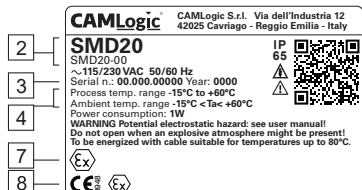


Operating and maintenance instructions for digital revolution monitor SMD20

PRODUCT IDENTIFICATION

The standard SMD20 is a rotational speed monitor designed to supervise the speed of a transmission shaft, while the SMD20VN version is specifically designed to monitor the speed of a conveyor belt by direct contact with the belt itself.

The device is identified by the label on the side of the case, the characteristics of which are given below:



1. Manufacturer information
2. Product model and reference code for the specific configuration
3. Serial number and year of production
4. Ambient and process temperature range
5. QR code leading to the specific configuration and IP rating
6. Usage warnings
7. Markings and certificate numbers
8. Conformities and certification symbols

Tampering with the label voids certifications and warranty.

PRODUCT CHARACTERISTICS

Materials:	casing and cover in die-cast aluminium
Connection to process:	standard direct connection, 4 $\varnothing 6$ equidistant holes on $\varnothing 90$ mm pitch circle diameter, for SMD20 standard bracket connection, 2 $\varnothing 8,5$ holes at 70 mm, for SMD20VN
Cable entry:	2x G 1/2 (BSPP)
Power supply voltages:	115/230 and 24/48 VAC 50/60 Hz or 24 VDC
Power consumption:	1,6 W
Cables size:	0,5 ÷ 2,5 mm ² (14 AWG)
Contacts capacity:	5A at 250 VAC
Signal output:	SPDT
Process temperature:	-15 ÷ +60°C (5 ÷ 140°F)
Ambient temperature:	-15 ÷ +60°C (5 ÷ 140°F)
Max process pressure:	0,8 ÷ 1,1 bar (11,6 ÷ 15,9 psi)
Protection rating:	IP65 (dust-tight, protection against water jets)
Means of protection:	class I (PE connected) - overvoltage category II
Environmental conditions:	indoor and outdoor use, altitude up to 2000 m (6.562 ft), max. relative humidity 80% for temp. up to 31°C (88°F) decreasing linearly to 50% at 40°C (104°F), pollution degree 2

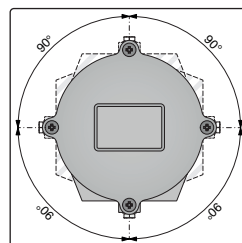
INSTALLATION

The SMD20 can be installed in any position, as long as the cable entry is turned at 90° intervals, as shown in the side image.

The instrument can be mounted via direct connection, using the M6 threads on the front of the housing, or via a flange, or even with the special aluminium bracket. The bracket is standard on the SMD20VN. The specific dimensions of the different connections are shown in the reference figures, and the choice of connection depends on the structural characteristics of the machine to which the revolution monitor is connected. The type of connection can, however, be modified afterwards since both the flange and the bracket are fixed to the body of the instrument by the threaded holes of the direct connection, which means no modification is necessary.

Connection to the spinning shaft is usually made via the coupling provided by the manufacturer. In any case, the coupling must be compatible with the dimensions of the device shaft and allow for a small amount of axial clearance to compensate for any misalignment.

Please note: the supplied plastic coupling is not suitable for power transmission. It is designed only to transmit motion (rotation) from the shaft to the sensor, not mechanical power or torque.



WIRING

The entire connection of the device must take place while the device is de-energized. On the device there are two terminals for the protective earth connection, marked by the relative symbols (IEC 60417): one inside the casing and one outside, in proximity of the cable entry. The earthing connection, by means of an M5x8 screw and a notched stainless-steel washer, must take place before any other connection is established. The cross-sectional area of the protective earth (PE) conductor must be the same as that of the phase conductor (S), with a maximum of 16 mm².

	110/220 AC	24/48 AC	24 DC
1	Neutral	Neutral	-24V
2	110V	24V	+24V
3	220V	48V	unused
4	Normally closed		
5	Common (max. 5A/250V)		
6	Normally open		

1	2	3	4	5	6
POWER SUPPLY			SIGNAL OUTPUT		

Connect both earthing terminals to the ground. Protect the cables with an overload protection element (rated current $\leq 5A$). A disconnect switch must be present near the device, to cut off power supply in the event of fault. The wiring diagram shown in the image on the previous page is also printed on the wiring label, by the terminal block.

