
		T -40°C	40,	, PNP	10...65 VDC	200 DC, Ⓚ
		T -40°C	40,	program.	20...250 VAC 10...300 VDC	400 AC 300 DC
	M12 x 1	Ⓔx II 2 G SIL2 T -40°C	2,	NAMUR	nom. 8.2 VDC	–
		Ⓔx II 2 G SIL2 T -40°C	5,	NAMUR	nom. 8.2 VDC	–
	**M12 x 1**	T -40°C	2,	, PNP	10...30 VDC	200 DC, Ⓚ
		T -40°C	2,		20...250 VAC 10...300 VDC	100 AC 100 DC
		T -40°C	4,	, PNP	10...30 VDC	200 DC, Ⓚ
		T -40°C	4,		20...250 VAC 10...300 VDC	100 AC 100 DC
	**M18 x 1**	T -40°C	5,	, PNP	10...65 VDC	200 DC, Ⓚ
		T -40°C	5,		20...250 VAC 10...300 VDC	400 AC 300 DC
		T -40°C	8,	, PNP	10...65 VDC	200 DC, Ⓚ
		T -40°C	8,		20...250 VAC 10...300 VDC	400 AC 300 DC

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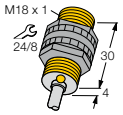
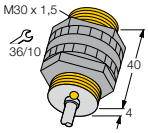
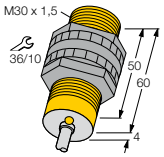
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI15-CP40-Y1X/S97	10397	S027	0.15	-40...+70	IP67	PBT	PBT	–	–	•
NI20-CP40-Y1X/S97	10432	S027	0.15	-40...+70	IP67	PBT	PBT	–	–	•
BI15-CP40-VP4X2/S97	15058 ✘	S009	0.15	-40...+70	IP67	PBT	PBT	–	•	•
BI15-CP40-FZ3X2/S97	1341015	S016	0.02	-40...+70	IP67	PBT	PBT	–	•	•
NI20-CP40-VP4X2/S97	1569101	S009	0.15	-40...+70	IP67	PBT	PBT	–	•	•
NI20-CP40-FZ3X2/S97	1340123	S016	0.02	-40...+70	IP67	PBT	PBT	–	•	•
NI40-CP80-Y1/S97	1040010	S027	0.1	-40...+70	IP67	PBT	PBT	–	–	–
NI40-CP80-VP4X2/S97	1569522	S009	0.1	-40...+70	IP67	PBT	PBT	–	•	•
NI40-CP80-FZ3X2/S97	1340510	S016	0.02	-40...+70	IP67	PBT	PBT	–	•	•
BI2-P12-Y1X/S97	4030021	S025	5	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
NI5-P12-Y1X/S97	1009402	S025	2	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
BI2-S12-AP6X/S97	16645	S001	2	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
BI2-S12-AZ31X/S97	1302002	S092	0.02	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
NI4-S12-AP6X/S97	4653221	S001	2	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
NI4-S12-AZ31X/S97	1302202	S092	0.02	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
BI5-S18-VP4X/S97	1513420	S007	0.5	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
BI5-S18-AZ3X/S97	1373410	S092	0.02	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
NI8-S18-VP4X/S97	1513512	S007	0.5	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
NI8-S18-AZ3X/S97	1371803	S092	0.02	-40...+70	IP67	PA	PA	Silic. 2 m	–	•

✘ = Preferred solution, available at short notice

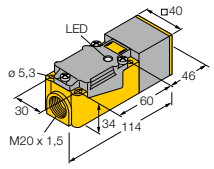
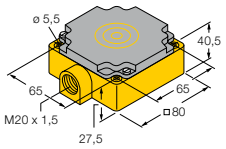
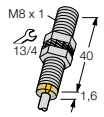
Inductive sensors with extended temperature range up to -40 °C

Dimensions/Housing style	Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
M18 x 1 	Ex II 2 G SIL2 T -40°C	5, ▭	NAMUR	nom. 8.2 VDC	–	
	Ex II 2 G SIL2 T -40°C	10, ▭	NAMUR	nom. 8.2 VDC	–	
M30 x 1,5 	Ex II 2 G SIL2 T -40°C	10, ▭	NAMUR	nom. 8.2 VDC	–	
	Ex II 2 G SIL2 T -40°C	15, ▭	NAMUR	nom. 8.2 VDC	–	
M30 x 1,5 	T -40°C	10, ▭	⊣—, PNP	10...65 VDC	200 DC, Ⓚ	
	T -40°C	10, ▭	⊣—	20...250 VAC 10...300 VDC	400 AC 300 DC	
	T -40°C	15, ▭	⊣—, PNP	10...65 VDC	200 DC, Ⓚ	
	T -40°C	15, ▭	⊣—	20...250 VAC 10...300 VDC	400 AC 300 DC	

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI5-P18-Y1X/S97	4035001	S025	1	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
NI10-P18-Y1X/S97	4035121	S025	0.5	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
BI10-P30-Y1X/S97	1023322	S025	0.5	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
NI15-P30-Y1X/S97	1022704	S025	0.2	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
BI10-S30-VP4X/S97	1512221	S007	0.5	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
BI10-S30-AZ3X/S97	4355421	S092	0.02	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
NI15-S30-VP4X/S97	1514110	S007	0.5	-40...+70	IP67	PA	PA	Silic. 2 m	–	•
NI15-S30-AZ3X/S97	1375803	S092	0.02	-40...+70	IP67	PA	PA	Silic. 2 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors with extended temperature range up to +100 °C

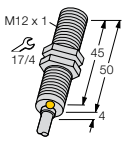
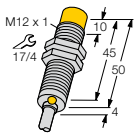
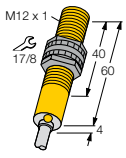
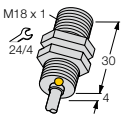
Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**CP40**	Ⓔx II 2 G SIL2 T +100°C	15,	NAMUR	nom. 8.2 VDC	–
		Ⓔx II 2 G SIL2 T +100°C	20,	NAMUR	nom. 8.2 VDC	–
		T +100°C	15,	, PNP	10...65 VDC	200 DC, Ⓚ
		T +100°C	15,	program.	20...250 VAC 10...300 VDC	400 AC 300 DC
		T +100°C	20,	, PNP	10...65 VDC	200 DC, Ⓚ
		T +100°C	20,	program.	20...250 VAC 10...300 VDC	400 AC 300 DC
active face, variable orientation in 9 directions						
	**CP80**	Ⓔx II 2 G SIL2 T +100°C	40,	NAMUR	nom. 8.2 VDC	–
		T +100°C	40,	, PNP	10...65 VDC	200 DC, Ⓚ
		T +100°C	40,	program.	20...250 VAC 10...300 VDC	400 AC 300 DC
	**M8 x 1**	T +100°C	2,	, PNP	10...30 VDC	150 DC, Ⓚ
		T +100°C	2,	, NPN	10...30 VDC	150 DC, Ⓚ
	M12 x 1	Ⓔx II 2 G SIL2 T +100°C	2,	NAMUR	nom. 8.2 VDC	–
		Ⓔx II 2 G SIL2 T +100°C	5,	NAMUR	nom. 8.2 VDC	–

Attention! Derating curve, see page 250

	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	BI15-CP40-Y1X/S100	10396	S027	0.15	-25...+100	IP67	PBT	PBT	–	–	•
	NI20-CP40-Y1X/S100	1011121	S027	0.15	-25...+100	IP67	PBT	PBT	–	–	•
	BI15-CP40-VP4X2/S100	15045 ✘	S009	0.15	-25...+100	IP67	PBT	PBT	–	•	•
	BI15-CP40-FZ3X2/S100	13440 ✘	S016	0.02	-25...+100	IP67	PBT	PBT	–	•	•
	NI20-CP40-VP4X2/S100	15046 ✘	S009	0.15	-25...+100	IP67	PBT	PBT	–	•	•
	NI20-CP40-FZ3X2/S100	13441 ✘	S016	0.02	-25...+100	IP67	PBT	PBT	–	•	•
	NI40-CP80-Y1/S100	10404 ✘	S027	0.1	-25...+100	IP67	PBT	PBT	–	–	–
	NI40-CP80-VP4X2/S100	15095 ✘	S009	0.1	-25...+100	IP67	PBT	PBT	–	•	•
	NI40-CP80-FZ3X2/S100	13443 ✘	S016	0.02	-25...+100	IP67	PBT	PBT	–	•	•
	BI2-EG08-AP6X/S100	4602047 ✘	S001	3	-25...+100	IP67	VA	PA	TPE 2 m	–	•
	BI2-EG08-AN6X/S100	4602108	S004	3	-25...+100	IP67	VA	PA	TPE 2 m	–	•
	BI2-P12-Y1/S100	10302 ✘	S025	5	-25...+100	IP67	PA	PA	PVC 2 m	–	–
	NI5-P12-Y1/S100	10242	S025	2	-25...+100	IP67	PA	PA	PVC 2 m	–	–

✘ = Preferred solution, available at short notice

Inductive sensors with extended temperature range up to +100 °C

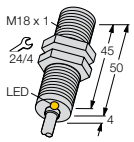
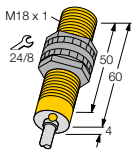
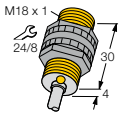
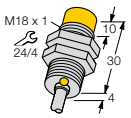
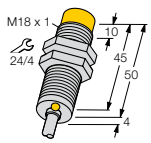
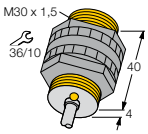
Dimensions/Housing style	Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
M12 x 1 	Ex II 1 G Ex II 1 D SIL2 T +100°C	2,	NAMUR	nom. 8.2 VDC	–
M12 x 1 	T +100°C	2,	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ
M12 x 1 	T +100°C	4,	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ
M12 x 1 	Ex II 1 G Ex II 1 D SIL2 T +100°C	5,	NAMUR	nom. 8.2 VDC	–
M12 x 1 	T +100°C	2,	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ
	T +100°C	2,	⎯⎽⎯	20...250 VAC 10...300 VDC	100 AC 100 DC
	T +100°C	4,	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ
	T +100°C	4,	⎯⎽⎯	20...250 VAC 10...300 VDC	100 AC 100 DC
M18 x 1 	Ex II 1 G Ex II 1 D SIL2 T +100°C	5,	NAMUR	nom. 8.2 VDC	–

Attention! Derating curve, see page 250

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI2-EG12-Y1X/S100 7M	4012003 ✘	S025	5	-25...+100	IP67	VA	PA	PVC 7 m	–	•
BI2-M12-AP6X/S100	4605003 ✘	S001	2	-25...+100	IP67	CuZn-Cr	PA–X	PVC 2 m	–	•
NI4-M12-AP6X/S100	4605201 ✘	S001	2	-25...+100	IP67	CuZn-Cr	PA–X	PVC 2 m	–	•
NI5-EG12-Y1X/S100 7M	4012008 ✘	S025	2	-25...+100	IP67	VA	PA	PVC 7 m	–	•
BI2-S12-AP6X/S100	4653023 ✘	S001	2	-25...+100	IP67	PA	PA	PVC 2 m	–	•
BI2-S12-AZ31X/S100	1302001	S092	0.02	-25...+100	IP67	PA	PA	PVC 2 m	–	•
NI4-S12-AP6X/S100	4653201 ✘	S001	2	-25...+100	IP67	PA	PA	PVC 2 m	–	•
NI4-S12-AZ31X/S100	1302201	S092	0.02	-25...+100	IP67	PA	PA	PVC 2 m	–	•
BI5-EG18-Y1X/S100 7M	4012007 ✘	S025	1	-25...+100	IP67	VA	PA	PVC 7 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors with extended temperature range up to +100 °C

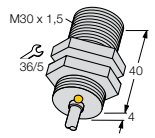
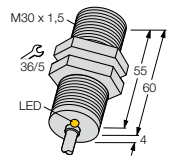
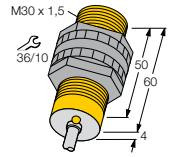
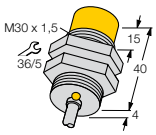
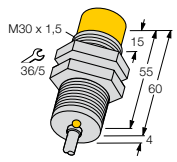
Dimensions/Housing style	Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
M18 x 1 	T +100°C	5, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ
M18 x 1 	T +100°C	5, ▭	⎯◺, PNP	10...65 VDC	200 DC, Ⓚ
	T +100°C	5, ▭	⎯◺	20...250 VAC 10...300 VDC	400 AC 300 DC
	T +100°C	8, ▭	⎯◺, PNP	10...65 VDC	200 DC, Ⓚ
	T +100°C	8, ▭	⎯◺	20...250 VAC 10...300 VDC	400 AC 300 DC
M18 x 1 	Ⓔx II 2 G SIL2 T +100°C	5, ▭	NAMUR	nom. 8.2 VDC	–
	Ⓔx II 2 G SIL2 T +100°C	10, ▭	NAMUR	nom. 8.2 VDC	–
M18 x 1 	Ⓔx II 1 G Ⓔx II 1 D SIL2 T +100°C	10, ▭	NAMUR	nom. 8.2 VDC	–
M18 x 1 	T +100°C	8, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ
M30 x 1,5 	Ⓔx II 2 G SIL2 T +100°C	10, ▭	NAMUR	nom. 8.2 VDC	–
	Ⓔx II 2 G SIL2 T +100°C	15, ▭	NAMUR	nom. 8.2 VDC	–

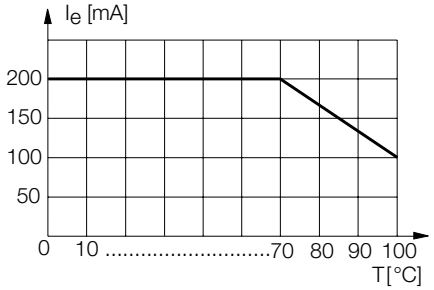
Attention! Derating curve, see page 250

	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	BI5-M18-AP6X/S100	4611004 ✘	S001	0.5	-25...+100	IP67	CuZn-Cr	PA–X	PVC 2 m	–	•
	BI5-S18-VP4X/S100	1513402	S007	0.5	-25...+100	IP67	PA	PA	PVC 2 m	–	•
	BI5-S18-AZ3X/S100	13734 ✘	S092	0.02	-25...+100	IP67	PA	PA	PVC 2 m	–	•
	NI8-S18-VP4X/S100	1513510	S007	0.5	-25...+100	IP67	PA	PA	PVC 2 m	–	•
	NI8-S18-AZ3X/S100	13718 ✘	S092	0.02	-25...+100	IP67	PA	PA	PVC 2 m	–	•
	BI5-P18-Y1/S100	10245 ✘	S025	1	-25...+100	IP67	PA	PA	PVC 2 m	–	–
	NI10-P18-Y1/S100	10317 ✘	S025	0.5	-25...+100	IP67	PA	PA	PVC 2 m	–	–
	NI10-EG18-Y1X/S100 7M	4012006 ✘	S025	0.5	-25...+100	IP67	VA	PA	PVC 7 m	–	•
	NI8-M18-AP6X/S100	4611201 ✘	S001	0.5	-25...+100	IP67	CuZn-Cr	PA–X	PVC 2 m	–	•
	BI10-P30-Y1/S100	10233 ✘	S025	0.5	-25...+100	IP67	PA	PA	PVC 2 m	–	–
	NI15-P30-Y1/S100	10227 ✘	S025	0.2	-25...+100	IP67	PA	PA	PVC 2 m	–	–

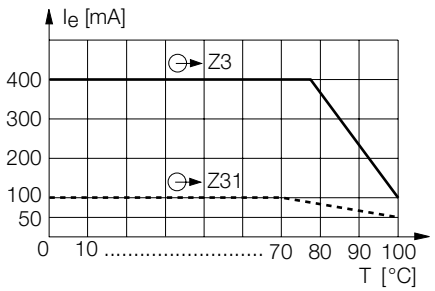
✘ = Preferred solution, available at short notice

Inductive sensors with extended temperature range up to +100 °C

Dimensions/Housing style	Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
 **M30 x 1,5**	Ex II 1 G Ex II 1 D SIL2 T +100°C	10,	NAMUR	nom. 8.2 VDC	–
 **M30 x 1,5**	T +100°C	10,	, PNP	10...30 VDC	200 DC, Ⓚ
 **M30 x 1,5**	T +100°C	10,	, PNP	10...65 VDC	200 DC, Ⓚ
	T +100°C	10,		20...250 VAC 10...300 VDC	400 AC 300 DC
	T +100°C	15,	, PNP	10...65 VDC	200 DC, Ⓚ
	T +100°C	15,		20...250 VAC 10...300 VDC	400 AC 300 DC
 **M30 x 1,5**	Ex II 1 G Ex II 1 D SIL2 T +100°C	15,	NAMUR	nom. 8.2 VDC	–
 **M30 x 1,5**	T +100°C	15,	, PNP	10...30 VDC	200 DC, Ⓚ



DC 3/4 wire



AC 2-wire

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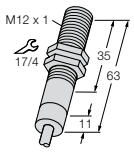
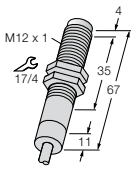
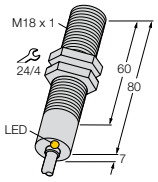
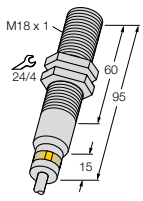
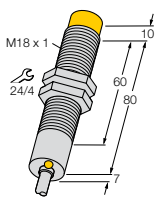
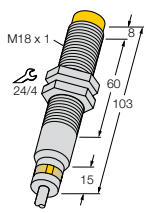
	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED
	BI10-EG30-Y1X/S100 7M	4012005 ✘	S025	0.5	-25...+100	IP67	VA	PA	PVC 7 m	–	•
	BI10-M30-AP6X/S100	4617004 ✘	S001	0.5	-25...+100	IP67	CuZn-Cr	PA–X	PVC 2 m	–	•
	BI10-S30-VP4X/S100	15140 ✘	S007	0.5	-25...+100	IP67	PA	PA	PVC 2 m	–	•
	BI10-S30-AZ3X/S100	13719 ✘	S092	0.02	-25...+100	IP67	PA	PA	PVC 2 m	–	•
	NI15-S30-VP4X/S100	15141 ✘	S007	0.5	-25...+100	IP67	PA	PA	PVC 2 m	–	•
	NI15-S30-AZ3X/S100	13758 ✘	S092	0.02	-25...+100	IP67	PA	PA	PVC 2 m	–	•
	NI15-EG30-Y1X/S100 7M	4012004 ✘	S025	0.2	-25...+100	IP67	VA	PA	PVC 7 m	–	•
	NI15-M30-AP6X/S100	4617200 ✘	S001	0.5	-25...+100	IP67	CuZn-Cr	PA–X	PVC 2 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors with extended temperature range up to +120 °C

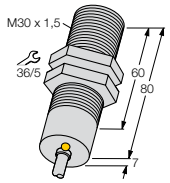
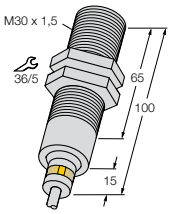
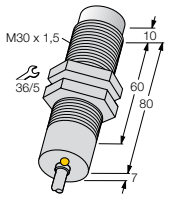
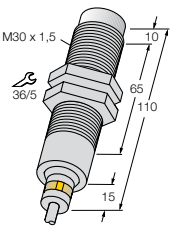
Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M12 x 1**	T +120°C wash down	2,	, PNP	10...30 VDC	200 DC, Ⓚ	
	**M12 x 1**	T +120°C wash down	4,	, PNP	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	– –	5, 5,	, PNP 	10...30 VDC 20...250 VAC	200 DC, Ⓚ 400 AC	
	**M18 x 1**	T +120°C wash down	5,	, PNP	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	T +120°C T +120°C	8, 8,	, PNP 	10...30 VDC 20...250 VAC	200 DC, Ⓚ 400 AC	
	**M18 x 1**	T +120°C wash down	7,	, PNP	10...30 VDC	200 DC, Ⓚ	

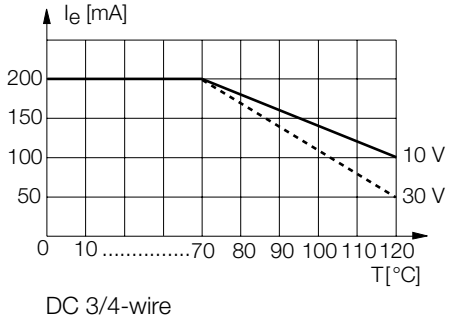
Attention! Derating curve, see page 254

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI2-EM12D-AP6/S120	4614512 ✘	S001	0.1	-25...+120	IP68 / IP69K	VA	PTFE	PTFE 2 m	–	–
NI4-EM12D-AP6/S120	1633110 ✘	S001	0.1	-25...+120	IP68 / IP69K	VA	PTFE	PTFE 2 m	–	–
BI5-M18-AP6X/S120	4611030 ✘	S001	0.1	–	–	CuZn-Cr	PA	Silic. 2 m	–	•
BI5-M18-AZ3X/S120	4310410 ✘	S092	0.02	–	–	CuZn-Cr	PA	PTFE 2 m	–	•
BI5-EM18D-VP6X/S120	4614900 ✘	S007	0.1	-25...+120	IP68 / IP69K	VA	PTFE	PTFE 2 m	–	•
NI8-M18-AP6X/S120	4611230 ✘	S001	0.1	-25...+120	IP67	CuZn-Cr	PA	Silic. 2 m	–	•
NI8-M18-AZ3X/S120	4310530 ✘	S092	0.02	-25...+120	IP67	CuZn-Cr	PA	PTFE 2 m	–	•
NI7-EM18D-VP6X/S120	4632100 ✘	S007	0.1	-25...+120	IP68 / IP69K	VA	PTFE	PTFE 2 m	–	•

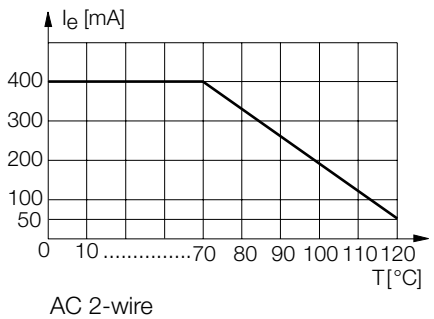
✘ = Preferred solution, available at short notice

Inductive sensors with extended temperature range up to +120 °C

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M30 x 1,5**	–	10,	, PNP	10...30 VDC	200 DC, Ⓚ	
		–	10,		20...250 VAC	400 AC	
	**M30 x 1,5**	T +120°C wash down	10,	, PNP	10...30 VDC	200 DC, Ⓚ	
	**M30 x 1,5**	T +120°C	15,	, PNP	10...30 VDC	200 DC, Ⓚ	
		T +120°C	15,		20...250 VAC	400 AC	
	**M30 x 1,5**	T +120°C wash down	15,	, PNP	10...30 VDC	200 DC, Ⓚ	