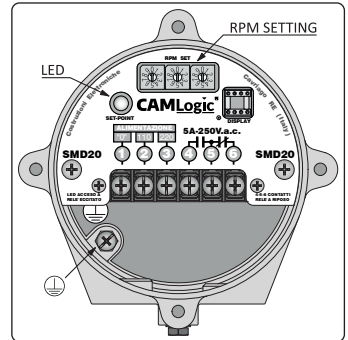
CONFIGURATION

The instrument needs to be set for the desired number of rounds per minute (set-point) through the 3 numbered selectors located inside the casing. Since the measuring range of the SMD20 goes from 1 to 999 rounds per minute (approximately equal to $\sim 0,5 \div 990$ mm/s for the SMD20VN), the selectors represent hundreds, tens and units from left to right.

Once the set-point has been set and the device is powered up, the relay is energized and the LED will remain lit for 10 seconds. This time interval is used to allow the controlled machine to reach operating speed and keep the relay energized.

If the number of revolutions to be controlled is correctly set, switching of the relay changeover contact (LED illuminated) is obtained for detected revolutions equal to or higher than the set value (set-point) on the selectors.

Should the revolutions fall below the set-point, the relay will become de-energised and the LED will switch off. The frequency of the update of the detected revolutions is set to occur every two seconds, which corresponds to the maximum time delay to relay energisation when the set-point is reached. The delay to de-energising the relay, when the revolutions fall below the set-point, is a maximum of two seconds.



SAFETY WARNINGS

All the operations described in the documentation must be carried out only by qualified personnel authorized by the plant manager, adopting all the appropriate safety precautions to reduce the risk of fire, electric shock and personal injury.

Before installation, perform a visual inspection of the device to make sure that it did not suffered any damage during transport or storage. If anomalies are found, the product must be sent to the Manufacturer for restoration of efficiency.

The operational safety of the device is guaranteed only by use in accordance with the regulations, the instructions for use and any additional instructions.

Arbitrary transformations or modifications are categorically prohibited. In the event of improper or non-intended use, the device can be a source of dangers related to the specific application, or damage to the plant due to incorrect assembly or configuration. Verify that the power supply system complies with the standards, with an automatic protection switch incorporated.

Any control, cleaning, maintenance, change or replacement of parts must be carried out with the indicator disconnected and the plug disconnected from the power supply.

SPECIFIC CONDITION FOR USE OF ATEX MODELS

⚠ It is necessary for the operator to refer to this documentation to preserve the protection afforded by the equipment!

In accordance with Directive 1999/92/EC / DSEAR 2002, it is the responsibility of the user to ensure that the equipment, used in areas where explosive atmospheres might be present, is maintained in such a way as to reduce the risk of explosion. The installation must be carried out in compliance with IEC 60079-14.

Seal the cable entry with a cable gland certified for the protection method, in compliance with the Directive 2014/34/EU / S.I. 2016 No. 1107, able to guarantee a minimum ingress protection (IP) of 65. The plastic protective caps supplied with the level indicator are not suitable for use in explosive atmospheres and it is responsibility of the installer to replace them.

The device is not explosion-proof when the casing is open. After the installation, check that you have completely tightened the cover screws and that you have properly tightened the cable gland, before starting the device.

The maximum surface temperature is calculated taking into account a safety margin, but without considering a possible dust deposit on the equipment.

MAINTENANCE

The SMD20, used appropriately in normal operating conditions, does not require any maintenance.

The unit must not be lubricated. The shaft, the only moving part, is mounted on ball bearings with permanent lubrication.

REPAIRS

The SMD20 digital revolution monitor can only be repaired by the CAMLogic manufacturer or by following the manufacturer's instructions. If in doubt about malfunctions or repairs, contact the manufacturer:

CAMLogic S.r.l. - Via dell'Industria 12-12/A - 42025 Cavriago (RE) - Italy (camlogic@camlogic.it - www.camlogic.it).