DC 3/4-wire



AC 2-wire

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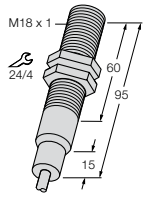
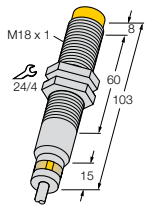
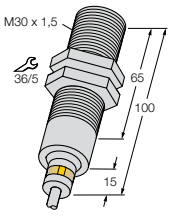
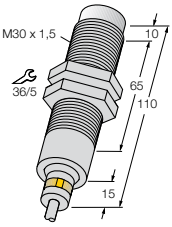
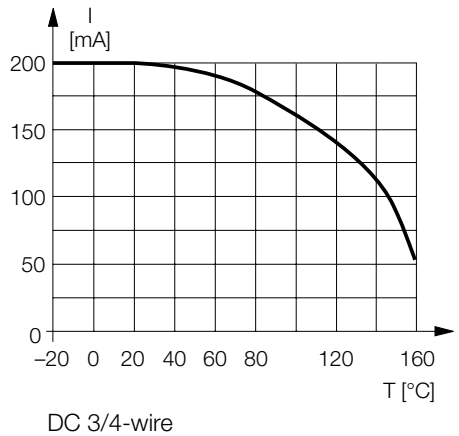
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI10-M30-AP6X/S120	4617010 ✘	S001	0.1	–	–	CuZn-Cr	PA	Silic. 2 m	–	•
BI10-M30-AZ3X/S120	4316410 ✘	S092	0.02	–	–	CuZn-Cr	PA	PTFE 2 m	–	•
BI10-EM30D-VP6X/S120	4617035 ✘	S007	0.1	-25...+120	IP68 / IP69K	VA	PTFE	PTFE 2 m	–	•
NI15-M30-AP6X/S120	4617210 ✘	S001	0.5	-25...+120	IP67	CuZn-Cr	PA	Silic. 2 m	–	•
NI15-M30-AZ3X/S120	4316506 ✘	S092	0.02	-25...+120	IP67	CuZn-Cr	PA	PTFE 2 m	–	•
NI15-EM30D-VP6X/S120	4617410 ✘	S007	0.1	-25...+120	IP68 / IP69K	VA	PTFE	PTFE 2 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors with extended temperature range up to +160 °C

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M18 x 1**	10 bar T +160°C	5,	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	T +160°C	8,	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	**M30 x 1,5**	10 bar T +160°C	10,	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	**M30 x 1,5**	T +160°C	15,	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ	



DC 3/4-wire

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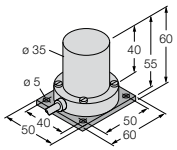
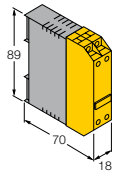
	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	BI5-EM18-AP6/S907	4617425 ✘	S001	0.2	-25...+160	IP68 / IP69K	VA	PEEK	PTFE 2 m	–	–
	NI8-EM18-AP6/S907	4611231 ✘	S001	0.2	-25...+160	IP68 / IP69K	VA	PEEK	PTFE 2 m	–	–
	BI10-EM30-AP6/S907	4614513 ✘	S001	0.2	-25...+160	IP68 / IP69K	VA	PEEK	PTFE 2 m	–	–
	NI15-EM30-AP6/S907	4617412 ✘	S001	0.2	-25...+160	IP68 / IP69K	VA	PEEK	PTFE 2 m	–	–

✘ = Preferred solution, available at short notice

Inductive sensors with extended temperature range up to +200 °C

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**K35**	T +200°C	20, ⊐	–	–	–	
Amplifier MK96–11VP/24VDC required							
	**MK96**	T +200°C	–	Program. PNP	19.2...28.8 VDC	400 DC, Ⓚ	
Sensor Bi20–K35/S200 10M required							

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	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐¬
	BI20-K35/S200 10M	4614518	S134	–	-25...+200	IP40	PTFE	PTFE	PTFE 10 m	–	–
	MK96-11VP/24VDC	7525015	S133	0.1	-20...+60	IP20 / IP40	PC (ABS)	–	–	•	•

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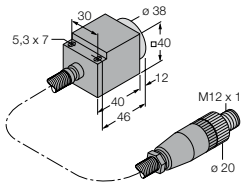
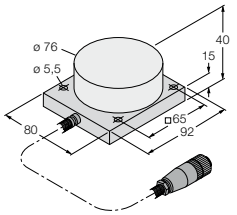
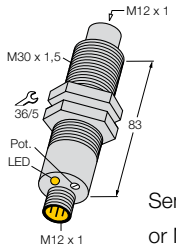
✘ = Preferred solution, available at short notice

Inductive sensors with extended temperature range up to +250 °C

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**CQ40**	T +250°C	25, ▭	–	–	–	
Amplifier EM30–AP6X2–H1141/S1102 required							
	**CQ80**	T +250°C	40, ▭	–	–	–	
Amplifier EM30–AP6X2–H1141/S1102 required							
	**M30 x 1,5**	T +250°C	–	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ	
Sensor Ni25–CQ40/S1102 5M or Ni40–CQ80/S1102 5M required							

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	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	NI25-CQ40/S1102 5M	1602410 ✘	S173	–	0...+250	IP60	AL	PEEK	PTFE 5 m	–	–
	NI40-CQ80/S1102 5M	1602404 ✘	S173	–	0...+250	IP60	AL	PEEK	PTFE 5 m	–	–
	EM30-AP6X2-H1141/S1102	1602411 ✘	S174	0.04	-20...+70	IP67	VA	–	–	•	•

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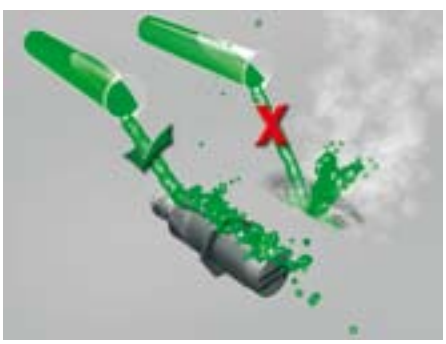
✘ = Preferred solution, available at short notice

Inductive sensors for extreme environmental conditions

The Wash-Down sensors of the *uprox*®+ series are the perfect solution for all requirements of industrial food production. Whether for dairies or breweries, the manufacture of bakery products and frozen foods, or for packaging and filling applications in the food industry: all applications can be optimised decisively by the proven and innovative features of the uprox®+ sensors.

In comparison to conventional inductive sensors with ferrite cores, the *uprox*®+ sensors are capable of a switching distance which is up to three times higher thanks to the modern manufacturing and coil technologies which are employed. Also the otherwise problematic installation of sensors with a high switching distance is no longer an issue with *uprox*®+. In fact, due to the novel multi-coil technology and integrated pre-damping protection with self-compensation, only very small metal-free zones have to be observed during mounting. As a result, mounting errors are prevented and the degree of freedom in the development of machines and systems is enhanced.



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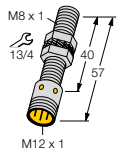
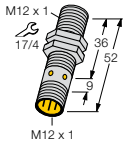
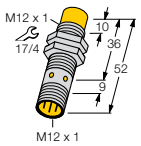
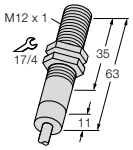
Recessed mounting protects the *uprox*®+ against mechanical damage. Reduction factors must no longer be observed, because *uprox*®+ sensors detect all materials such as iron, stainless steel, copper, aluminium and brass at the same high distance.

A special twin sealing lip prevents the ingress of cleaning agents between LCP front cap, threaded barrel and connector insert, so that the sensor is perfectly sealed. The electronics are safely protected by a robust V4A stainless steel housing. Even aggressive cleaning agents, acid or alkaline detergents and disinfectants can do no harm to the sensor. All components effortlessly exceed the requirements of protection degree IP68 and IP69K so that the sensors permanently resist the cyclic cleaning processes, which place great demands on all field devices employed in the food and beverage industry.

Under the tough conditions at the independent Henkel Ecolab test laboratory, the food approved series of the *uprox*®+ sensor from TURCK show their abilities. At temperatures of up to 80°C and more, the devices are cleaned and disinfected daily under high pressure using chemical cleaning agents. The resistance of the employed materials against detergents and disinfectants prevents down-times, while the perfect sealing of housing and the high level of EMC immunity of the electronics ensure fail-safe operation even in the harsh industrial manufacturing environment.

The sensor family *uprox*®+ masters both standard and customised applications, stands for high system availability, service-friendliness, efficient standardisation and maximum degrees of freedom. Make use of these benefits to optimise your production processes!

Inductive sensors for extreme environmental conditions

Dimensions/Housing style	Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
M8 x 1 	20 bar wash down	1.5,	⎯⎽⎯, PNP	10...30 VDC	150 DC, Ⓚ	
	20 bar wash down	1.5,	⎯⎽⎯, NPN	10...30 VDC	150 DC, Ⓚ	
M12 x 1 	20 bar *uprox*®+ wash down	4,	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	Ⓔx II 3 D 20 bar *uprox*®+ wash down	4,	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	20 bar *uprox*®+ wash down	4,	⎯⎽⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	Ⓔx II 3 D 20 bar *uprox*®+ wash down	4,	⎯⎽⎯, NPN	10...30 VDC	200 DC, Ⓚ	
M12 x 1 	20 bar *uprox*®+ wash down	10,	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	Ⓔx II 3 D 20 bar *uprox*®+ wash down	10,	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	20 bar *uprox*®+ wash down	10,	⎯⎽⎯, NPN	10...30 VDC	200 DC, Ⓚ	
	Ⓔx II 3 D 20 bar *uprox*®+ wash down	10,	⎯⎽⎯, NPN	10...30 VDC	200 DC, Ⓚ	
M12 x 1 	20 bar wash down T –60 °C	2,	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	T +120 °C wash down	2,	⎯⎽⎯, PNP	10...30 VDC	200 DC, Ⓚ	

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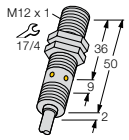
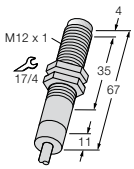
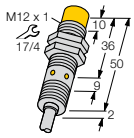
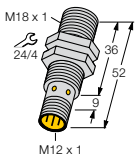
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI1,5-EG08WD-AP6X-H1341	4602210 ✘	S002	3	-25...+85	IP68 / IP69K	VA	PVDF	–	–	•
BI1,5-EG08WD-AN6X-H1341	4602211	S005	3	-25...+85	IP68 / IP69K	VA	PVDF	–	–	•
BI4U-EM12WD-AP6X-H1141	1634812 ✘	S002	2	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI4U-EM12WD-AP6X-H1141/3D	1634851 ✘	S002	2	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI4U-EM12WD-AN6X-H1141	1634841	S005	2	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI4U-EM12WD-AN6X-H1141/3D	1634852	S005	2	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI10U-EM12WD-AP6X-H1141	1634814 ✘	S002	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI10U-EM12WD-AP6X-H1141/3D	1634857 ✘	S002	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI10U-EM12WD-AN6X-H1141	1634837	S005	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI10U-EM12WD-AN6X-H1141/3D	1634858	S005	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI2-EM12WD-AP6/S929	4614515	S001	1	-60...+60	IP68 / IP69K	VA	PTFE	FEP 2 m	–	–
BI2-EM12D-AP6/S120	4614512 ✘	S001	0.1	-25...+120	IP68 / IP69K	VA	PTFE	PTFE 2 m	–	–

✘ = Preferred solution, available at short notice

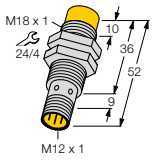
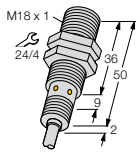
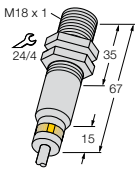
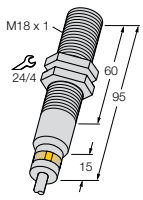
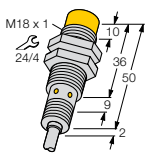
Inductive sensors for extreme environmental conditions

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M12 x 1**	20 bar *uprox*®+ wash down	4,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
		20 bar *uprox*®+ wash down	4,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ	
	**M12 x 1**	20 bar wash down T –60 °C	4,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
		T +120 °C wash down	4,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
	**M12 x 1**	20 bar *uprox*®+ wash down	10,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
		20 bar *uprox*®+ wash down	10,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	15 bar *uprox*®+ wash down	8,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
		⟨Ex⟩ II 3 G ⟨Ex⟩ II 3 D 15 bar *uprox*®+ wash down	8,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
		15 bar *uprox*®+ wash down	8,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ	
		⟨Ex⟩ II 3 G ⟨Ex⟩ II 3 D 15 bar *uprox*®+ wash down	8,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ	

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BI4U-EM12WD-AP6X	1634811 ✘	S001	2	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
BI4U-EM12WD-AN6X	1634842	S004	2	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
NI4-EM12WD-AP6/S929	1633111	S001	1	-60...+60	IP68 / IP69K	VA	PTFE	FEP 2 m	–	–
NI4-EM12D-AP6/S120	1633110 ✘	S001	0.1	-25...+120	IP68 / IP69K	VA	PTFE	PTFE 2 m	–	–
NI10U-EM12WD-AP6X	1634813 ✘	S001	1	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
NI10U-EM12WD-AN6X	1634838	S004	1	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
BI8U-EM18WD-AP6X-H1141	1634816 ✘	S002	1.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI8U-EM18WD-AP6X-H1141/3GD	1634853 ✘	S002	1.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI8U-EM18WD-AN6X-H1141	1634839	S005	1.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI8U-EM18WD-AN6X-H1141/3GD	1634854	S005	1.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•

✘ = Preferred solution, available at short notice

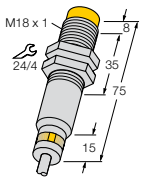
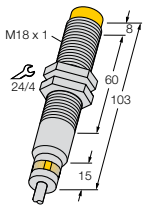
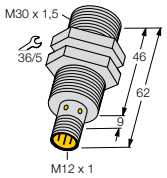
Inductive sensors for extreme environmental conditions

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**M18 x 1**	15 bar *uprox*®+ wash down	15,	⎯◟⎯, PNP	10...30 VDC	200 DC, Ⓚ
		Ⓔx II 3 D 15 bar *uprox*®+ wash down	15,	⎯◟⎯, PNP	10...30 VDC	200 DC, Ⓚ
		15 bar *uprox*®+ wash down	15,	⎯◟⎯, NPN	10...30 VDC	200 DC, Ⓚ
		Ⓔx II 3 D 15 bar *uprox*®+ wash down	15,	⎯◟⎯, NPN	10...30 VDC	200 DC, Ⓚ
	**M18 x 1**	15 bar *uprox*®+ wash down	8,	⎯◟⎯, PNP	10...30 VDC	200 DC, Ⓚ
		15 bar *uprox*®+ wash down	8,	⎯◟⎯, NPN	10...30 VDC	200 DC, Ⓚ
	**M18 x 1**	15 bar wash down T –60 °C	5,	⎯◟⎯, PNP	10...30 VDC	200 DC, Ⓚ
	**M18 x 1**	T +120 °C wash down	5,	⎯◟⎯, PNP	10...30 VDC	200 DC, Ⓚ
	**M18 x 1**	15 bar *uprox*®+ wash down	15,	⎯◟⎯, PNP	10...30 VDC	200 DC, Ⓚ
		15 bar *uprox*®+ wash down	15,	⎯◟⎯, NPN	10...30 VDC	200 DC, Ⓚ

	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	NI15U-EM18WD-AP6X-H1141	1634818 ✘	S002	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	NI15U-EM18WD-AP6X-H1141/3D	1634859 ✘	S002	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	NI15U-EM18WD-AN6X-H1141	1634835	S005	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	NI15U-EM18WD-AN6X-H1141/3D	1634860	S005	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	BI8U-EM18WD-AP6X	1634815 ✘	S001	1.5	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
	BI8U-EM18WD-AN6X	1634840	S004	1.5	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
	BI5-EM18WD-AP6X/S929	4614902	S001	1	-60...+60	IP68 / IP69K	VA	PTFE	FEP 2 m	–	•
	BI5-EM18D-VP6X/S120	4614900 ✘	S007	0.1	-25...+120	IP68 / IP69K	VA	PTFE	PTFE 2 m	–	•
	NI15U-EM18WD-AP6X	1634817 ✘	S001	1	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
	NI15U-EM18WD-AN6X	1634836	S004	1	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•

✘ = Preferred solution, available at short notice

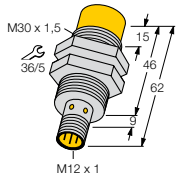
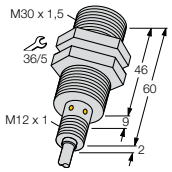
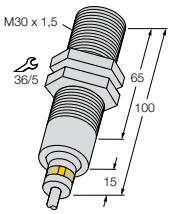
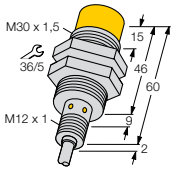
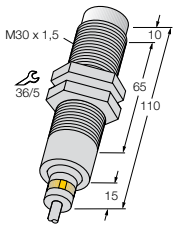
Inductive sensors for extreme environmental conditions

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M18 x 1**	15 bar wash down T –60 °C	7, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	T +120 °C wash down	7, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
	**M30 x 1,5**	10 bar *uprox*®+ wash down	15, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
		Ⓔx II 3 G Ⓔx II 3 D 10 bar *uprox*®+ wash down	15, ▭	⎯◺, PNP	10...30 VDC	200 DC, Ⓚ	
		10 bar *uprox*®+ wash down	15, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ	
		Ⓔx II 3 G Ⓔx II 3 D 10 bar *uprox*®+ wash down	15, ▭	⎯◺, NPN	10...30 VDC	200 DC, Ⓚ	

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI7-EM18WD-AP6X/S929	4632001	S001	1	-60...+60	IP68 / IP69K	VA	PTFE	FEP 2 m	–	•
NI7-EM18D-VP6X/S120	4632100 ✘	S007	0.1	-25...+120	IP68 / IP69K	VA	PTFE	PTFE 2 m	–	•
BI15U-EM30WD-AP6X-H1141	1634820 ✘	S002	0.75	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI15U-EM30WD-AP6X-H1141/3GD	1634855 ✘	S002	0.75	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI15U-EM30WD-AN6X-H1141	1634834	S005	0.75	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI15U-EM30WD-AN6X-H1141/3GD	1634856	S005	0.75	-30...+85	IP68 / IP69K	VA	LCP	–	–	•

✘ = Preferred solution, available at short notice

Inductive sensors for extreme environmental conditions

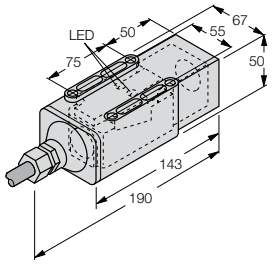
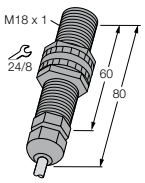
Dimensions/Housing style	Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
 **M30 x 1,5**	10 bar *uprox*®+ wash down	30,	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ	
	Ⓔx II 3 D 10 bar *uprox*®+ wash down	30,	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ	
	10 bar *uprox*®+ wash down	30,	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ	
	Ⓔx II 3 D 10 bar *uprox*®+ wash down	30,	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ	
 **M30 x 1,5**	10 bar *uprox*®+ wash down	15,	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ	
	10 bar *uprox*®+ wash down	15,	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ	
 **M30 x 1,5**	T +120 °C wash down	10,	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ	
 **M30 x 1,5**	10 bar *uprox*®+ wash down	30,	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ	
	10 bar *uprox*®+ wash down	30,	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ	
 **M30 x 1,5**	T +120 °C wash down	15,	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ	

	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED
	NI30U-EM30WD-AP6X-H1141	1634822 ✘	S002	0.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	NI30U-EM30WD-AP6X-H1141/3D	1634861 ✘	S002	0.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	NI30U-EM30WD-AN6X-H1141	1634832	S005	0.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	NI30U-EM30WD-AN6X-H1141/3D	1634862	S005	0.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	BI15U-EM30WD-AP6X	1634819 ✘	S001	0.75	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
	BI15U-EM30WD-AN6X	1634843	S004	0.75	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
	BI10-EM30D-VP6X/S120	4617035 ✘	S007	0.1	-25...+120	IP68 / IP69K	VA	PTFE	PTFE 2 m	–	•
	NI30U-EM30WD-AP6X	1634821 ✘	S001	0.5	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
	NI30U-EM30WD-AN6X	1634833	S004	0.5	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
	NI15-EM30D-VP6X/S120	4617410 ✘	S007	0.1	-25...+120	IP68 / IP69K	VA	PTFE	PTFE 2 m	–	•

✘ = Preferred solution, available at short notice

Inductive sensors for underwater application

Inductive sensors for underwater application are available in fully pressure and seawater resistant housings. They are ideally suited for continuous use under water. Mounted in threaded barrels made of M18 plastic, they can even be applied at water depths of up to 500 m.

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**CP40**	underwater	35, ▭	⎓, PNP	10...65 VDC	200 DC, Ⓚ	
	**M18 x 1**	underwater	5, ▭	⎓, PNP	10...30 VDC	200 DC, Ⓚ	
		underwater	5, ▭	⎓, NPN	10...30 VDC	200 DC, Ⓚ	
		underwater	5, ▭	⎓	20...250 VAC 10...300 VDC	400 AC 300 DC	
		Ⓔx II 2 G SIL2 underwater	8, ▭	NAMUR	nom. 8.2 VDC	–	
		underwater	8, ▭	⎓, PNP	10...30 VDC	200 DC, Ⓚ	
		underwater	8, ▭	⎓, NPN	10...30 VDC	200 DC, Ⓚ	
		underwater	8, ▭	⎓	20...250 VAC 10...300 VDC	400 AC 300 DC	

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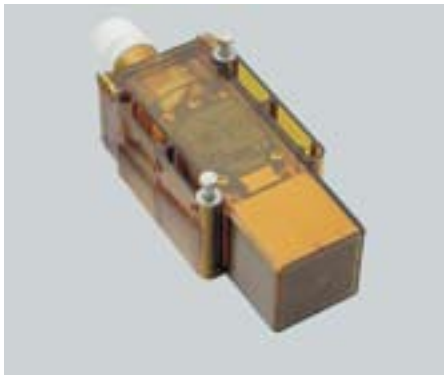

Moreover, TURCK also offers CP40 versions for subsea application. These sensors are mounted in fully encapsulated SG40/2 housings. They feature a high switching distance, degree of protection IP68 and are suited for water depths of up to 5 m.

The range of application comprises locks, wires and offshore plants.

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI35-CP40-VP4X2/S369-F 30M	1569425	S176	0.15	-25...+70	IP68	Ultem	Ultem	Ölflex 30 m	•	•
BI5-P18-AP6/S139-S90	1660350	S001	0.5	-25...+70	IP68	POM	POM	PUR 2 m	–	–
BI5-P18-AN6/S139-S90	1660351	S004	0.5	-25...+70	IP68	POM	POM	PUR 2 m	–	–
BI5-P18-AZ3/S139-S90	13843	S092	0.02	-25...+70	IP68	POM	POM	PUR 2 m	–	–
NI8-P18-Y1/S139	1072501	S025	1	-25...+70	IP68	POM	POM	PVC 2 m	–	–
NI8-P18-AP6/S139-S90	1650082	S001	0.5	-25...+70	IP68	POM	POM	PUR 2 m	–	–
NI8-P18-AN6/S139-S90	1650083	S004	0.5	-25...+70	IP68	POM	POM	PUR 2 m	–	–
NI8-P18-AZ3/S139-S90	1350002	S092	0.02	-25...+70	IP68	POM	POM	PUR 2 m	–	–

✘ = Preferred solution, available at short notice

Pressure-resistant inductive sensors

The product portfolio of pressure resistant sensors comprises three device series which are optimally designed according to the requirements of different applications:

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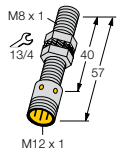
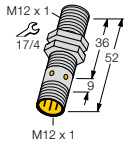
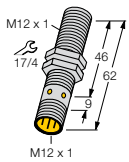
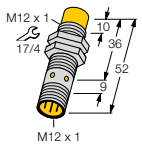
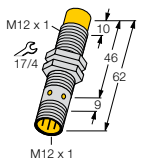
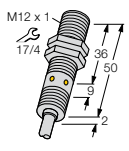
uprox®+ Wash-Down sensoren
uprox®+ Wash-Down sensors are suited for applications of maximally 20 bar. Apart from featuring typical _uprox_®+ criteria like extended sensing ranges, factor1 and high EMC immunity, the sensors of the Wash-Down series are characterised by a high degree of protection IP68/IP69K and they feature extremely robust housings made of high quality materials (V4A; 1.4404;316L stainless steel threaded barrel and LCP Vectra C130 front cap).

High pressure resistant sensors for electrically conductive media
Sensors of the S220 series are ideally suited for hydraulic systems. Due to the robust stainless steel housing in combination with a specially sealed front and an externally mounted O-ring, this sensor series is suited for high-pressure applications of up to 100 bar. The coil body is fully encapsulated which allows the sensor to be applied in electrically conductive media like water-in-oil emulsions.

High pressure resistant sensors for non-conductive media
Like the sensor series S220, the S212 series for non-conductive media is also optimally suited for hydraulic systems because of the special features. A perforated acitve face prevents pressure differences near the coil. The S212 sensor series thus withstands pressures of up to 500 bar.

Pressure-resistant inductive sensors

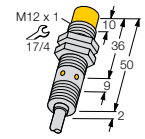
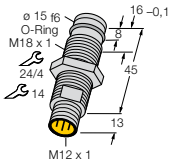
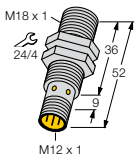
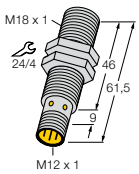
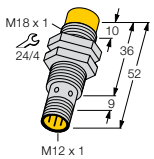
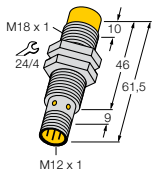
Dimensions/Housing style	Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
M8 x 1 	20 bar wash down	1.5,	⎯⎺⎯, PNP	10...30 VDC	150 DC, Ⓚ	
	20 bar wash down	1.5,	⎯⎺⎯, NPN	10...30 VDC	150 DC, Ⓚ	
M12 x 1 	20 bar *uprox*®+ wash down	4,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	20 bar *uprox*®+ wash down	4,	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
M12 x 1 	20 bar *uprox*®+ wash down	4,	⎯⎺⎯, PNP	10...55 VDC	200 DC, Ⓚ	
M12 x 1 	20 bar *uprox*®+ wash down	10,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	20 bar *uprox*®+ wash down	10,	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ	
M12 x 1 	20 bar *uprox*®+ wash down	10,	⎯⎺⎯, PNP	10...55 VDC	200 DC, Ⓚ	
M12 x 1 	20 bar *uprox*®+ wash down	4,	⎯⎺⎯, PNP	10...30 VDC	200 DC, Ⓚ	
	20 bar *uprox*®+ wash down	4,	⎯⎺⎯, NPN	10...30 VDC	200 DC, Ⓚ	

	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED
	BI1,5-EG08WD-AP6X-H1341	4602210 ✘	S002	3	-25...+85	IP68 / IP69K	VA	PVDF	–	–	•
	BI1,5-EG08WD-AN6X-H1341	4602211	S005	3	-25...+85	IP68 / IP69K	VA	PVDF	–	–	•
	BI4U-EM12WD-AP6X-H1141	1634812 ✘	S002	2	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	BI4U-EM12WD-AN6X-H1141	1634841	S005	2	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	BI4U-EM12EWD-VP44X-H1141	1634905 ✘	S008	2	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	NI10U-EM12WD-AP6X-H1141	1634814 ✘	S002	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	NI10U-EM12WD-AN6X-H1141	1634837	S005	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	NI10U-EM12EWD-VP44X-H1141	1634896	S008	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	BI4U-EM12WD-AP6X	1634811 ✘	S001	2	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
	BI4U-EM12WD-AN6X	1634842	S004	2	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•

✘ = Preferred solution, available at short notice

3

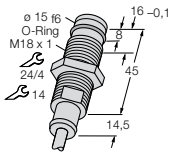
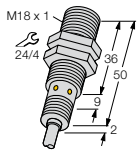
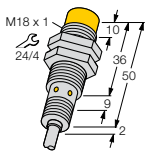
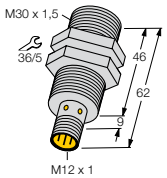
Pressure-resistant inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M12 x 1**	20 bar *uprox*®+ wash down	10,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
		20 bar *uprox*®+ wash down	10,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	500 bar	2,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
		100 bar	2,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	15 bar *uprox*®+ wash down	8,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
		15 bar *uprox*®+ wash down	8,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	15 bar *uprox*®+ wash down	8,	⎓⌒, PNP	10...55 VDC	200 DC, Ⓚ	
	**M18 x 1**	15 bar *uprox*®+ wash down	15,	_⌒_, PNP	10...30 VDC	200 DC, Ⓚ	
		15 bar *uprox*®+ wash down	15,	_⌒_, NPN	10...30 VDC	200 DC, Ⓚ	
	**M18 x 1**	15 bar *uprox*®+ wash down	15,	⎓⌒, PNP	10...55 VDC	200 DC, Ⓚ	

	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	NI10U-EM12WD-AP6X	1634813 ✘	S001	1	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
	NI10U-EM12WD-AN6X	1634838	S004	1	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
	BID2-G180-AP6-H1141/S212	16885 ✘	S002	2	-25...+70	IP67	VA	PA	–	–	–
	BID2-G180-AP6-H1141/S220	1688501	S002	2	-25...+70	IP67	VA	PA	–	–	–
	BI8U-EM18WD-AP6X-H1141	1634816 ✘	S002	1.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	BI8U-EM18WD-AN6X-H1141	1634839	S005	1.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	BI8U-EM18MWD-VP44X-H1141	1634897	S008	1.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	NI15U-EM18WD-AP6X-H1141	1634818 ✘	S002	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	NI15U-EM18WD-AN6X-H1141	1634835	S005	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
	NI15U-EM18MWD-VP44X-H1141	1634898	S008	1	-30...+85	IP68 / IP69K	VA	LCP	–	–	•

✘ = Preferred solution, available at short notice

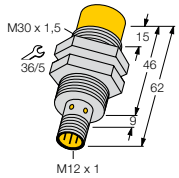
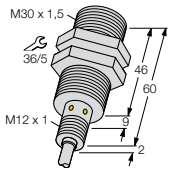
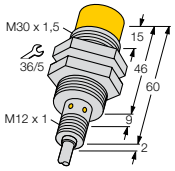
Pressure-resistant inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
	**M18 x 1**	100 bar	2,	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ
		500 bar	2,	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ
	**M18 x 1**	15 bar *uprox*®+ wash down	8,	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ
		15 bar *uprox*®+ wash down	8,	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ
	**M18 x 1**	15 bar *uprox*®+ wash down	15,	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ
		15 bar *uprox*®+ wash down	15,	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ
	**M30 x 1,5**	10 bar *uprox*®+ wash down	15,	⎯⎽⎺, PNP	10...55 VDC	200 DC, Ⓚ
		10 bar *uprox*®+ wash down	15,	⎯⎽⎺, PNP	10...30 VDC	200 DC, Ⓚ
		10 bar *uprox*®+ wash down	15,	⎯⎽⎺, NPN	10...30 VDC	200 DC, Ⓚ

Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
BID2-G180-AP6/S220	16880	S001	2	-25...+70	IP67	VA	PA	PVC 2 m	–	–
BID2-G180-AP6/S212	1688003 ✘	S001	2	-25...+70	IP67	VA	PA	PVC 2 m	–	–
BI8U-EM18WD-AP6X	1634815 ✘	S001	1.5	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
BI8U-EM18WD-AN6X	1634840	S004	1.5	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
NI15U-EM18WD-AP6X	1634817 ✘	S001	1	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
NI15U-EM18WD-AN6X	1634836	S004	1	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
BI15U-EM30WD-VP44X-H1141	1634899	S008	0.75	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI15U-EM30WD-AP6X-H1141	1634820 ✘	S002	0.75	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI15U-EM30WD-AN6X-H1141	1634834	S005	0.75	-30...+85	IP68 / IP69K	VA	LCP	–	–	•

✘ = Preferred solution, available at short notice

Pressure-resistant inductive sensors

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]	
	**M30 x 1,5**	10 bar *uprox*®+ wash down	30,	, PNP	10...55 VDC	200 DC, Ⓚ	
		10 bar *uprox*®+ wash down	30,	, PNP	10...30 VDC	200 DC, Ⓚ	
		10 bar *uprox*®+ wash down	30,	, NPN	10...30 VDC	200 DC, Ⓚ	
	**M30 x 1,5**	10 bar *uprox*®+ wash down	15,	, PNP	10...30 VDC	200 DC, Ⓚ	
		10 bar *uprox*®+ wash down	15,	, NPN	10...30 VDC	200 DC, Ⓚ	
	**M30 x 1,5**	10 bar *uprox*®+ wash down	30,	, PNP	10...30 VDC	200 DC, Ⓚ	
		10 bar *uprox*®+ wash down	30,	, NPN	10...30 VDC	200 DC, Ⓚ	

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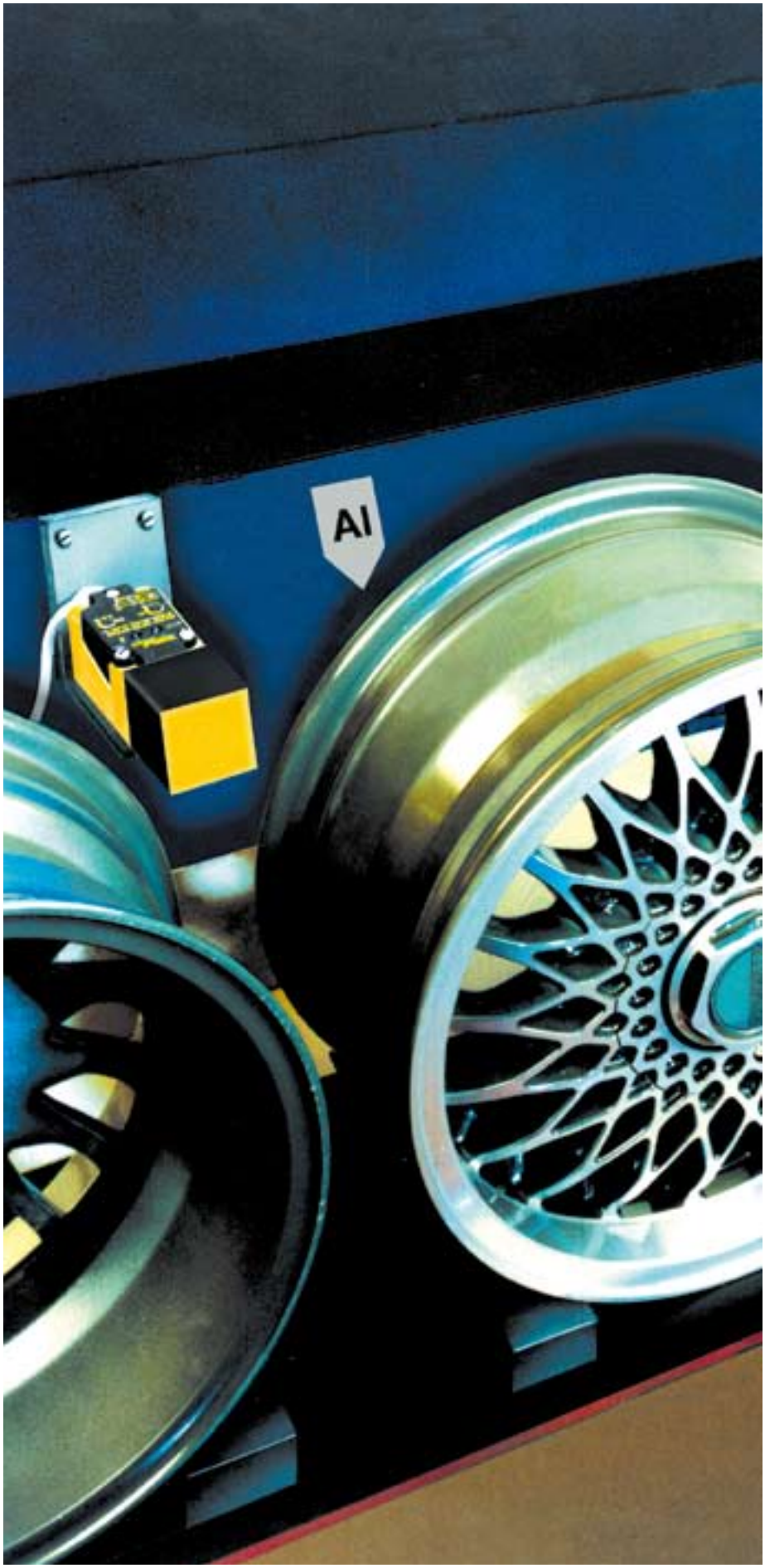
Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
NI30U-EM30WD-VP44X-H1141	1634904	S008	0.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI30U-EM30WD-AP6X-H1141	1634822 ✘	S002	0.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
NI30U-EM30WD-AN6X-H1141	1634832	S005	0.5	-30...+85	IP68 / IP69K	VA	LCP	–	–	•
BI15U-EM30WD-AP6X	1634819 ✘	S001	0.75	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
BI15U-EM30WD-AN6X	1634843	S004	0.75	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
NI30U-EM30WD-AP6X	1634821 ✘	S001	0.5	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•
NI30U-EM30WD-AN6X	1634833	S004	0.5	-30...+85	IP68 / IP69K	VA	LCP	PVC 2 m	–	•

✘ = Preferred solution, available at short notice

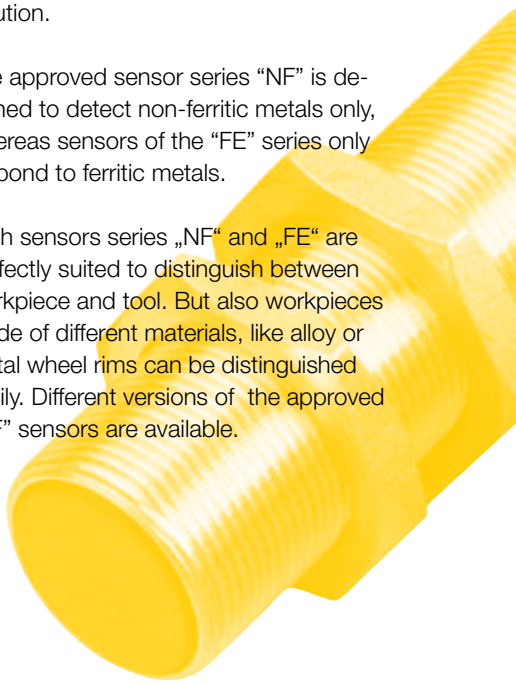
Selective inductive sensors



If ferritic or non-ferritic metals have to be distinguished, selective TURCK sensors of the „NF“ and „FE“ series are the best solution.

The approved sensor series “NF” is designed to detect non-ferritic metals only, whereas sensors of the “FE” series only respond to ferritic metals.

Both sensors series „NF“ and „FE“ are perfectly suited to distinguish between workpiece and tool. But also workpieces made of different materials, like alloy or metal wheel rims can be distinguished easily. Different versions of the approved “NF” sensors are available.



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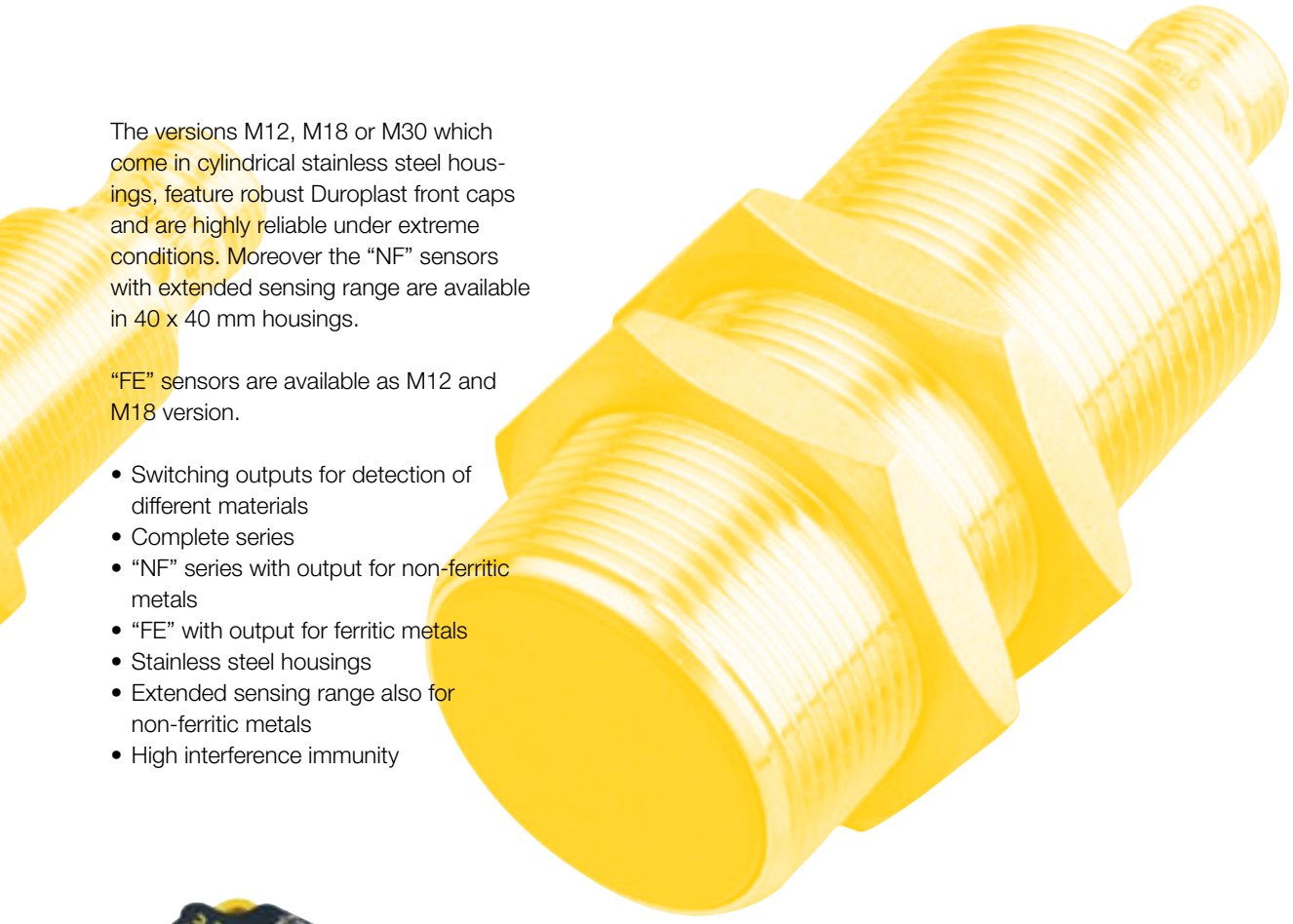
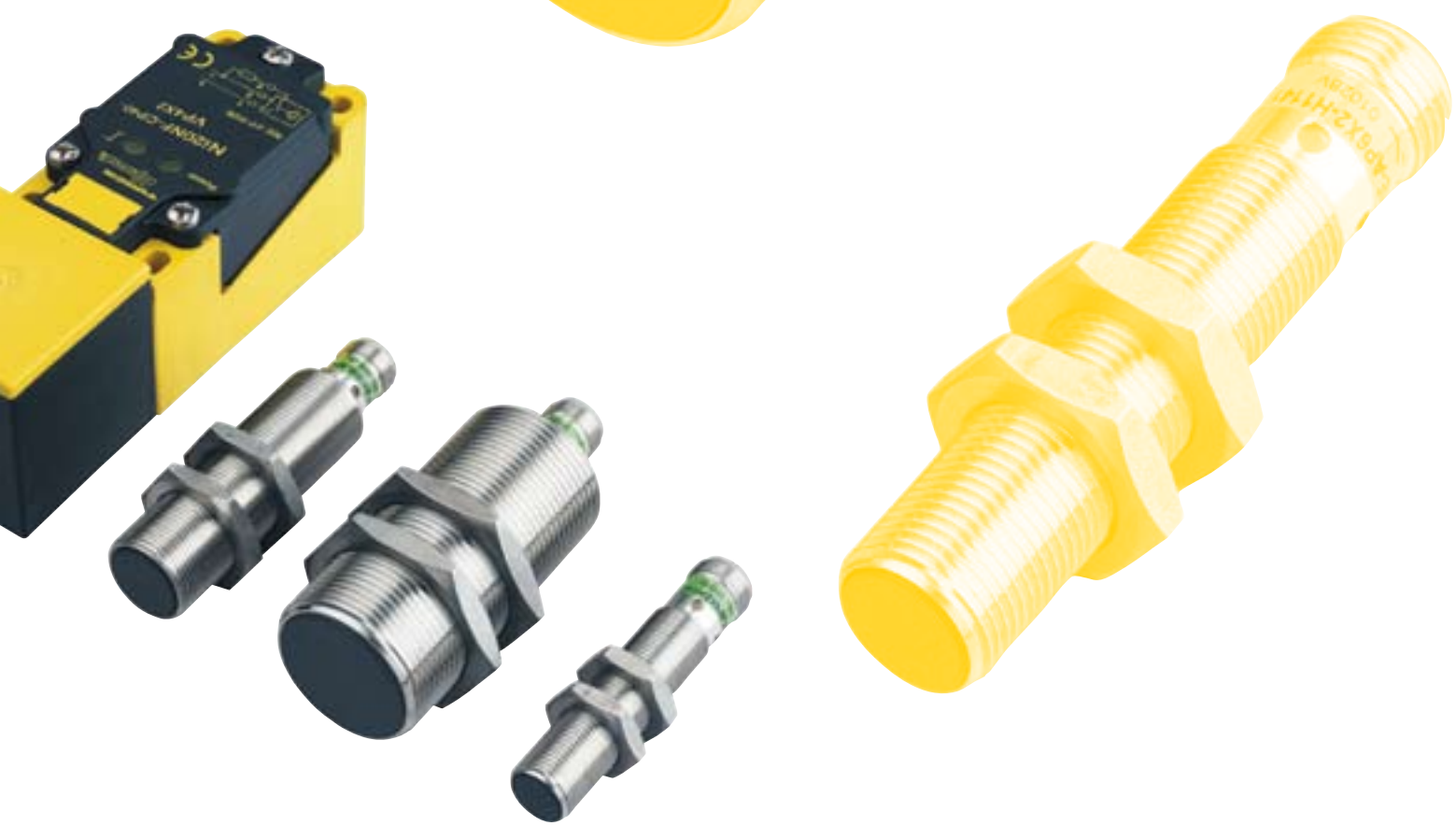


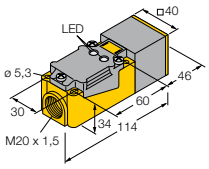
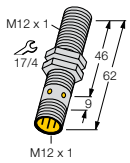
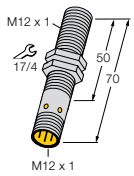
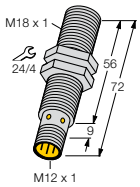
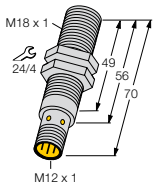
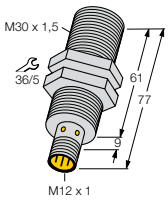
The versions M12, M18 or M30 which come in cylindrical stainless steel housings, feature robust Duroplast front caps and are highly reliable under extreme conditions. Moreover the “NF” sensors with extended sensing range are available in 40 x 40 mm housings.