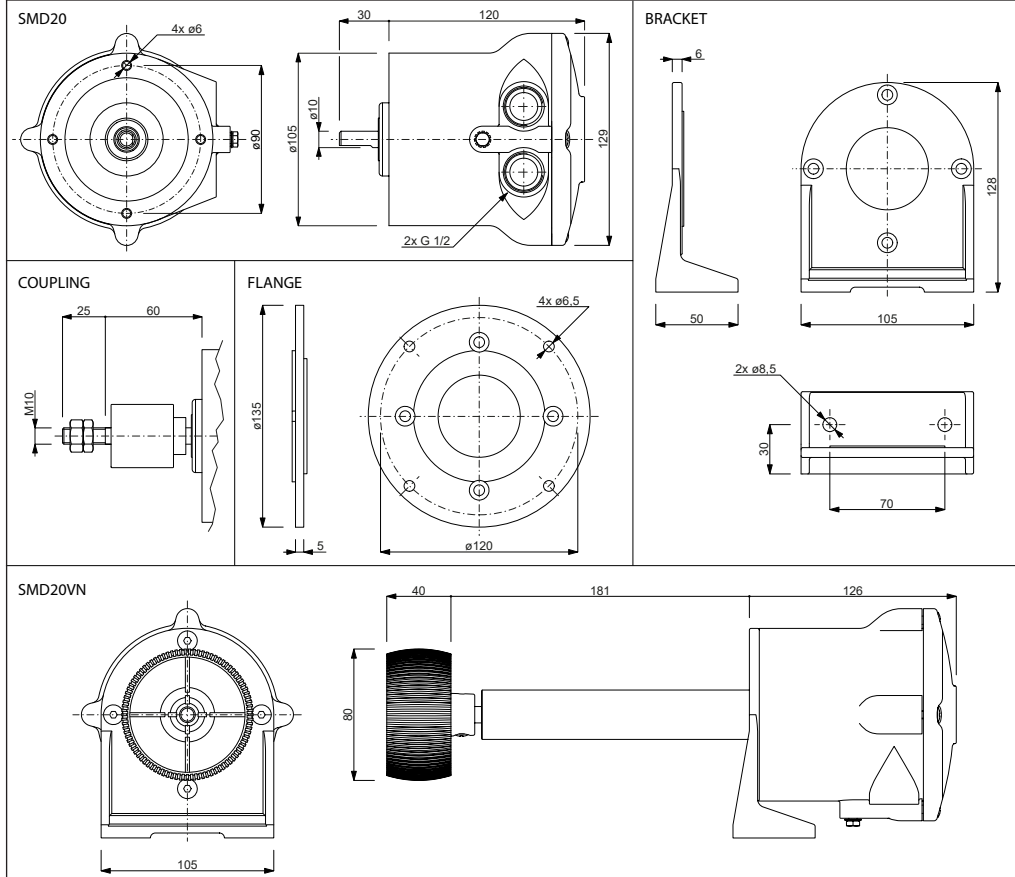
WARRANTY

CAMLogic, in addition to the terms of the supply contract, guarantees its products for a period of twenty-four (24) months from the date of shipment.

This warranty is expressed exclusively in the repair or replacement, free of charge, of those parts which, after careful examination by the manufacturer, are found to be defective.

The warranty, excluding any liability for direct or indirect damages, is limited to material defects only and has no effect if the returned parts are found to have been in any way disassembled, tampered with or repaired by anyone other than the manufacturer. Also excluded from the warranty is damage resulting from negligence, carelessness, incorrect or improper use of the level indicator, operator mishandling or improper installation.

REFERENCE FIGURES



The warranty is also void if non-original spare parts have been used. A returned level indicator, even if under warranty, must be shipped freight prepaid.

Ex MARKING DETAILS

The **SMD20** digital revolution monitor is available with **ATEX certification** for Zone 21.

The **SMD20VN** version is only available without certification.

Ex	II	2D	Ex	tD	A21	IP65	T87°C	ATEX MARKING for dusts, Zone 21
								European Community marking for equipment intended for use in areas at risk of explosion.
								Group II equipment intended for use in surface industry.
								Category 2: suitable for use in areas classified as Zone 21.
								D: combustible dusts - combustible substance present in the installation area and in the internal volume.
								Ex symbol.
								Protection by enclosure for explosive dust atmospheres.
								Hazardous area. Zone 21: where combustible dusts are present and where an explosive atmosphere is likely to occur occasionally during normal operation.
								IP65 (Ingress Protection) - 6 = dust-tight, no dust ingress;
								5 = protected against water jets, limited ingress protection.
								Temperature class (max. surface temperature reached by the device)

Learn more about the product and find drawings of each model on our website.



Symbol	Reference	Description
	IEC 60417-5031 (2002-10)	Direct current
	IEC 60417-5032 (2002-10)	Alternating current
	IEC 60417-5019 (2006-08)	Protective earth / protective ground
	IEC 60417-6042 (2010-11)	Caution: risk of electric shock
	ISO 7000-0434B (2004-01)	Caution: if the instrument is used in a manner not specified by the manufacturer, the protection offered by the equipment may be impaired.

Please note: the printed version of this manual may not reflect the most recent changes.

Please always refer to the updated digital version available on the official CAMLogic website: www.camlogic.it