“FE” sensors are available as M12 and M18 version.

- Switching outputs for detection of different materials
- Complete series
- “NF” series with output for non-ferritic metals
- “FE” with output for ferritic metals
- Stainless steel housings
- Extended sensing range also for non-ferritic metals
- High interference immunity



Selective inductive sensors

Dimensions/Housing style	Features (☞ 356)	Sensing range S_n [mm]	Output	Operational voltage U_B	Operational current I_e [mA]
CP40  active face, variable orientation in 9 directions	selective NF	20,	, PNP	10...65 VDC	200 DC, Ⓚ
	selective NF	20,	, NPN	10...65 VDC	200 DC, Ⓚ
	selective NF	20,	program.	20...250 VAC	400 AC
M12 x 1  	harsh selective NF	3,	, PNP	10...30 VDC	200 DC, Ⓚ
	harsh selective NF	3,	, NPN	10...30 VDC	200 DC, Ⓚ
M12 x 1  	selective FE	3,	, PNP	10...30 VDC	200 DC, Ⓚ
M18 x 1  	harsh selective NF	5,	, PNP	10...30 VDC	200 DC, Ⓚ
	harsh selective NF	5,	, NPN	10...30 VDC	200 DC, Ⓚ
M18 x 1  	selective FE	5,	, PNP	10...30 VDC	200 DC, Ⓚ
M30 x 1,5  	harsh selective NF	10,	, PNP	10...30 VDC	200 DC, Ⓚ
	harsh selective NF	10,	, NPN	10...30 VDC	200 DC, Ⓚ

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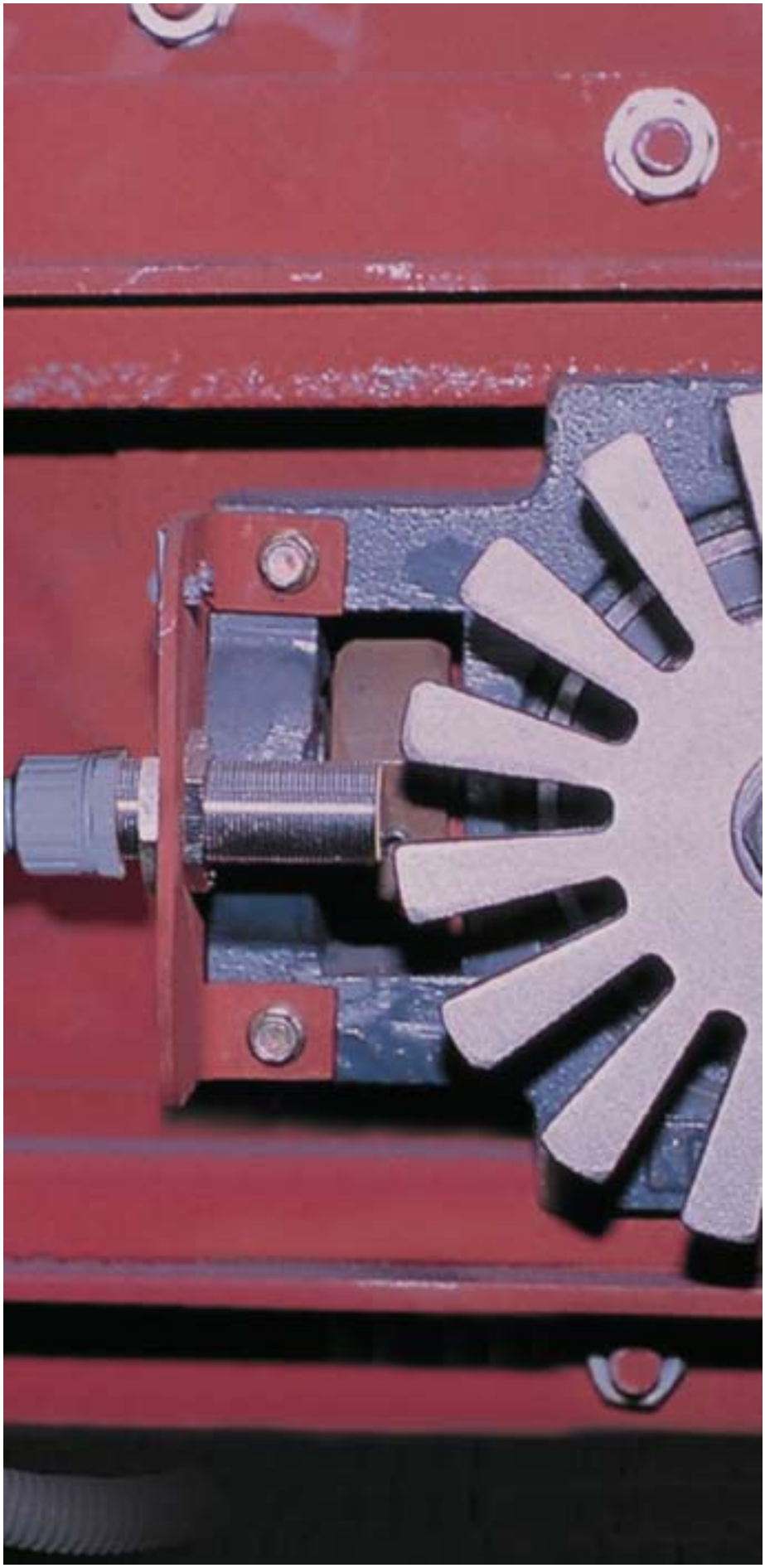
	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED
	NI20NF-CP40-VP4X2	15684 ✘	S009	0.1	0...+60	IP67	PBT	PBT	–	•	•
	NI20NF-CP40-VN4X2	15784 ✘	S012	0.1	0...+60	IP67	PBT	PBT	–	•	•
	NI20NF-CP40-FZ3X2	13284 ✘	S016	0.02	0...+60	IP67	PBT	PBT	–	•	•
	BI3NF-EM12HE-AP6X2-H1141	1615001 ✘	S002	3	0...+60	IP67	VA	DURO	–	•	•
	BI3NF-EM12HE-AN6X2-H1141	1615003	S005	3	0...+60	IP67	VA	DURO	–	•	•
	BI3FE-M12FEE-AP6X-H1141	1615108 ✘	S002	0.025	0...+60	IP67	CuZn–OP	VA	–	–	•
	BI5NF-EM18HE-AP6X2-H1141	1615000 ✘	S002	2.5	0...+60	IP67	VA	DURO	–	•	•
	BI5NF-EM18HE-AN6X2-H1141	1615004	S005	2.5	0...+60	IP67	VA	DURO	–	•	•
	BI5FE-M18FE-AP6X-H1141	1615009 ✘	S002	0.025	0...+60	IP67	CuZn–OP	VA	–	–	•
	BI10NF-EM30HE-AP6X2-H1141	1615002 ✘	S002	2	0...+60	IP67	VA	DURO	–	•	•
	BI10NF-EM30HE-AN6X2-H1141	1615005	S005	2	0...+60	IP67	VA	DURO	–	•	•

✘ = Preferred solution, available at short notice

Inductive sensors with integrated rotational speed monitor



Excellent system availability, reduced down-times and fast error finding via simple diagnostics make it necessary for today's industry to follow an in-depth decentralisation concept. Consequently, many sensors include advanced signal processing options to reinforce this process.

TURCK caters for this development by offering *uprox*® sensors with integrated rotational speed monitor.

Only a single device is necessary to monitor underspeed and overspeed in a range of 3...3000 U/min. The rotational speed is detected either by periodic damping of the sensor using a metal target attached to the shaft or by direct detection of the toothed wheel.

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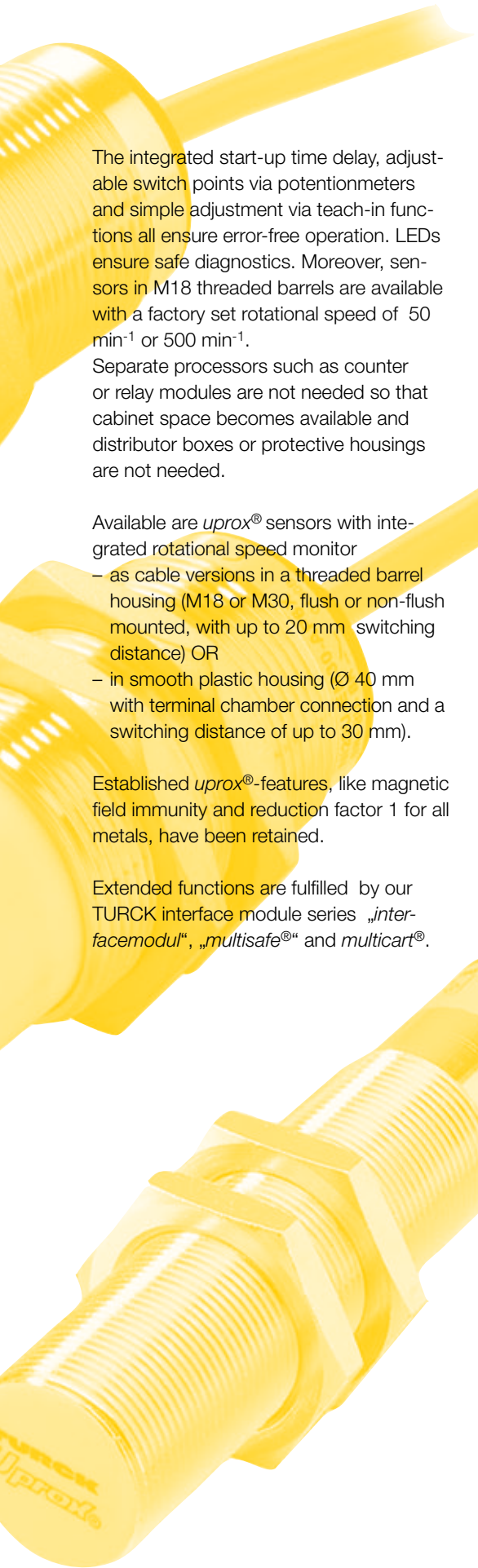


The integrated start-up time delay, adjustable switch points via potentionmeters and simple adjustment via teach-in functions all ensure error-free operation. LEDs ensure safe diagnostics. Moreover, sensors in M18 threaded barrels are available with a factory set rotational speed of 50 min^{-1} or 500 min^{-1}.
Separate processors such as counter or relay modules are not needed so that cabinet space becomes available and distributor boxes or protective housings are not needed.

Available are *uprox*® sensors with integrated rotational speed monitor
– as cable versions in a threaded barrel housing (M18 or M30, flush or non-flush mounted, with up to 20 mm switching distance) OR
– in smooth plastic housing (Ø 40 mm with terminal chamber connection and a switching distance of up to 30 mm).

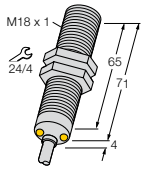
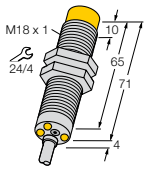
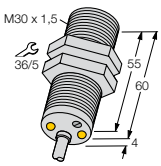
Established *uprox*®-features, like magnetic field immunity and reduction factor 1 for all metals, have been retained.

Extended functions are fulfilled by our TURCK interface module series „*interfacemodul*“, „*multisafe*®“ and *multicart*®.

Devices of the *interfacemodul series* are equipped with a rotational speed display. The *multisafe*® device is easy to parameterise and enables under and overspeed control. The *interfacemodul* and *multisafe*® series are designed for DIN rail mounting and feature devices with combined analog and digital outputs. Also available are devices with intrinsically save input circuits as per EN 60079-11(formerly EN 50020). Additional *multicart*®-devices are available for mounting in 19“-racks. Many TURCK interface modules can be parameterised via FDT/DTM technology.

- Compact housing M18 x 1 or M30 x 1
- Extended monitoring range of 3 … 3000 min^{-1}, with only a single device
- Factory settings of 50 or 500 min^{-1}
- Factory set start-up time delay of (5 s) to avoid false report during the start-up phase
- Adjustable switch point via potentiometer or teach-in
- *uprox*® sensing features like:
  – Faktor 1 for all metals
  – Magnetic field immunity
  – Extended sensing range
- High degree of protection IP67
- Excellent EMC properies

Inductive sensors with integrated rotational speed monitor

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational U_B	Operational current I_e [mA]	
	**M18 x 1**	rotation monitoring 0.05...50 adjustable via potentiometer	5,	_⌇_, PNP	10...65 VDC	200 DC, Ⓚ	
		rotation monitoring 0.05...50 adjustable via pushbutton	5,	_⌇_, PNP	10...65 VDC	200 DC, Ⓚ	
		rotation monitoring	5,	_⌇_, PNP	10...65 VDC	200 DC, Ⓚ	
		rotation monitoring	5,	_⌇_, PNP	10...65 VDC	200 DC, Ⓚ	
	**M18 x 1**	rotation monitoring 0.05...50 adjustable via potentiometer	12,	_⌇_, PNP	10...65 VDC	200 DC, Ⓚ	
		rotation monitoring 0.05...50 adjustable via pushbutton	12,	_⌇_, PNP	10...65 VDC	200 DC, Ⓚ	
	**M30 x 1,5**	rotation monitoring 0.05...50 adjustable via potentiometer	10,	_⌇_, PNP	10...65 VDC	200 DC, Ⓚ	
		rotation monitoring 0.05...50 adjustable via pushbutton	10,	_⌇_, PNP	10...65 VDC	200 DC, Ⓚ	

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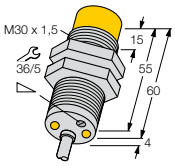
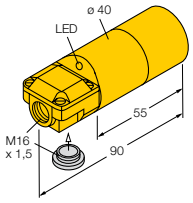
	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	DBI5U-M18E-AP4X3	1582236 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
	DTBI5U-M18E-AP4X3	1582237 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
	DBI5U-M18E-AP4X2 50/MIN	1582239 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
	DBI5U-M18E-AP4X2 500/MIN	1582229	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
	DNI12U-M18E-AP4X3	1582235 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
	DTNI12U-M18E-AP4X3	1582234 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
	DBI10U-M30-AP4X2	1582231 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
	DTBI10U-M30-AP4X2	1582230 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•

✘ = Preferred solution, available at short notice

Inductive sensors with integrated rotational speed monitor

Dimensions/Housing style		Features (☞ 356)	Sensing range S_n [mm]	Output	Operational U_B	Operational current I_e [mA]	
	**M30 x 1,5**	rotation monitoring 0.05...50 Hz adjustable via potentiometer	20,	_◺_, PNP	10...65 VDC	200 DC, Ⓚ	
		rotation monitoring 0.05...50 Hz adjustable via pushbutton	20,	_◺_, PNP	10...65 VDC	200 DC, Ⓚ	
	**Ø40**	rotation monitoring 1...50 Hz	15,	_◺_, PNP	10...65 VDC	200 DC, Ⓚ	
		rotation monitoring 1...50 Hz	30,	_◺_, PNP	10...65 VDC	200 DC, Ⓚ	

Fixing clamp BS40 included in delivery

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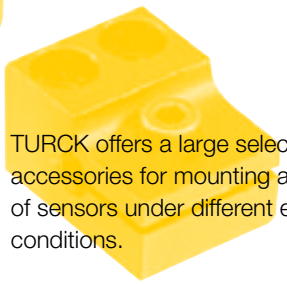
	Type	Ident no.	Connection (☞ 322)	Switching frequency [kHz]	Temperature range [°C]	Degree of protection	Materials Housing (☞ 334)	Materials Active face (☞ 334)	Materials Cable (☞ 334)	LED U_B	LED ⌐
	DNI20U-M30-AP4X2	1582233 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
	DTNI20U-M30-AP4X2	1582232 ✘	S059	–	-30...+85	IP67	CuZn-Cr	PBT	PVC 2 m	•	•
	DBI15U-K40SR-AP4X2	1500201	S058	–	-30...+85	IP67	ABS	ABS	–	•	•
	DNI30U-K40SR-AP4X2	1500202	S058	–	-30...+85	IP67	ABS	ABS	–	•	•

✘ = Preferred solution, available at short notice

Mounting accessories



TURCK offers a large selection of accessories for mounting and protection of sensors under different environmental conditions.

Mounting clamps and rails
The following pages contain the matching metal and plastic clamps for all cylindrical sensors ranging from miniature sensors with a diameter of 4 mm to sensors with a 47 mm thread.
The mounting rail JS 025/037 simplifies mounting and alignment of CP40 and CK40 sensors.

Protective housing
The protective housing SG40 provides additional protection for CP40 sensors against mechanical damage and humidity. When mounted in this housing, the protection rating is increased from IP67 to IP68; thus the sensors withstand rapid temperature changes in combination with wetting.

Teflon caps
Sensors used in welding systems are subject to damages by weld-splatter. Here, teflon caps provide the necessary protection.

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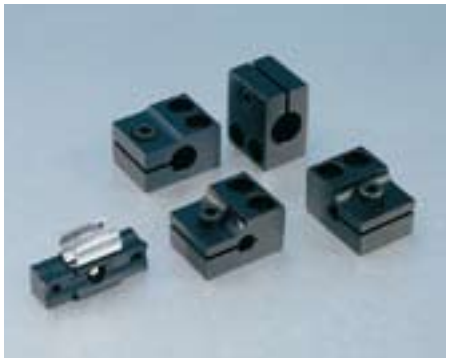
Teflon caps matching M12, M18 and M30 threads for protection against weld-splatter



Mounting clamps for miniature sensors with housing diameters between 4 and 8 mm

Mounting clamps for smooth or threaded barrel sensors with diameters between 12 and 47 mm

Protective housing and mounting rail for CP40 sensors

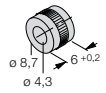
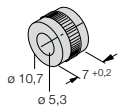
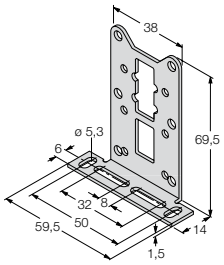
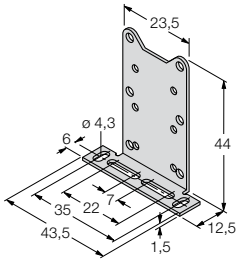
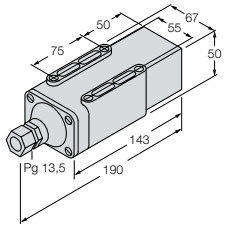
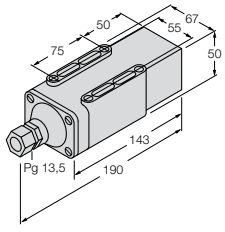
Multifunctional adapter for connection to sensors with standard M12 connectors, available in three versions:

- Signal transducer PNP/NPN, normally open / normally closed
- ON / OFF delay
- Switching frequency / rotational speed monitor

Test box for functionality testing with connections for 2, 3 or 4 wire and NAMUR sensors.

The mounting brackets for threaded barrel sensors provide extraordinary mounting flexibility. Three-dimensional alignment of the sensors is thus enabled.

Mounting accessories

Dimensions/Housing style	Type	Ident no.	Materials (☞ 334)	For sensor types
	**MH-Q14**	6950011	CuZn	Accessories for rectangular Q14
	**MH-Q20**	6950010	CuZn	Accessories for rectangular Q20
	**MW-Q14/Q20**	6945006	VA	Accessories for rectangular Q14/Q20
	**MW-Q08/Q10**	6945007	VA	Accessories for rectangular Q08/Q10
	**SG40/2**	69497	Ultem	Accessories for rectangular CP40
	**SG40**	69500	PA	Accessories for rectangular CP40

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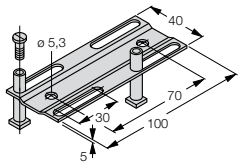
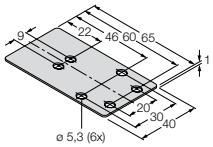
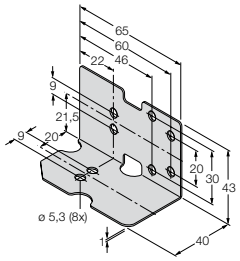
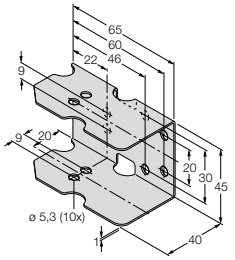
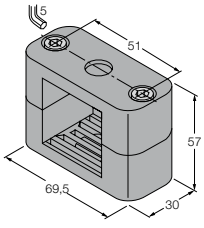
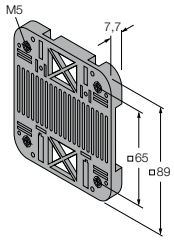
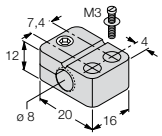
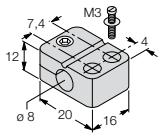
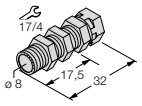
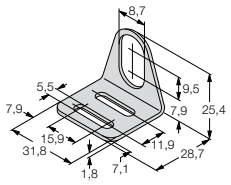
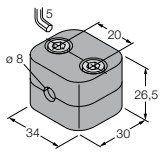
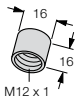
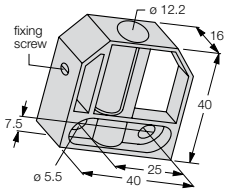
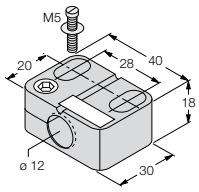
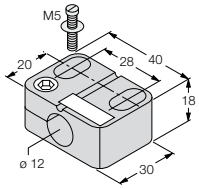
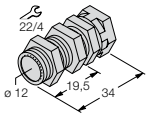
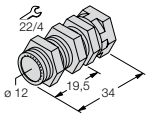
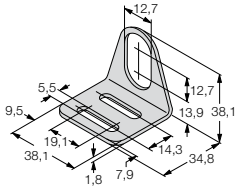
Dimensions/Housing style	Type	Ident no.	Materials (☞ 334)	For sensor types
	**JS025/037**	69429	VA	Accessories for rectangular CP40
	**MF-CK40-1S**	6900481	VA	Accessories for rectangular CK40
	**MF-CK40-2S**	6900482	VA	Accessories for rectangular CK40
	**MF-CK40-3S**	6900483	VA	Accessories for rectangular CK40
	**BSS-CP40**	6901318	PP	Accessories for rectangular CP40
	**SMBDX80DIN**	3077161	ABS	Accessories for rectangular CP80, DX80, K80, Q80

✘ = Preferred solution, available at short notice

4

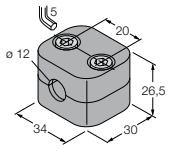
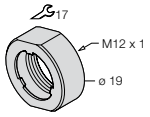
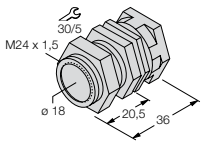
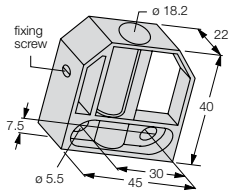
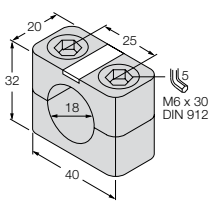
Mounting accessories

Dimensions/Housing style	Type	Ident no.	Materials (☞ 334)	For sensor types
	**BST-08B**	6947210	PA6	Accessories for threaded barrel M8
	**BST-08N**	6947211	PA6	Accessories for threaded barrel M8
	**QM-08**	6945100	CuZn	Accessories for threaded barrel M8
	**MW-08**	6945008	VA	Accessories for threaded barrel M8
	**BSS-08**	6901322	PP	Accessories for threaded barrel M8
	**SKN/M12**	69662	PTFE	Accessories for threaded barrel M12

Dimensions/Housing style	Type	Ident no.	Materials (☞ 334)	For sensor types
	**BS12**	69470	PBT	Accessories for threaded barrel M12
	**BST-12B**	6947212	PA6	Accessories for threaded barrel M12
	**BST-12N**	6947213	PA6	Accessories for threaded barrel M12
	**QM-12**	6945101	CuZn	Accessories for threaded barrel M12
	**QMT-12**	6945106	CuZn	Accessories for threaded barrel M12
	**MW-12**	6945003	VA	Accessories for threaded barrel M12

✘ = Preferred solution, available at short notice

Mounting accessories

Dimensions/Housing style	Type	Ident no.	Materials (☞ 334)	For sensor types
	**BSS-12**	6901321	PP	Accessories for threaded barrel M12
	**PN-M12**	6905309	VA	Accessories for threaded barrel M12
	SKN/M18	69663	PTFE	Accessories for threaded barrel M18
	**QM-18**	6945102	CuZn	Accessories for threaded barrel M18
	**BS18**	69471	PA6	Accessories for threaded barrel M18
	**BSN18**	69472	PBT-GF20	Accessories for threaded barrel M18

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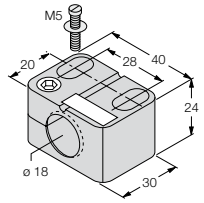
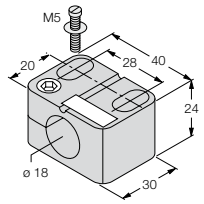
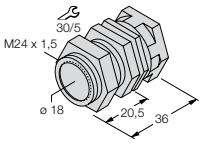
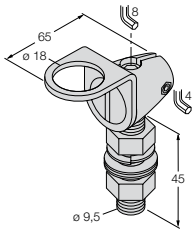
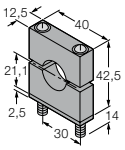
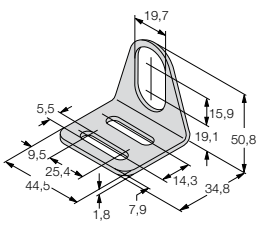
Dimensions/Housing style	Type	Ident no.	Materials (☞ 334)	For sensor types
	**BST-18B**	6947214	PA6	Accessories for threaded barrel M18
	**BST-18N**	6947215	PA6	Accessories for threaded barrel M18
	**QMT-18**	6945104	CuZn	Accessories for threaded barrel M18
	**SMB18FA**	3074004	VA	Accessories for threaded barrel M18
	**SMB18C**	3470000	Polyester	Accessories for threaded barrel M18
	**MW-18**	6945004	VA	Accessories for threaded barrel M18

✘ = Preferred solution, available at short notice

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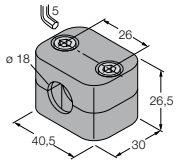
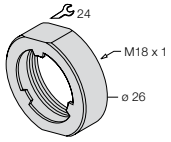
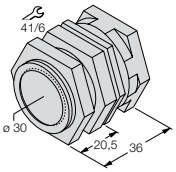
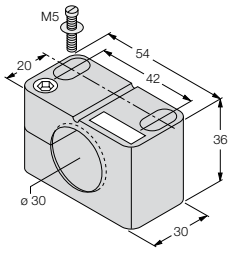
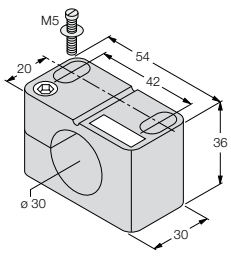
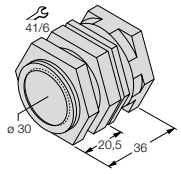
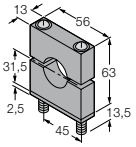
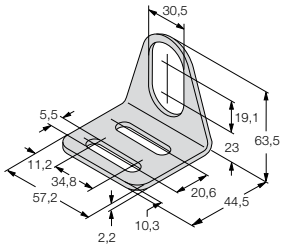
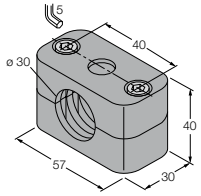
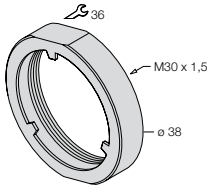
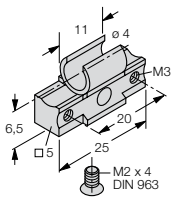
Mounting accessories

Dimensions/Housing style	Type	Ident no.	Materials (☞ 334)	For sensor types
	**BSS-18**	6901320	PP	Accessories for threaded barrel M18
	**PN-M18**	6905310	VA	Accessories for threaded barrel M18
	SKN/M30	69664	PTFE	Accessories for threaded barrel M30
	**QM-30**	6945103	CuZn	Accessories for threaded barrel M30
	**BST-30B**	6947216	PA	Accessories for threaded barrel M30
	**BST-30N**	6947217	PA	Accessories for threaded barrel M30

Dimensions/Housing style	Type	Ident no.	Materials (☞ 334)	For sensor types
	**QMT-30**	6945105	CuZn	Accessories for threaded barrel M30
	**SMB30C**	3470100	Polyester	Accessories for threaded barrel M30
	**MW-30**	6945005	VA	Accessories for threaded barrel M30
	**BSS-30**	6901319	PP	Accessories for threaded barrel M30
	**PN-M30**	6905308	VA	Accessories for threaded barrel M30
	**BS540**	69475	AL	Accessories for smooth barrel 4 mm

✘ = Preferred solution, available at short notice

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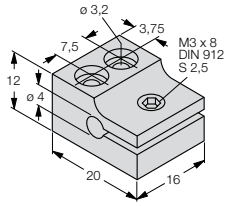
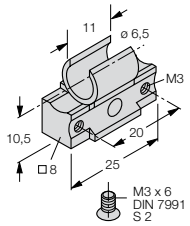
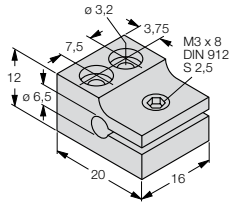
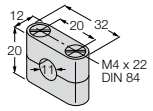
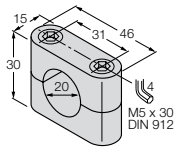
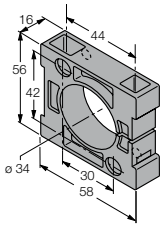
Mounting accessories

Dimensions/Housing style	Type	Ident no.	Materials (☞ 334)	For sensor types
	**MBS40**	69477	AL	Accessories for smooth barrel 4 mm
	**BS865**	69476	AL	Accessories for smooth barrel 6.5 mm
	**MBS65**	69478	AL	Accessories for smooth barrel 6.5 mm
	**BS11**	69462	PBT	Accessories for smooth barrel 11 mm
	**BS20**	69464	PBT	Accessories for smooth barrel 20 mm
	**BS34.1**	6946010	PBT	Accessories for smooth barrel 34 mm

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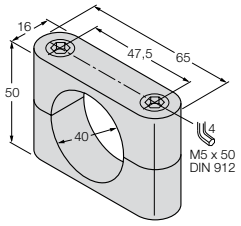
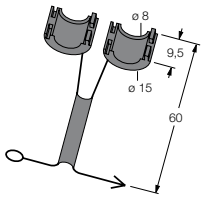
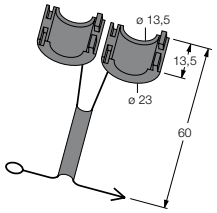
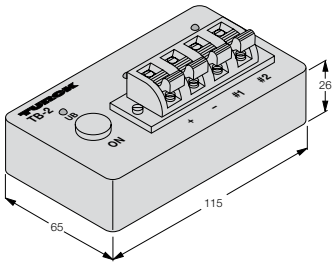
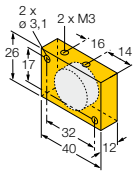
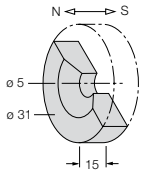
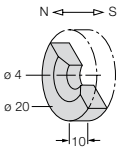
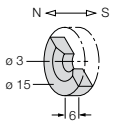
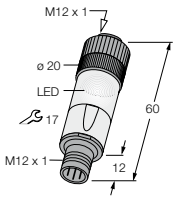
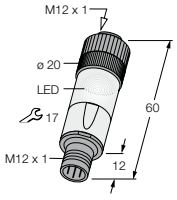
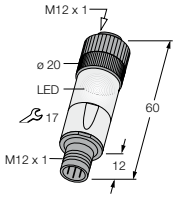
Dimensions/Housing style	Type	Ident no.	Materials (☞ 334)	For sensor types
	**BS40**	69466	PBT	Accessories for smooth barrel 40 mm
	**SC-M8/3GD**	6900515	PA	Safety clip M8x1
	**SC-M12/3GD**	6900390	PA	Safety clip M12x1
	**TB-2**	6967103	–	Universal test box for NPN PNP and NAMUR sensors
	**DM-Q12**	6900367	PBT	Actuation magnet for magnetic inductive (position-) sensors

4

✘ = Preferred solution, available at short notice

Mounting accessories

Dimensions/Housing style	Type	Ident no.	Materials (☞ 334)	For sensor types
	**DMR31-15-5**	6900215	SrFe	Actuation magnet
	**DMR20-10-4**	6900214	SrFe	Actuation magnet
	**DMR15-6-3**	6900216	SrFe	Actuation magnet
	**SPF1-AP6X**	6900375	PBTP	Rotational speed monitor for sensoren with standard M12 x 1 connectors
	**SPN1-AP6-ARN6X**	6930231	PBTP	PNP and NPN converter for sensors with standard M12 x 1 connectors
	**SPT1-AP6X**	6915091	PBTP	ON/OFF delay for sensors with standard M12 x 1 connectors

Connectors

Connectors - Selection guide
Our product portfolio comprises an extensive choice of female cable connectors with extruded cables, extension cables and field-wireable female connectors

The following table provides an overview of suitable connector types with extruded cables.

For the complete portfolio of connectors, please see our connector catalogue

Sensor type:		Maching female connector			
Connection code	**Connector code**	**straight, cable type**		**angled, cable type**	
…-AP4, …-AP6, …-AP7, …-AN4, …-AN6, …-AN7, …-ASI	…-V1131 …-V1331	SKP3-**L**/S90[1])	**M8**	SWKP3-**L**/S90[1])	**M8**
…-AP4, …-AP6, …-AP7, …-AN4, …-AN6, …-AN7, …-ASI	…-H1141 …-H1341	WAK3-**L**/**Q**[1])	**M12**	WWAK3-**L**/**Q**[1])	**M12**
…-2AP4, …-2AP6, …-VP6, …-VP7, …-VN6, …-VN7, …-LIU, …-LUAP6X	…-V1141 …-V1341	SKP4-**L**/S90[1])	**M8**	SWKP4-**L**/S90[1])	**M8**
…-2AP4, …-2AP6, …-VP4, …-VP6, …-VP7, …-VN4, …-VN6, …-VN7, …-LIU, …-LUAP6X	…-H1141 …-H1341	WAK4-**L**/**Q**[1])	**M12**	WWAK4-**L**/**Q**[1])	**M12**
…-EM,…WD…AP6, …-EM,…WD…AN6	…-H1141	FB-WAK4-**L**/S2300[1])	**M12**	FB-WWAK4-**L**/S2300[1])	**M12**
…-MT…AP6, …-MT…AN6	…-H1141	WAK4-**L**/S398[1])	**M12**	WWAK4-**L**/S398[1])	**M12**
…-Y0, …-Y1	…-H1141 …-H1341	WAK4.21-**L**/P00[1]) Cable: blue	**M12**	WWAK4.21-**L**/P00[1]) Cable: blue	**M12**

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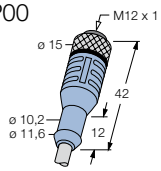
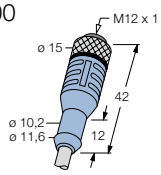
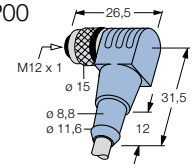
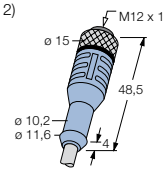
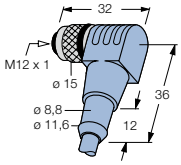
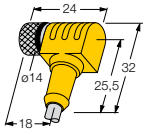
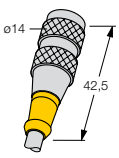
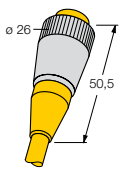
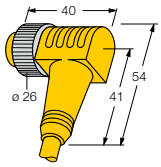
The selection guide also contains other connection types than only standard female connectors:

S2300 These versions feature protection degree IP68/IP 69K and fulfill the requirements of the *uprox*®+ Wash-Down sensor series regarding watertightness and resistance against cleaning agents.

S398 These versions feature halogen and PVC free cables and can be applied in the field of robot technology. In particular welding robots, tooling machinery, assembly lines and metal-cutting applications.

Sensor type:		Maching female connector	
Connection code	**Connector code**	**straight, cable type**	**angled, cable type**
…-2Y0, …-2Y1	…-H1140	WAK4.41-2/P00 Cable: blue  **M12**	
…-AD4, …-AG4 …-AG41	…-H1141 …-H1341	WAK4.2-2/P00  **M12**	WWAK4.2-2/P00  **M12**
DNet	…-H1150	RCK572-6M [2]  **M12**	WCK572-6M [2]  **M12**
…-AZ3, …-ADZ3	…-B3131 …-B3131 …-B3331		WKB3T-2/S68  **1/2“**
…-AZ3, …-ADZ3	…-B3131 …-B3131	RK30-2  **7/8“**	
…-2ADZ3	…-B1151	WAK50-2/P00  **7/8“**	WAK50-2/P00  **7/8“**

1) **L:** selectable cable length:
2 = 2 m **5** = 5 m **10** = 10 m
Q: Cable material:
P00 = PVC-cable, Typ LIFYY-0
S90 = PUR cable, Typ LIFYY-11Y

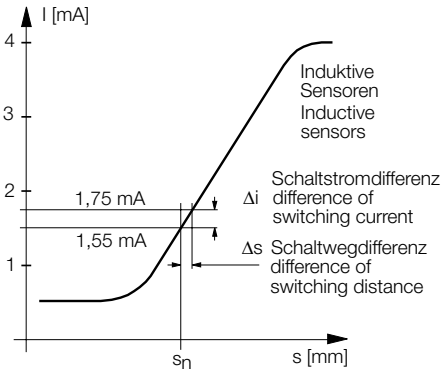
2) DeviceNet™ cable, PVC jacket
2 x 2 x 22 AWG, standard length
6 m, other lengths on request

NAMUR sensors according to EN 60947-5-6

NAMUR sensors according to EN 60947-5-6 are polarized 2-wire sensors which change their internal resistance depending on the damping (constant distance/current characteristic). They are designed for connection to external switching amplifiers which convert the current change into a binary output signal.

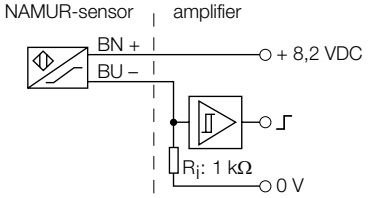
Advantages of NAMUR sensors

- Applicable in explosion hazardous areas in conjunction with an approved switching amplifier.
- Permantent wire-break and short-circuit protection is feasable via switching amplifier.
- Sensors with NAMUR output are suited for detection of fast movements and high rotation speed. NAMUR sensors have the same housing style but feature a higher switching frequency.



Nominal operating values

- The nominal operating values are de fined in EN 60947-5-6 as follows
  U_0 = 8.2 VDC $I_{activated}$ ≤ 1.2 mA
  R_i = 1000 Ω $I_{non\text{-}activated}$ ≥ 2.1 mA
- TURCK-NAMUR sensors are specified precisely in the middle of the "NAMUR-window“ at 1.55 mA for s_n and 1.75 mA for $s_n + \Delta s$ (see characteristics).
- Reverse polarity protected
- Hysteresis H 1...10 %
- Temperature drift
  < ± 10 % (nom. temperature range -20…+70 °C)
  < ± 20 % (extended temperature range -40/-25…+100/120 °C)
- Repeat accuracy R < 2 %



Switch state display (LED)

- Based on the special functional principle, inductive sensors with NAMUR output feature an inverted LED function: The LED lights up in undamped and not in damped state. This is so, because in damped state only a weak current flow is produced (see NAMUR-characteristics). This is not enough to drive an LED. In un-damped state instead enough current is provided for an LED signal.

Environmental conditions

- Degree of protection (IEC 60529/ EN 60529) IP67
- Pollution degree 3
- Shock resistance 30 × g (11 ms)
- Vibration resistance 55 Hz (1 mm)

Use in explosion hazardous areas

If applied in explosion hazardous areas, NAMUR sensors must be connected to approved switching amplifiers with intrin-sically safe control circuits. TURCK offers a wide range of approved switching amplifiers, *interfacemodul, multisafe® and multicart®* series:

- Supply and output via approved external switching amplifiers Coding: …-Y1.-…
- Class EEx ia IIC T4…T6 (approved for use in explosion hazardous areas; EC type examination certificate according to EN 50020 and EN 50014 (EN 60079-0); approval according to directive 94/9/EG, KEMA 02 ATEX 1090 X)
- Avoid static charging when using sensor types CA40, CK40, CP40, CP80, DSU26, DSU35, K40, K90, MP, Q80
- Mounting conditions according to certificate and instruction manual

Use in safety-related applications according to IEC 61508

Nearly all NAMUR sensors of the TURCK product portfolio are suited for the application in safety systems (inclusive of SIL2 according to IEC 61508). This has been certified by an independent test body (TÜV). The certificate is valid for all TURCK sensors with standard NAMUR output. These sensors are 100 % compatible with all standard NAMUR signal processors i.e. SPS systems with NAMUR inputs.

Failure probability (PFDavg)

- 7.00×10^{-6} , test interval 1 year
- 3.50×10^{-6} , test interval 5 years
- Safe failure fraction (SFF) 0.9

Series or parallel connection of NAMUR sensors

Not permitted with TURCK switching amplifiers.

Maximum cable length:
In order to determine the maximum cable length, two conditions have to be considered:

Condition 1:
A maximum cable resistance of 50 Ω is predefined by the EN 60947-5-6 standard. The maximum cable length can be calculated taking this value in relation to the core diameter:

$l = R \times Q / \delta$

l = max. core length, m
R = max. resistance, Ω
Q = core diameter, mm^2
δ = specific resistance of the core materials (0.0175 for copper), $\Omega \times mm^2 \times m$

Example for copper core with a core diameter of Q= 0.34 mm^2:
$l = 50 \times 0.34 / 0.0175 = 971$ m
As NAMUR sensors are operated with two cores, the determined value has to be devided by two. Concerning our example, the calculated maximum cable length would be: 971 / 2 = 485.5 m

Note: Additional resistances, like corrosion or transfer resistance of connection terminals are not included in this calculation!

Condition 2:
If the sensor is operated in explosion hazardous areas, the maximum inductivity and capacity has to be considered. The correspondent values are listed on the data sheets of NAMUR sensors and isolating switching amplifiers.

Example:
– Isolating switching amplifier IM1-22Ex-R:
  C_{max} 830 nF ; L_{max} 5 mH (for EEx ia IIC)

– Sensor Bi5-EG18SK-Y1X:
  C_i = 150 nF; L_i = 150 µH

If the values of isolating switching amplifiers and sensors are subtracted, the following values result:
C = 680 nF ; L = 4.85 mH.

Values for inductivity and capacity per meter are usually indicated by the cable vendor. 110 nF/km and 1 mH/km are index values for inductivity and capacity of the cables. The following maximum cable lengths can be calculated on the basis of these standard values:
max. cable length based on 110 nF/km:
680 nF / 110 nF = 6.18 km
max. cable length based on 1 mH/km:
4.85 mH / 1 mH = 4.85 km
The maximally allowed cable length is the smallest value which was calculated on the basis of the two conditions.
This example lead to the following results:
– Condition 1: Cable resistance: 485.5 m
– Condition 2: a) Cable inductivity: 6.18 km
  b) Cable capacity: 4.85 km
Considering both conditions, the maximum cable length in this example is 485.5 m.

Sensors with transistor output, 3/4-wire DC

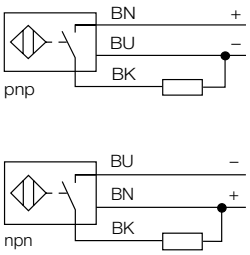
Advantages
- Very low leakage current
- Easy connection to relays or SPS
- Series or parallel connection possible
- Operating voltage U_B 10…30 VDC
- 10…55 VDC or 10…65 VDC
- Ripple W_{ss} 10 %

Switching output
- normally open (N.O.) or normally closed (N.C.) for 3-wire sensors
- Complementary for 4-wire sensors
- Cyclic short circuit protection (overload trip point > I_e + 20 mA) with devices indicating the symbol Ⓚ in column operating current
- Wire-break protected
- Full reverse polarity protection
- Off-state current I_r < 0.1 mA
- Voltage drop U_d < 1.8 V
  Si…K08/K10: < 0.7 V
  Bi/Ni.../S34: < 2.5 V
- Hysteresis H: 3...15 %
- Temperature drift
  < ± 10 % (nom. temperature range -25…+70 °C)
  < ± 15 % *uprox*® and *uprox*®+ (temperature range -30…+85°C)
  < ± 20 % (extended temperature range -40/-25…+100/120 °C)
- Repeat accuracy: R < 2 %
  Bi0,8-Q5SE-AP/AN… < 5 %
- Utilisation category 13
- Rated insulation voltage
  U_i 0.5 kV
- Rated conditional short-circuit current 100 A

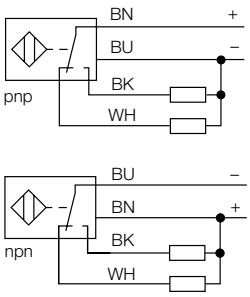
Environmental conditions
- Degree of protection (IEC 60529/EN 60529)
  IP67/IP68/IP69K (see technical data)
- Pollution degree 3
- Shock resistance 30 × g (11 ms)
- Vibration resistance 55 Hz (1 mm)

Series or parallel connection
- When sensors are series connected, voltage drops and readyness delays of the individual sensors must be added up.

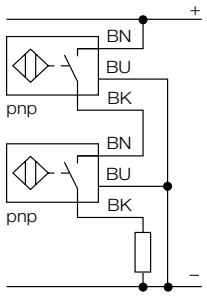
3-wire DC



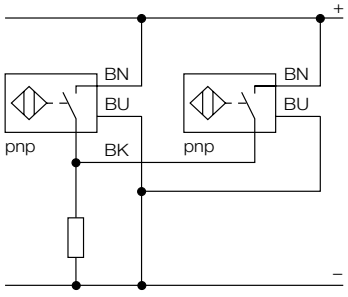
4-wire DC



3-wire DC
Series connection



3-wire DC
Series connection



Sensors with transistor output, 2-wire DC

Advantages
- Only two wires
- Short-circuit protected

Voltage supply
- Operating voltage U_B 10…65 VDC
- Ripple U_{ss} 10 %

Switching performance
- Normally open (N.O.)
- Cyclic short circuit protection (Overload trip point > I_e + 20 mA)
- Reverse polarity protection
- Off-state current I_r ≤ 0.6 mA
- Voltage drop U_d
  non polarised version (AD) < 5 V
  polarised version (AG) < 4.2 V
- Hysteresis H ≤ 1…15 %
- Temperature drift ≤ ± 10 %
- Repeat accuracy R < 2 %
- Utilisation category 13
- Rated insulation voltage U_i = 0.5 kV
- Rated conditional short-circuit current 100 A

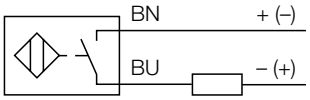
Environmental conditions
- Degree of protection (IEC 60529/EN 60529) IP67
- Pollution degree 3
- Shock resistance 30 × g (11 ms)
- Vibration resistance 55 Hz (1 mm)

Series connection of 2-wire sensors

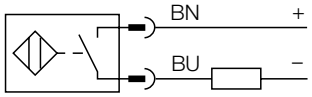
Normally open: UND-configuration
Normally closed: NOR-configuration

When sensors are series connected voltage drops of the individual sensors must be added up. This reduces the usable voltage at the load. Care must be taken not to underrange the minimum admissible supply voltage.

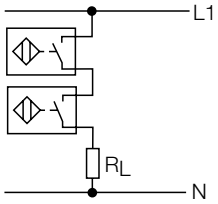
2-wire DC (non polarised)



2-wire DC (polarised)



Series connection of 2-wire sensors



4

Power supply unit

All DC-devices must be supplied from a power supply unit, equipped with a transformer according to IEC 364 (isolating transformer). Even if the transformer isolation fails, isolation of the electronic components from the housing will ensure that no danger occurs.

2-wire AC/DC sensors

Advantages
- Only two wires
- AC / DC connection
- Short-circuit proof (types ADZ, RDZ, FDZ)

Voltage supply
- Operating voltage U_B 20…250 VAC or 10…300 VDC

Exception:
- only AC supply
  Ni20NF-CP40-FZ3X2
  Bi/Ni…AZ3X/S120

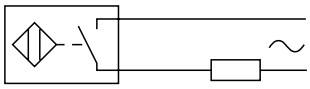
Switching performance
- Normally open (N.O.)
  Coding: ...ADZ/AZ
- Normally closed (N.C.)
  Coding: …RDZ/RZ
- Normally open (N.O.) and normally closed (N.C.)
  programmable connection
  Coding: …FDZ/FZ
- Off-state current
  I_r ≤ 1.7 mA (AC) ≤ 1.5 mA (DC)
- Latching short-circuit protection
  Types ADZ, RDZ, FDZ
  Surge current ≤ 8 A (≤ 5 ms max. 5 Hz)
  Overload trip point > 500 mA
- Voltage drop U_d < 6 V_{eff}
- Hysteresis H 3…15 %
- Temperature drift
  < ± 10 % (standard temperature range -25…+70 °C)
  < ± 20 % (extended temperature range -40/-25…+100/120 °C)
- Repeat accuracy R < 2 %
- Utilisation category AC 140/DC 13
- Rated insulation voltage
  U_i = 1.5 kV
- Rated conditional short-circuit current 100 A
- Should the ambient temperature exceed > 40 °C the rated operating current is limited.

Environmental conditions
- Degree of protection (IEC 60529/EN 60529) IP67
- Pollution degree 3
- Shock resistance 30 × g (11 ms)
- Vibration resistance 55 Hz (1 mm)

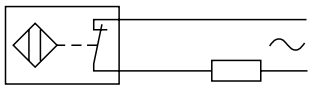
Series connection of 2-wire AC/DC sensors:
Normally open: UND-configuration
Normally closed: NOR-configuration

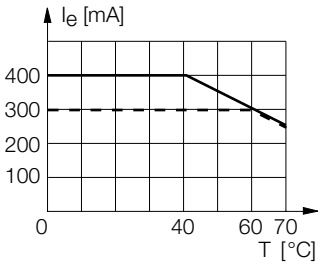
When sensors are series connected, voltage drops of the individual sensors must be added up. This reduces the usable voltage at the load. Care must be taken not to underrange the minimum admissible supply voltage at the load (please consider the main supply fluctuations).

2-wire AC/DC, N.O.

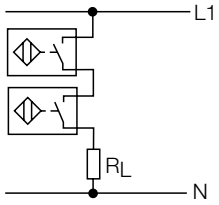


2-wire AC/DC, N.C.





Series connection of 2-wire AC/DC sensors



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2-wire AC/DC sensors

Series connetion of mechanical switches with AC/DC sensors
The open contact interrupts the supply voltage of the sensor. If the sensor is damped while the mechanical contact closes, a short time delay will occur. The readiness delay before availability (t ≤ 80 ms) prevents immediate switching.

Solution:
A resistor in parallel to the mechanical contact supplies the sensor during open contact state, so that the time delay before availability effect is avoided. For 230 VAC the resistance value is approx. 91 kΩ/1 W.

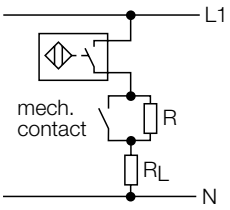
Approximate resistance value:
approx. 400 Ω/V

Parallel connection of mechanical switches with AC/DC sensors
The open contact interrupts the supply voltage of the sensor. The sensor is ready for operation after opening the contact and following time delay (t ≤ 80 ms) .

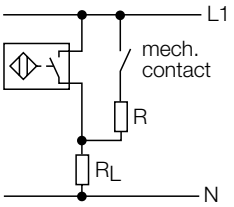
Solution:
A resistor in series with the contact ensures the minimum voltage supply to the sensor. Thus, the time delay before availability after opening of the mechanical contact is avoided.

Formular to calculate the resistance value:
$R = 10\ V / I_{Load}$ $P = I^2_{Load} \times R$

Series connection with mech. switches



Parallel connection with mech. switches



4

Sensors with analogue output

Advantages
- Linear curve (except SiU)
- Miniature housing with extended sensing range and non-linear output (SiU)
- Variable outputs: current, voltage, frequency, adjustable switching output

Voltage supply
- Operating voltage U_B 15…30 VDC
- Ripple W_{ss} 10 %

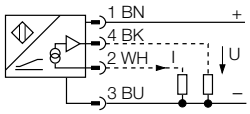
Environmental conditions
- Degree of protection (IEC 60529/EN 60529) IP67
- Pollution degree 3
- Shock resistance 30 × g (11 ms)
- Vibration resistance 55 Hz (1 mm)

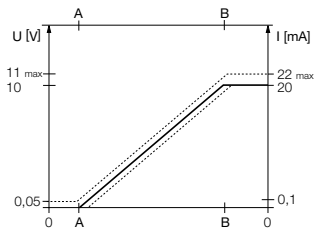
General data
- Repeat accuracy R < 1 %
  R < 0,5 % after warm-up time of 30 min
- Temperature drift ≤ 0.06 % / °C
- Utilisation category 13
- Rated insulation voltage U_i = 0.5 kV
- Rated conditional short-circuit current 100 A

Load resistance
- Current output ≤ 0.4 kΩ
- Voltage output ≤ 4.7 kΩ
- Frequency output ≤ 1 kΩ

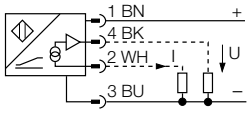
Sensors with linear analogue output – output types

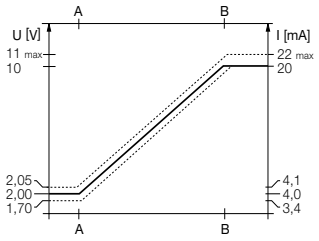
...LIU...
Current and voltage output
0…20 mA + 0…10 V



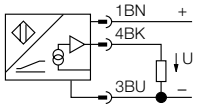


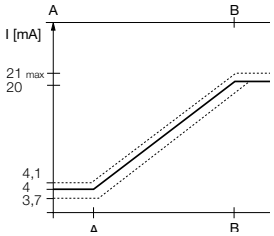
...LIU2...
Current and voltage output
4…20 mA + 2…10 V



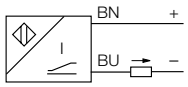


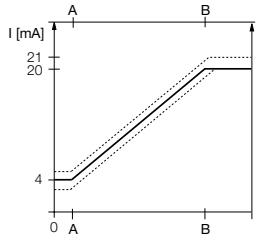
...LI2...
Current output
4…20 mA



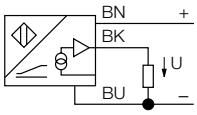


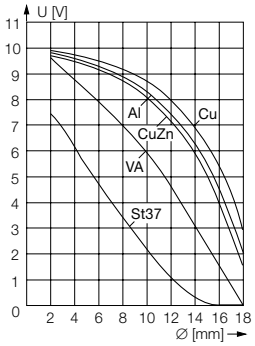
...Li-Exi...
Current output, intrinsically safe
4…20 mA



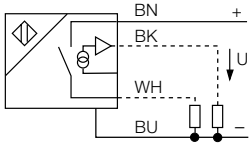


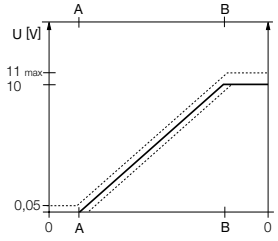
...LU...
Voltage output
0…10 V
Sensitivity curves for ring sensor,
Type Bi20R-Q14-LU





...LUAP6X...
Voltage output and
adjustable switching output
0…10 V + pnp





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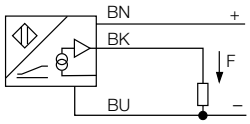
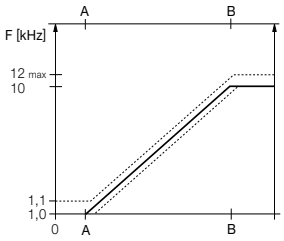
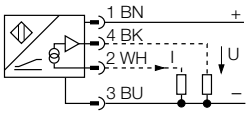
Sensors with linear analogue output – output types

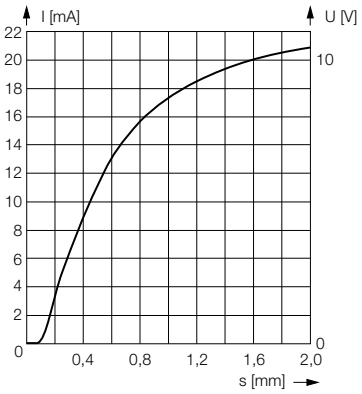
...LF...
Frequency output
1...10 kHz





...SiU...
Current and voltage output
0...20 mA + 0...10 V





4

Wiring diagrams

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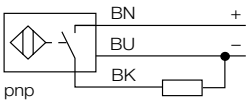

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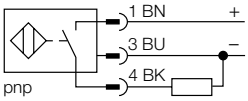

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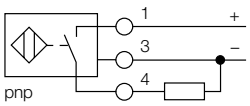

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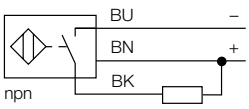

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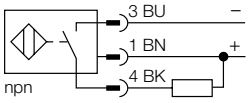

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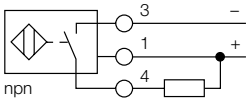

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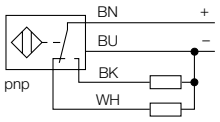

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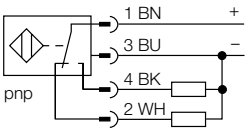

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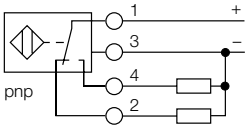

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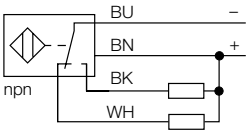

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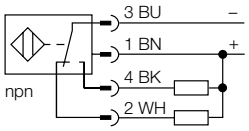

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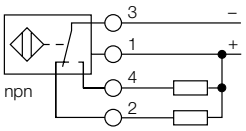

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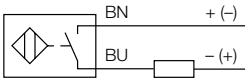

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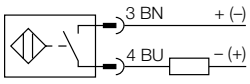

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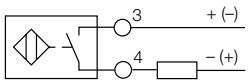

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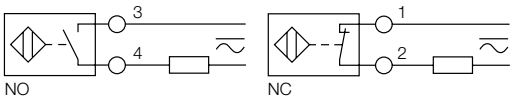

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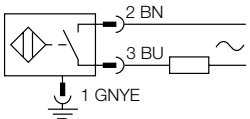

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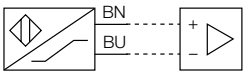

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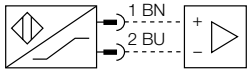

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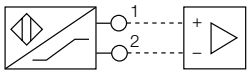

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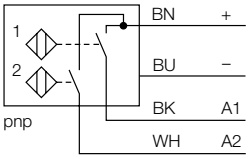

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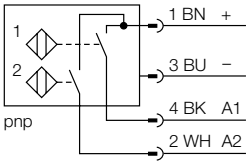

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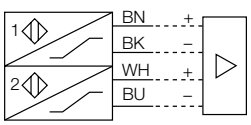

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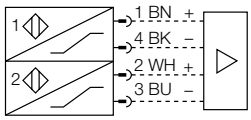

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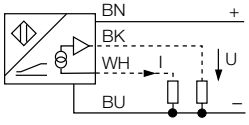

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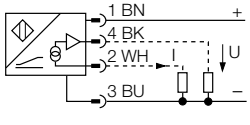

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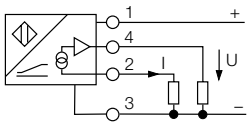

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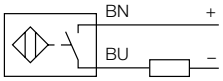

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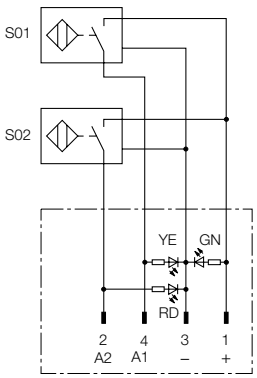

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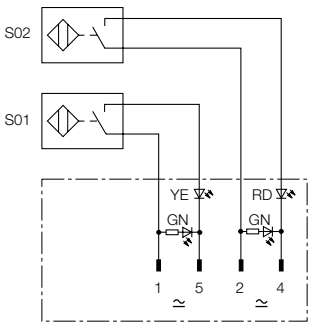

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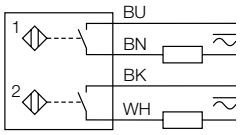

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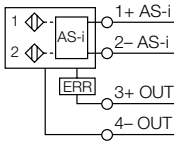

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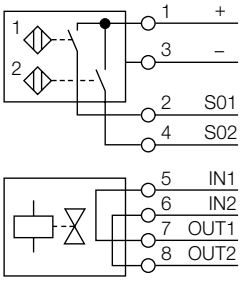

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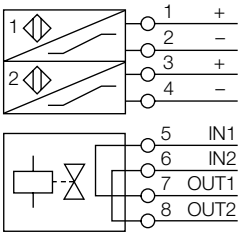

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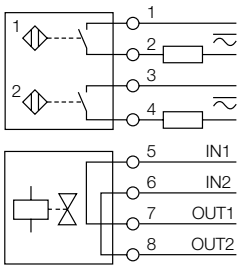

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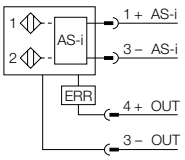

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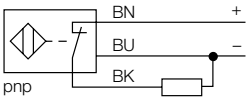

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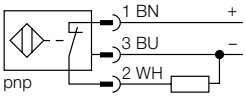

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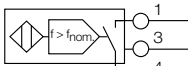

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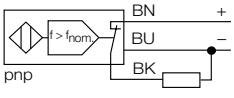

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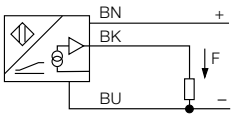

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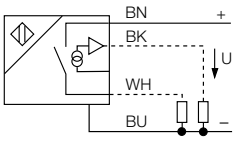

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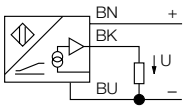

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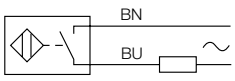

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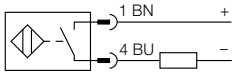

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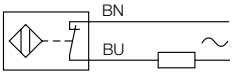
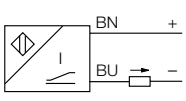


(S097)



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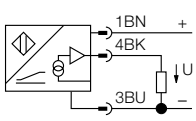
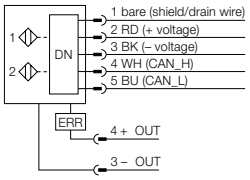


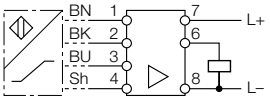
4

Wiring diagrams

(S131)



(S133)



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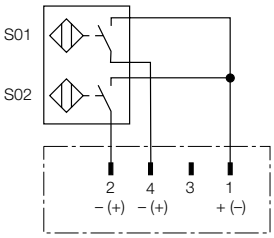

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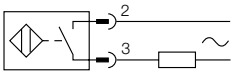

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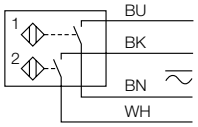

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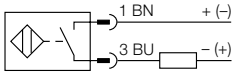

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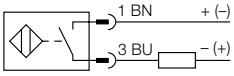

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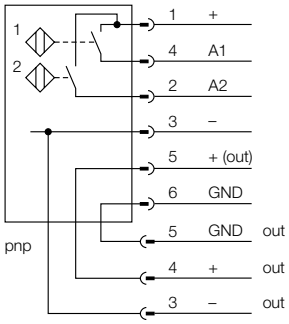

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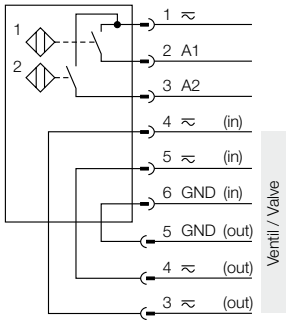
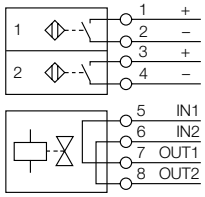


(S170)



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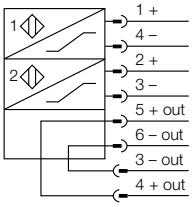

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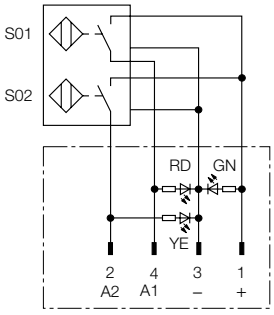

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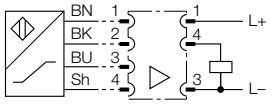

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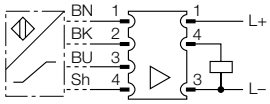

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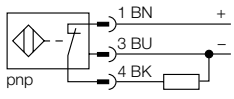

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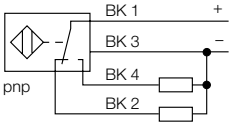

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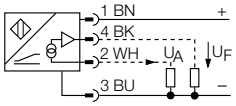

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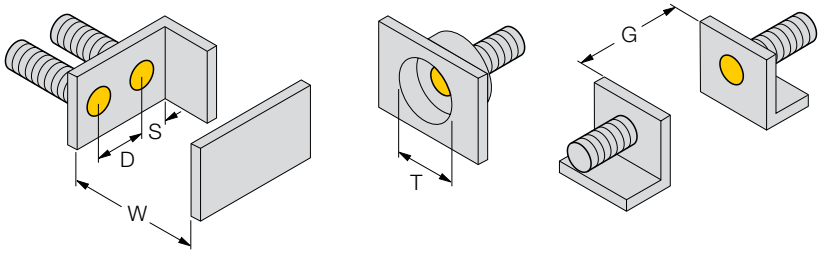
Cylindrical housings – minimum distances when mounted in metal[1)]

- **Flush mounting**

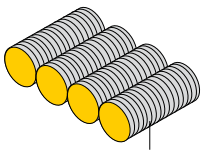


Sensor type	Barrel-Ø	D	S	W	T	G
Bi1 [4)]	3	6	4,5	3	9	9
Bi1	4	8	6	3	12	6
Bi1	5	10	8	3	15	6
Bi1,5	6,5	13	10	5	20	9
Bi2	6,5	13	10	6	20	12
Bi1,5U	8	16	12	5	24	9
Bi1,5	8	16	12	5	24	9
Bi2	8	16	12	6	24	12
Bi2	11	22	17	6	33	12
Bi2	12	24	18	6	36	12
Bi2U [2)]	6,5	13	10	6	20	12
Bi2U [3)]	8	16	12	6	24	12
Bi3U	12	24	18	9	36	18
Bi3	12	24	18	9	36	18
Bi4	12	24	18	12	36	24
Bi4U [3)]	12	24	18	12	36	24
Bi5U	18	36	27	15	54	30
Bi5U	20	40	30	15	60	30
Bi5	18	36	27	15	54	30
Bi7	18	36	27	21	54	42
Bi8U [3)]	18	36	27	24	54	48
Bi8	18	36	27	24	54	48
Bi10U	30	60	45	30	90	60
Bi10	30	60	45	30	90	60
Bi12	30	60	45	36	90	72
Bi15	30	60	45	45	90	90
Bi15U [3)]	30	60	45	45	90	90
Bi20	47	94	71	60	141	120
Bi25	47	94	71	75	141	150

Side-by-side mounting of different flush type sensors is permitted when combining the following types:

Sensor type 1
Bi4-M12-AP(N)6X...
Bi8-M18-AP(N)6X...
Bi15-M30-AP(N)6X...

Sensor type 2
Bi4U-M12-AP(N)6X...
Bi8U-M18-AP(N)6X...
Bi15U-M30-AP(N)6X...

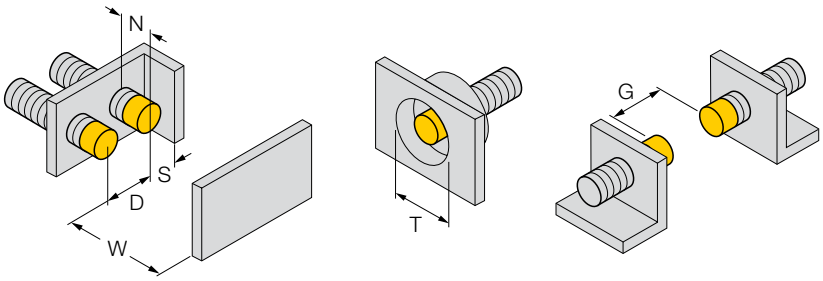


M12, M18, M30

1) Indications in mm
2) Non-flush mounting of 0.5 mm permitted
3) Recessed mounting by half turn of thread permitted
4) When mounted in ferro-magnetic materials the sensor must protrude 1 mm

Cylindrical housings – minimum distances when mounted in metal[1)]

- **Non-flush mounting/partially embedded**



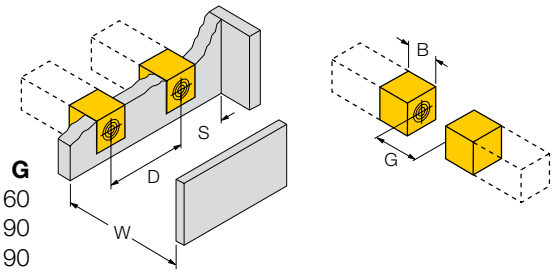
Sensor type	Barrel-Ø	D	S	W	T	G	N
Ni3	6,5	20	10	9	20	18	6
Ni3	8	24	12	9	24	18	6
Ni4 U	8	24	12	12	24	24	8
Ni4	8	24	12	12	24	24	8
Ni5	11	33	17	15	33	30	10
Ni4	12	36	18	12	36	24	8
Ni5	12	36	18	15	36	30	10
Ni6U[2)]	6,5	26	10	18	26	36	12
Ni6U[2)]	8	32	12	18	32	36	12
Ni7	18	54	27	21	54	42	14
Ni8 U	12	36	18	24	36	48	16
Ni8	12	36	18	24	36	48	16
Ni8	18	54	27	24	54	48	16
Ni10	18	54	27	30	54	60	20
Ni10U[2)]	12	36	18	30	36	60	16
Ni12U	18	54	27	36	54	72	20
Ni12U	20	60	30	36	60	72	24
Ni14	18	54	27	42	54	84	20
Ni15U[2)]	18	54	27	45	54	90	20
Ni10	20	60	30	30	60	60	20
Ni15	30	90	45	45	90	90	20
Ni20	34	105	51	60	105	120	20
Ni20	30	90	45	60	90	120	20
Ni20	40	120	60	60	120	120	40
Ni20U	30	90	45	60	90	120	25
Ni25	47	141	71	75	141	150	40
Ni30	40	120	60	90	120	180	40
Ni30U[2)]	30	90	45	90	90	180	25
Ni40	47	141	71	120	141	240	40

[1)] Indications in mm
[2)] Embedded mounting up to the upper edge of the thread permitted (see reduction of switching distance by max. 20 %)

Rectangular housings – minimum distances when mounted in metal[1)]

Housing types CA25 (25 x 25 mm), CA40/CK40/CP40 (40 x 40 mm)

- **Flush mounting**

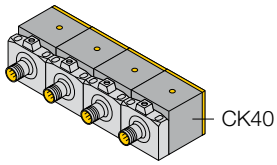


Housing type	Sensor type	B	D	S	W	G
CA25	Bi10 U	25	50	25	30	60
CP40/CK40	Bi15 U	40	80	40	45	90
CP40/CK40	Bi15	40	80	40	45	90
CP40/CK40/CA40	Bi20 U	40	80	40	60	120
CP40/CK40	Bi30 U	40	80	40	90	180

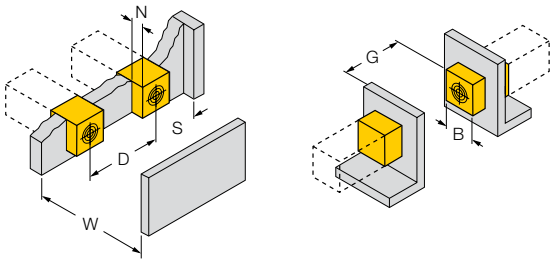
Side-by-side mounting of different flush type sensors is permitted when combining the following types:

Sensor type 1
Bi15-CP(CK)40-AP(N)...

Sensor type 2
Bi15U-CP(CK)40-AP(N)

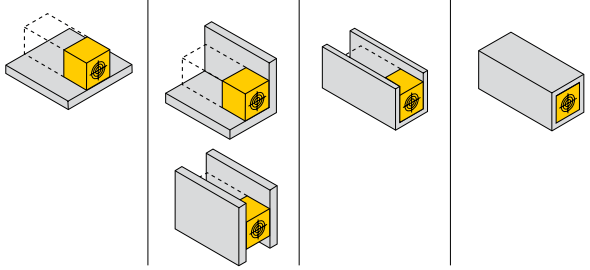


- **Non-flush mounting/partially embedded**



Partially embedding possible at effective operating distance S_r:

Housing type	Sensor type	B	D	S	W	G	N	1-side	2-side	3-side	4-side
CA25	Ni15U	25	75	38	45	90	25				
CP/CK40	Ni20	40	120	60	60	120	20				
CP/CK40	Ni25U	40	240	60	75	150	30	S_r = 22 mm [2)]	S_r = 20 mm [2)]	S_r = 17 mm [2)]	S_r = 13 mm [2)]
CP/CK40	Ni35U	40	120	60	105	210	30	S_r = 28 mm [2)]	S_r = 24 mm [2)]	S_r = 19 mm [2)]	S_r = 12 mm [2)]
CP/CK40	Ni35	40	160	60	105	210	40				
CP/CK40	Ni40U	40	240	60	120	240	40				
CP/CK40	Ni50U	40	240	60	105	300	30	S_r = 35 mm	S_r = 25 mm	S_r = 20 mm	S_r = 17 mm



[1)] Indications in mm
[2)] Only DC versions

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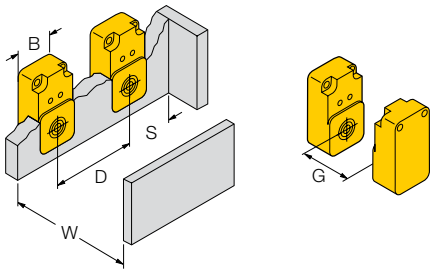
Rectangular housings – minimum distances when mounted in metal[1)]

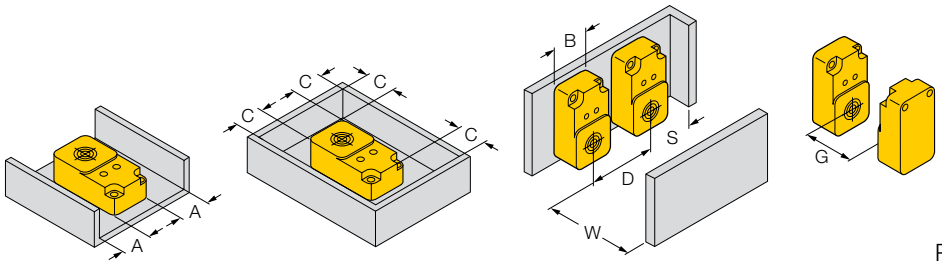
Housing types Q5,5, Q06, Q08, Q10, Q14, Q20, CP80, Q80, K90

- **Flush mounting**



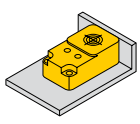
Housing type	Sensor type	B	D	S	W	G
Q5,5 (K)	Bi2	8	16	8	6	12
Q06	Bi3	17,3	35	17	9	18
Q08	Bi5	20	40	20	15	30
Q08	Bi5U	20	40	20	15	30
Q08	Bi7	20	40	20	21	42
Q10	Bi8U	25	50	25	24	48
Q14	Bi10	30	45	30	30	60
Q14	Bi10U	30	45	30	30	60
Q20	Bi15	40	60	40	45	90
Q20	Bi15U	40	60	40	45	90
CP80	Bi40	80	160	80	120	240
Q80	Bi50	80	160	80	150	300
Q80	Bi50U	80	160	80	150	300

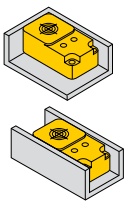
- **Non-flush mounting/partially embedded**



Partially embedding possible at effective operating distance S_r:

Housing type	Sensor type	B	D	S	W	G	A	C	1-side	2-side
Q5,5	Ni 3,5	8	24	12	11	21	4	7		
Q14	Ni 20	30	90	45	60	120	20	30		
Q20	Ni 25	40	120	60	75	150	25	40		
CP80	Ni 40	80	240	120	120	240	40	80		
CP80	Ni 50	80	240	120	150	300	50	80		
Q80	Ni 60	80	240	120	180	360	60	120	S_r = 50 mm	
Q80	Ni 70 U	80	240	120	210	420	70	80		
CP80	Ni 75 U	80	240	120	225	450	60	80		
K90	Ni 50	90	270	135	150	300	50	90		
K90	Ni 60	90	270	135	180	360	60	90		
K90	Ni100 U	90	270	135	300	600	100	90	S_r = 70 mm	





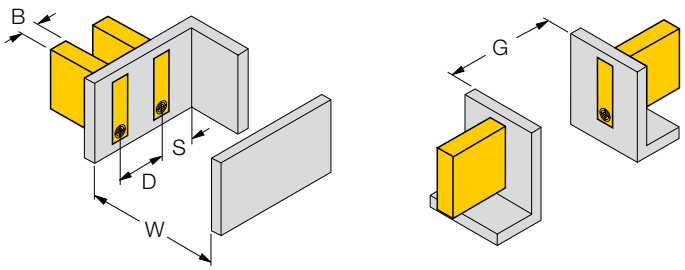
[1)] Indications in mm

4

Rectangular housings – minimum distances when mounted in metal[1)]

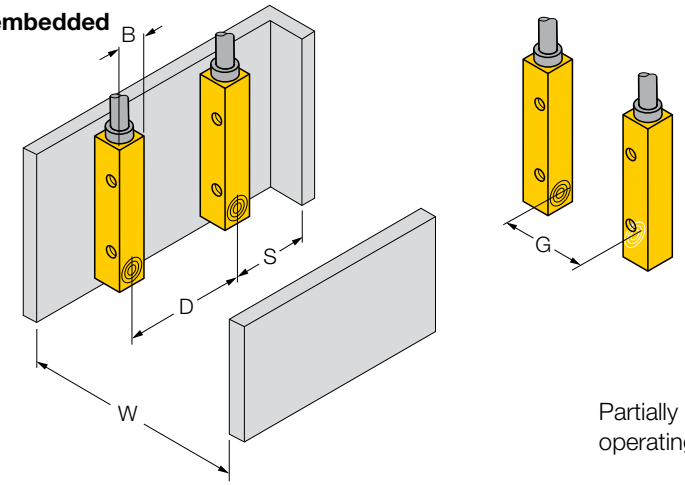
Housing types Q6,5, Q8SE, Q9,5, Q10S, Q11S, Q12, Q25, Q26, Q30, Q34

- **Flush mounting**



Housing type	Sensor type	B	D	S	W	G
Q5SE	Bi0,8	5	10	5	2,4	5
Q6,5	Bi1	6,5	13	7	3	6
Q10S	Bi2	10	20	10	6	12
Q12	Bi2	12	24	12	6	12
Q12	Bi5U	12	48	12	25	50
Q26	Bi10	26	52	26	30	60

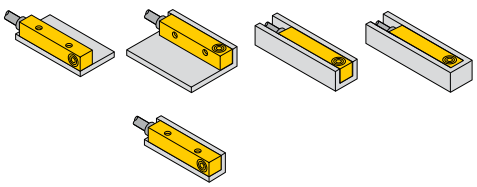
- **Non-flush mounting/partially embedded**



Housing type	Sensor type	B	D	S	W	G
Q6,5	Ni2	6,5	13	10	6	12
Q8SE	Ni4U	8	24	12	12	24
Q9,5	Ni2	9,5	19	14	6	12
Q12	Ni4	12	24	18	12	24
Q18	Ni5	18	54	27	15	30
Q25	Ni10	25	50	38	30	60
Q30	Ni15	30	60	45	45	90
Q130	Ni30	130	180	195	90	180

Partially embedding possible at effective operating distance S_r:

1-side	2-side	3-side	4-side
$S_r = 3.5$	$S_r = 3.0$	$S_r = 2.5$	$S_r = 2.0$
$S_r = 4$			



[1)] Indications in mm

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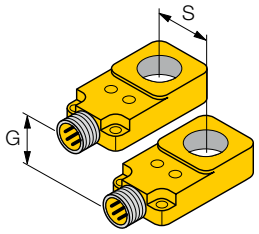
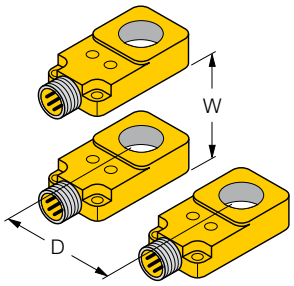
Ring sensors – minimum distances[1)]

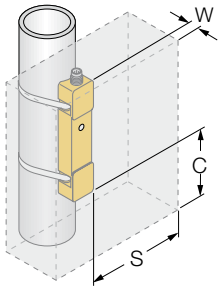


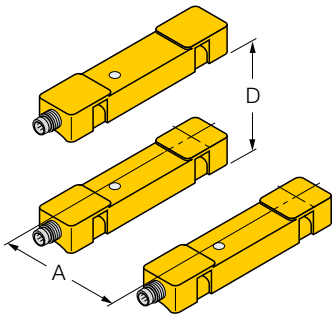


Housing style	G	S	W	D
Q14	30	14	45	30
Q20	40	20	55	55
W30	120	–	120	120
Q80	90	–	150	140
S32XL	–	–	240	290

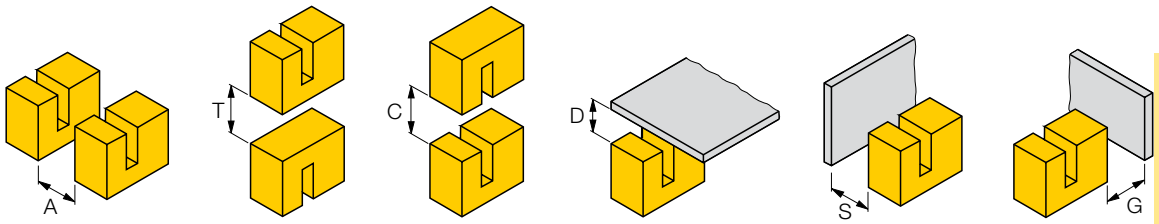
TS12 – Tube sensor – minimum distances[1)]

Mounting mode	
D	50 mm
W	35 mm
S	35 mm
A	42 mm
C	30 mm





Slot sensors – minimum distances[1)]



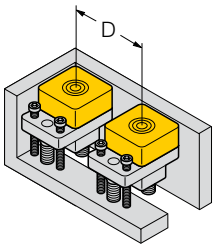
Housing type	A	T	C	D	S	G
Si2	15	5	15	0	0	0
Si3,5	15	5	15	0	0	0
Si5	10	0	5	0	0	0
Si15	30	10	30	5	5	5
Si30	30	0	30	10	10	10

[1)] Indications in mm

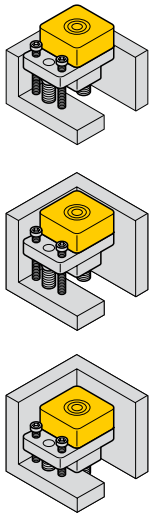
Rectangular housings – minimum distances when mounted in metal

Housing types Q40

- **Mounting instructions**
  Distance D



minimum distances
240 mm



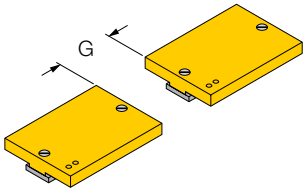
– Non-flush mounting S_r = 22 mm:
Arrange the depth of the screw-on surface so that the switching distance can be reduced to 10 mm using the height adjustment screw.

– Recessed mounting S_r = 19 mm,
1 mm beneath the tool contour:
Arrange the depth of the screw-on surface so that the switching distance can be reduced to 10 mm using the height adjustment screw.

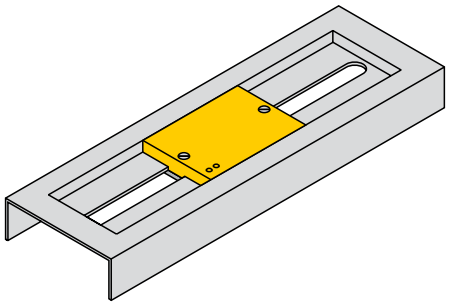
– Recessed mounting S_r = 21 mm,
11 mm beneath the tool contour:
The sensing range can be set above the tool contour by variation of the recessed mounting depth using the height adjustment screw.

Housing types QF15

- **Mounting instructions**
  Distance G



Minimum distances
80 mm

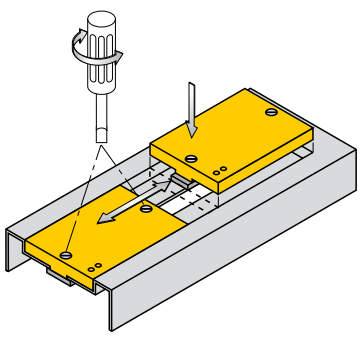


The sensor no longer requires a step plate but only a small metal recess.

To fit the sensor, the drawn metal should have a thickness of 3 mm and a 20 mm slot.

The sensor can be quickly and easily adjusted directly from above with slide fasteners.

Only 3-side flush mounting is possible
(4-sides including the rear side)



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Housing materials – Plastics

	Material	Features
ABS	Acrylnitril-Butadien-Styrol	Impact resistant, rigid
DURO	Duroplast	Excellent mechanical strenght and termperature resistance
EPTR	Thermoplastic rubber	Good mechanical strength, temperature and chemical resistance
LCP	Liquid crystal copolyester	Excellent stability, low thermal expansion, excellent chemical resistance and flame retardant properties (UL94-V0)
PA	Polyamide	Good mechanical strength, temperature resistance PA6/12 approved for the food industry
PA-T	Polyamide, Teflon-coated	Teflon-coated for protection against weld splatter
PA-X	Polyamide, irradiated	Excellent mechanical strength, high temperature resistance, PA6/12 approved for the food industry.
PBT	Polybutylenterephthalate	Excellent mechanical strenght and termperature resistance, good resistance against chemicals, flame retardant and self-extinguishing (UL94-V0), transparent and UV-resistant
PC	Polycarbonate	Impact resistant
FEP	Fluoropolymer	High temperature resistance, high abrasion resistance, resistant to acids, alcalis, solvents, lacquer, benzine and oils
ULTEM (PEI)	Polyetherimide	Excellent mechanical strenght and termperature resistance, good chemical resistance, flame retardant and self-extinguishing (UL94-V0), transparent and UV-resistant
PEEK	Polyethertetherketone	Good mechanical properties with high temperatures, high dimensional stability and chemical resistance
POM	Polyoxymethylene	High impact resistance, good mechanical and chemical resistance
PP	Polypropylene	Excellent chemical resistance, even against acids, alkalis and solvents. High temperature and mechanical resistance
PTFE	Teflon	Excellent high temperature and chemical resistance
PUR	Polyurethane	Elastic, abrasion-proof, impact resistant; oil, grease and solvent resistant
PVC	Polyvinylchloride	Good mechanical strength, impact and chemical resistance
PVDF	Polyvinylidenfluoride	High temperature resistance, good chemical resistance (similar to PTFE), high mechanical strength
Trogamid	Polyamide, transparent	Transparent, hard, rigid, good chemical resistance
VES	Vestamid (PA)	Good mechanical strength and excellent termperature resistance

Housing materials – Metals

	Metals	Features
AL	Aluminium	Low specific weight, good oxidation resistance
CuZn-Cr	Chrome-plated brass	Standard housing material
CuZn-OP	Brass, Optaloy-coated	Standard housing material
CuZn-T	Teflon-coated brass	Teflon-coated for protection against weld splatter
GD-Al	Aluminium, die-cast	Low specific weight, good long-life characteristics
GD-Zn	Zinc, die-cast	Long-life characteristics
SrFe	Strontium-Ferrite	Properties are similar to ceramic material with respect to rigidity and brittleness, good resistance to corrosion and chemicals
VA	Stainless steel	Excellent corrosion resistance, specified for high requirements of the food industry
VA-T	Stainless steel, teflon-coated	Teflon-coated for protection against weld splatter
V4A	Top-quality stainless steel	Excellent corrosion resistance, specified for high requirements, especially for the food industry

Sensor cables

Cable	Features	Code* (code is added to the standard type)
PVC cable jacket **PVC** wire insulation	Standard quality, fine-wire litz construction highly flexible (Li**f**YY)	
PUR cable jacket **PVC** wire insulation	Resistant to all industrial oils and lubricants. Fine-wire litz construction, resistant to vibration and bending stress; small bending radius	**…/S90**
Silicone cable jacket **Silicone** wire insul.	For use at high or low ambient temperatures (-50…+180 °C), moderate mechanical strength, average resistance to alkalis, acids, oils and solvents	**…/S140*** or **…/S120*** (+120 °C) SiHSi, 2 x 0.5 mm², 16 x 0.2 SiHSi, 3 x 0.5 mm², 16 x 0.2 SiHSi, 3 x 0.25 mm², 14 x 0.15
PTFE cable jacket **PTFE** wire insulation	Optimum resistance to high temperatures and chemicals	**…/S120*** (+120 °C) **…/S907*** (+160 °C) **…/S200*** (+200 °C)
FEP cable jacket **FEP** wire insulation	Suited for low temperature applications Temperature range -100 … +180°C	**…/S939** (-60°C)
„Ölflex“ **PUR** cable jacket **PVC** wire insulation	Good resistance to oils, extremely abrasion resistant and abrasion resistance, firm, antiseptic and hydrolysis resistant, temperature range -5…+70 °C	**…/S396** (underwater)
TPE cable jacket **TPE** wire insulation	Good temperature and chemical resistance (-40…+130 °C)	**..EG08../S100**

Glossary of terms

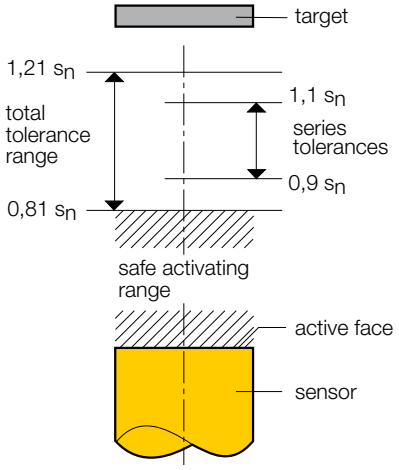

Fig. 1: Switching distances tolerances of inductive proximity switches

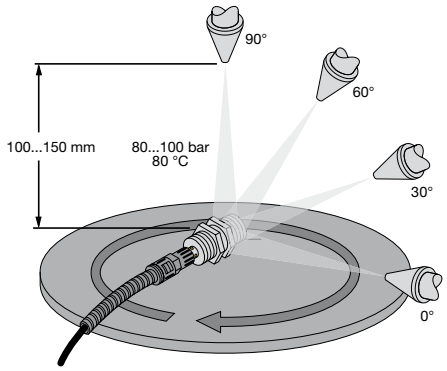

Fig. 2: Degree of protection IP69K

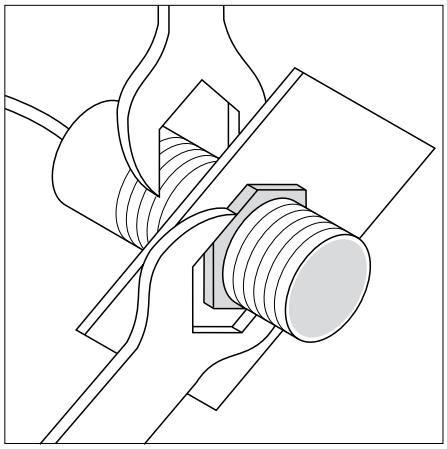

Fig. 3

Active face

- The point where the high-frequency magnetic field leaves the sensor. Regarding threaded barrel sensors, the active face is at the front (except sensors with HS housing) Concerning rectangular plastic sensors, the zone of the active face is either marked with a target or indicated in a different colour on the housing.

Assured sensing range(sa) (Fig. 1)

- Distance at which the sensor is securely actuated.
- Correlation to rated operating distancesa < 0.81 · S_n

Degree of protection (Fig. 2)

- Protection against the ingress of water or foreign matter, touch protection
- IP65: full protection against ingress of dust and water.
- IP67: full protection against ingress of dust and protection against submersion of water at 1 m depth for 30 minutes at constant temperature.
- IP68: including IP67
  – 24 hrs. continuous storage at +70 °C
  – 24 hrs. continuous storage at -25 °C
  – 7 days submersion, depth 1 m
  – 10 thermal shock changes from +70°C to -25°C, dwell cycle per temperature 1h:
- IP69K: suited for high pressure steam-jet cleaning according to DIN 40050-9, follow ing EN 60529 EN 60529 (Fig. 5)

Dynamic output:

- Sensors with dynamic output respond highly sensitive and create a short pulse upon damping (100 ms with TURCK sensors). This applies to ring sensors or the TS12.

Electromagnetic capability (EMC)

- Test and limit values for proximity switches are defined by the product standard EN 60947-5-2

Factor 1

- see Reduction factors

Fixing torque (Fig. 3)

- Concerning threaded barrel sensors, the maximum admissable fixing torque must be observed in order to avoid torsional stress.
- Depending on the housing type the following values apply:
  M5 = 5 Nm
  M8 = 10 Nm
  M12 = 10 Nm (MT12 = 7 Nm)
  M18 = 25 Nm (MT18 = 15 Nm)
  M30 = 75 Nm
  G47 = 90 Nm
  Values shown in the tables relate to the nuts that come with each sensor. If strong vibrations are likely, use liquid threaded fastener on anaerobic base (e.g. loctite 242).

Flush and non-flush mounting

- Sensors for flush mounting can be mounted in metal up to the active face, sensors for non-flush mounting have to protrude the metal.
- Non-flush mountable sensors have larger sensing ranges.
- Non-flush mountable *uprox*®+ sensors can be partially embedded because of the integrated self-compensation (see technical data)
- Flush mountable *uprox*®+ sensors for can be recessed because of the integrated self-compensation (see technical data)

Glossary of terms

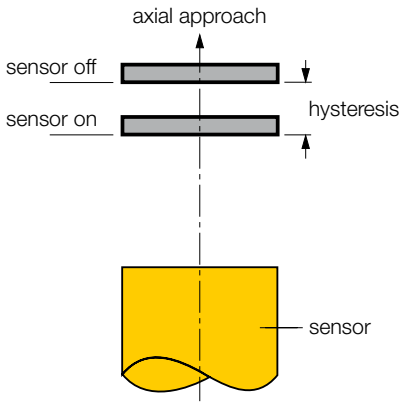

Fig. 4: Hysteresis H

Hysteresis (H) (Fig. 4)
- Differential between the switch-on and the switch-off point of the sensor with axial motion of the target relative to the active face
- Indicated as percentages of the rated operating distance (S_n)

Insulation groups (VDE 0110b)
The classification of insulation groups per VDE 0110 is determined by
- the application
- the decrease of insulation resistance caused by environmental influences such as dust, dirt, humidity, wetting, ageing and corrosion
- and the possible impacts of an insulation failure at the place of installation . Insulation group B comprises equipment for use in private, sales or business premises, Insulation group C comprises equipment which is used mainly in industrial, trading and agricultural locations, in unheated storage rooms, in workshops, in tanks, on tooling machinery etc.

Linearity deviation
- Sensors with analogue output:
  Admissable deviation of the output signal from an ideal linear curve, indicated in % off full scale of the output signal.

Magnetic field immune
- Magnetic-field immune sensors are insensitive to magnetic fields, as they occur in welding systems for example. All *uprox*®+ and *uprox*® sensors are immune to magnetic DC or AC fields due to their special function principle.

Measuring range
- Sensors with analogue output:
  The area in which changes of the measured variable (i.e. change of sensing range regarding inductive sensors) results into a change of the output signal.
  – indicated as absolute value (e.g. „4 mm“) or as distance to the sensor (e.g. „1 ... 5 mm“).
  – The basis for indication in % (e.g. determination of liniarity deviation) is always the absolute value.
- The standard target is a rectangular metal plate for determination of the rated operating distance sn
- Material: St37
- Thickness: 1 mm
- Edge lengths 3 · sn, if 3 · S_n is greater than the diameter of the active face, otherwise just the diameter of the active face.

Minimum operational current (I_m)
- Minimum current in a switch-on state to maintain the function.
- Indicated for 2-wire sensors only.

No-load current I (I_0)
- Current flow between supply voltage and 0 V.
- Indicated for 3 and 4-wire sensors only.

Off-state current (I_r)
- For 2-wire sensors: the current which flows in a non-active condition.
- For 3 and 4-wire sensors: The current which flows in a non-active condition between the output and 0 V (pnp output), i.e. between output and supply voltage (npn output).

Glossary of terms

Pollution degree
- § 6.1.3.2 of IEC 60947-1 defines 4 pollution degrees:
  Inductive sensoren by TURCK belong to category 3 as per IEC 60947-1: conductive or dry, non-conductive residue that becomes conductive due to condensation.

Predamping protection:
- Prevents predamping of non-flush sensors because of self-compensation at non-flush sensors
- Partial embedding of non-flush mountable sensors with reduced switching distances.

Rated operating current (I_e)
- Maximum load current

Rated operating distance (S_n)
- Is measured with axial approach of a standard target.
- Manufacturing tolerances and external influences are not considered.
- The tables only indicate the rated operating distance.

Readiness delay
- Inductive sensors made by TURCK feature a readiness delay of $t < 80$ ms. Thus failure pulses at the output are suppressed which might occur in the period between power-on and operational readiness of the sensor.

Real switching distance (S_r)
- Switching distance under fixed temperature and supply conditions
- Factory set tolerances are taken into account
- Correlation to rated operating distance
  $0.9 \cdot sn < sr < 1.1 \cdot sn$

Reduction factors (correction factors)
- *uprox*® and *uprox*®+ sensors have the same switching distance regardless of the metal type.
- The switching distance of inductive ferrite core sensors depends on the material of the actuating element. The maximum switching distance is reached with mild steel St37, whereas with other metals only smaller switching distances are achieved.
- The reduction factor indicates to which fraction the switching distance is reduced by using other metals than St37.
- Typical reduction factor values of ferrite core sensors:

Material	**Reduction factor**
Mild Steel (St37)	1
Brass	0.35...0.5
Copper	0.25...0.45
Alumuinium	0.35...0.50
Stainless steel	0.6...1

- *uprox*® and *uprox*®+ sensors have the same switching distance regardless of the metal type. The reduction factor is always 1.

Repeat accuracy
- Sensors with switching output (digital):
  Deviation of the switch point indicated in percentage after often repeated switching, under identical conditions and with the same sensor.

Glossary of term

Sensors with analogue output:
Change of the output value after 8 hours under the same conditions and with the same sensor. Value of the measured range indicated in percentage.

Reverse polarity protection
- Indicates if the sensor is protected agains connection errors.
  Inductive sensors made by TURCK for DC current and also the sensor versions „ADZ“ or „FDZ“ for AC current are fully reverse polarity protected. Connection errors related to polarity of the power supply and/or the output do not result into damages of the sensor.

Ripple
- Residual AC voltage superimposed on the DC supply voltage.
- Usually 10 % ripple (peak to peak) of the applied supply voltage is tolerable.

Static output
- Sensors with a static ouput produce a constant pulse as long as they are damped.
  In principle all standard inductive sensors have a static output; but the term is pre dominantly used with ring sensors. (see also Dynamic output).

Storage temperature
- The storage temperature may range from -30...+85 °C.
  If the ambient temperature range is higher, this value applies.

Surge current
- The surge current is the current which can flow through the output for a short time .

Switching distance (S)
- Distance at which a change of signal is produced with axial approach.

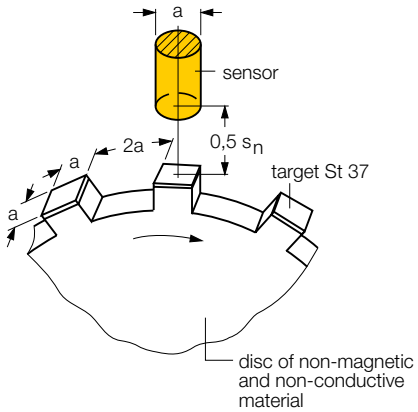

Fig. 5: Switching frequencies

Switch element function
- Normally open: (N.O.): output is open when the sensor is non-activated and closed when the sensor is activated.
- Normally closed (N.C.): output is closed when the sensor is non-activated and open when the sensor is activated.
- Complementary: one of the two outputs is closed when the sensor is non-acitvated and the other one when the sensor is activated.

Switching frequency (f) (Fig. 5)
- Maximum number of changes form the activated to the non-activated and back to the acitvated sensor state per second [Hz].
- Measured with the standard disc (see Fig. 4)
- Maximum switching frequency at an operating distance of $s = S_n/2$
  (with a standard disc)

Switch-on pulse suppression
- see Readiness delay

Temperature drift
- Alteration of the switching point or the output values in case of temperature changes.

Glossary of terms

Utilisation category
- The ultililsation category indicates the area in which the sensors can be applied. The IEC 60947-5-2 defines the category in relation to the correspondent rated current, rated voltage and the load current that has to be switched
  Inductive sensors by TURCK cover the following categories:
- Direct voltage DC-13: Control of electromagnets
- Alternate current AC-140: Control of smaller electromagnetic loads with holding current > 0.2 A

Usable operating distance (S_u)
- Operating distance which is guaranteed within the permitted temperature and voltage range
- Correlation to rated operating distance
  – 0.9 · sr < su < 1.1 · sr
  – 0.81 · sn < su < 1.21 · sn

Voltage drop (U_d)
- Voltage of a switched output

Weld-field immune
- see Magnetic field immune

Wire-break protection
- If the supply cable is cut, the output stays off (no malfunction).

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Standards and Directives (if relevant)

1) Standards

EN 60947-5-2
Low voltage switchgear and control-gear, Part 5: Control circuit devices and swithcing elements
Section 2: Proximity switches

EN 60079-0
Electrical apparatus for use in explosion hazardous locations
General requirements

EN 60079-11
Electrical apparatus for use in explosion hazardous locations
Intrinsic safety „i“

EN 60079-15
Electrical apparatus for use in explosion hazardous locations
Type of protection „n“

EN 61241-0
General requirements for electrical equipment applied in areas exposed to flammable dust

EN 61241-1
Electrical equipment for application in dust exposed areas, protected by housing

EN 61000-6-4
Electromagnetic compatibility (EMC)
Generic emission standard

EN 61000-6-2
Electromagnetic compatibility (EMC)
Generic immunity standard

EN 60529/IEC 60529/ DIN VDE 0470-1
Degrees of protection provided by enclosures (IP-Code)

EN 60947-5-6 (NAMUR)
Control circuit devices and switching elements, proximity sensors, DC-interface for proximity sensors and switching amplifiers (NAMUR)

IEC 61508 (SIL)
Functional safety of safety related / electronic/ programmable electronic systems

2) Directives

73/23/EWG
Low voltage
89/336/EWG
Electromagnetic compatibility (EMC)

2004/108/EG
CE-Marking

94/9/EG
Explosion protection (ATEX)

CE

The CE-sign is neither a seal of quality nor a test sign but serves for free trade within the European Community

By attaching the CE-sign to the products distributed, the manufacturer assures that the protective aims of the applicable directives are fulfilled for these products.

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Notice

Hans Turck GmbH & Co.KG • Witzlebenstraße 7 • D–45472 Mülheim/Ruhr • Tel. 0208 4952-0 • Fax 0208 4952-264 • www.turck.com

Notice

Approvals and declarations of conformity

Some sensors are intrinsically safe according to EN 60079-11. They cover the safety standards of the European Union (ATEX). Moreover, these sensors are also approved according to national safety standards of the following countries:

USA	FM
Kanada/USA	CSA
Rußland und GUS-Staaten	ISZ WE
China	NEPSI
Japan	T.I.I.S
International	IEC ex

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The individual approvals can be downloaded as PDF files (Acrobat Reader).

Special Features, Symbols, Materials

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	Special features	Description (see page)
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analog +	extended analogue measuring range	216
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	Materials (see page 334)		
ABS	Acrylnitril-Butadien-Styrol	PA-T	Polyamide, teflonised
AL	Aluminium	PBT	Polybutylenterephthalate
CuZn-Cr	Chrome-plated brass	PC	Polycarbonate
CuZn-Ni	Nickel-plated brass	POM	Polyoxymethylene
CuZn-OP	Brass, Optaloy-coated	PP	Polypropylene
CuZn-T	Teflon-coated brass	PTFE	Teflon (PTFE), Polytetrafluorethylene
DURO	Duroplast	PUR	Polyurethane
EPTR	Epoxyd resin	PVC	Polyvinylchloride
FEP	Fluorine ethylene propylene	PVDF	Polyvinylidenfluoride
GD-Al	Aluminium, die-cast	SrFe	Strontium-Ferrite
GD-CuZn	Brass, die-cast	Trogamid	Trogamide (PA amorphous)
GD-Zn	Zinc, die-cast	ULTEM	ULTEM (PEI), Polyetherimide
LCD	Liquid cristal copolyester	VA	Stainless steel
PA	Polyamide	VA-T	Stainless steel, teflonised
PA-X	Polyamide, irradiated	VES	Vestamide (PA)

	Symbols
	flush mounting
	non-flush mounting
	connector
0,5 m	0.5 cable connection
	terminal chamber connection
	normally open (N.O.)
	normally closed (N.C.)
	SPDT contact
K	short circuit proteced
program.	normally closed (N.C.)/normally open (N.O.) programmable via connection

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TURCK WORLD-WIDE HEADQUARTERS

GERMANY
Hans Turck GmbH & Co. KG
Witzlebenstraße 7
45472 Mülheim an der Ruhr
P. O. Box 45466 Mülheim an der Ruhr
Tel. +49 208 4952-0
Fax +49 208 4952-264
E-Mail more@turck.com

BAHRAIN
TURCK Middle East S.P.
P.O. Box 18370
Manama - Kingdom of Bahrain
Tel. +973 17 814920
Fax +973 17 814925
E-Mail
turckmiddleeast@turck.com

BELGIUM
Multiprox N. V.
P. B. 71
Lion d'Orweg 12
9300 Aalst
Tel. +32 53 766566
Fax +32 53 783977
E-Mail mail@multiprox.be

CZECH REPUBLIC
TURCK s.r.o.
Hradecká 1151
500 03 Hradec Králové 3
Tel. +420 49 5518-766
Fax +420 49 5518-767
E-Mail czech@turck.com

PR OF CHINA
TURCK (Tianjin) Sensor Co. Ltd.
18,4th Xinghuazhi Road,
Xiqing Economic
Development Area,
300381 Tianjin
Tel. +86 22 83988-188
83988-199
Fax +86 22 83988-111
E-Mail turcktj@public1.tpt.tj.cn

FRANCE
TURCK BANNER S.A.S
3, Rue de Courtalin
Magny-Le-Hongre
77703 Marne-La-Vallee Cedex 4
Tel. +33 1 6043-6070
Fax +33 1 6043-1018
E-Mail info@turckbanner.fr

GREAT BRITAIN
TURCK BANNER LIMITED
Blenheim House
Hurricane Way
Wickford, Essex SS11 8YT
Tel. +44 1268 578888
Fax +44 1268 763648
E-Mail info@turckbanner.co.uk

HUNGARY
TURCK Hungary kft.
Könyves Kalman Krt.76
1087 Budapest
Tel. +36 1 4770-740
Fax +36 1 4770-741
E-Mail hungary@turck.com

INDIA
TURCK India Automation Pvt Ltd.
A-603/604, ICC Trade Towers,
6th Floor, Senapati Bapat Road,
Pune - 411016,
Maharashtra - India
Tel. + 91 20 25630039
25630040
Fax + 91 20 25630040
E-Mail sales.india@turck.com

ITALY
TURCK BANNER S. R. L.
Via S.Domenico, 5
20010 Bareggio (MI)
Tel. +39 02 90364-291
Fax +39 02 90364-838
E-Mail info@turckbanner.it

JAPAN
TURCK Japan Corporation
#202 MBD Bldg. 2F, 3-3-23,
Minami-Aoyama,
Minato-ku, 107-0062, Tokyo,
Japan
Tel. + 81 3 57722820
Fax + 81 3 34082571
E-Mail info@turck.jp

KOREA
TURCK Korea Co. Ltd.
Room No 406, Gyeonggi
Technopark
1271-11, Sa 1-Dong,
Sangnok-Gu, Ansan-city,
Gyeonggi-Do, Korea
Tel. +82 31 5004-555
Fax +82 31 5004-558
E-Mail sensor@sensor.co.kr

MEXICO
TURCK Mexico S. DE R.L. DE C.V.
Carr. Saltillo-Zacatecas km 4.5 s/n
Parque Industrial "La Angostura"
Saltillo, COAH. 25070
Tel. +52 844 4826-924
Fax +52 844 4826-926
E-Mail ventasmexico@turck.com

THE NETHERLANDS
TURCK B. V.
Postbus 297
8000 AG Zwolle
Tel. +31 38 4227-750
Fax +31 38 4227-451
E-Mail info@turck.nl

POLAND
TURCK sp.z o.o
Zeromskiego 1
45-053 Opole
Tel. +48 77 4434-800
Fax +48 77 4434-801
E-Mail poland@turck.com

ROMANIA
TURCK Automation Romania SRL
Str. Iuliu Tetrat nr. 18 Sector 1
011914 Bukarest
Tel. +40 21 2300279
2300594
Fax +40 21 2314087
E-Mail: romania@turck.com

RUSSIA
TURCK Rus O.O.O.
Altufyevskoe shosse, 1/7
127106 Moskau
Tel. +7 495 2342661
Fax +7 495 2342665
E-Mail russia@turck.com

SINGAPORE
TURCK Singapore Pte. Ltd.
25 International Business Park
#03-22/23 German Centre
609916 Singapore
Tel. +65 65628716
Fax +65 65628719
E-Mail singapore@turck.com

USA
TURCK Inc.
3000 Campus Drive
Minneapolis, MN 55441-2656
Tel. +1 763 553-9224
553-7300
Fax +1 763 553-0708
E-Mail mailbag@turck.com

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