



"DAT3000 SERIES" data acquisition and control modules

The distributed I/O modules of the DAT3000 series represent a complete solution for the acquisition and control of the analog and digital I/O signals. The series is composed of:

- Serial line converters and repeaters (**DAT3580, DAT3580 USB, DAT3580 MBTCP, DAT3590**).
- Modules for digital inputs and outputs (**DAT3130, DAT3140, DAT3148/8, DAT3148/12, DAT3188/4, DAT3188/8**).
- Modules for analog inputs (**DAT3011, DAT3014, DAT3015, DAT3016, DAT3017, DAT3018, DAT3019**).
- Modules with analog outputs (**DAT3022, DAT3024, DAT3028**).

The devices communicate on the RS-485 serial line by the MODBUS RTU communication protocol and are able to communicate with the host computer on multipoint net using only two wires.

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DAT3000 SERIES Data acquisition and control modules

DAT 3580



GENERAL DESCRIPTION

The device DAT3580 is an isolated interface converter between asynchronous serial lines RS232 and RS485 or RS422 that guarantees a full isolation between power supply, serial line RS-232 and serial line RS-485 or 422 removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions. It is designed to operate either on serial interface RS-422 full-duplex 4 wires or RS485 half-duplex 2 wires, with a baud-rate transmission up to 115.2 Kbps. The transmission is asynchronous without settings of protocol, data format and baud rate. On the line RS-232 are not necessary handshake commands (RTS, CTS, etc..) to control the baud rate.

FEATURES

- Asynchronous serial data transmission
- Automatic baud-rate fitting up to 115.2 Kbps
- Distance up to 1200 m
- Point to point connection or multipoint connection up to 32 modules
- DC or AC power supply
- Galvanic isolation on all ways
- RS232 connection on DB9 or removable terminals
- EMC compliance – CE mark
- EIA RS232, RS485 and RS422 compliant
- Suitable for DIN rail mounting in compliance with EN-50022



Application areas



POWER SUPPLY

10 ÷ 30 Vdc
9 ÷ 18 Vac (18 ÷ 30 Vac optional)

CURRENT CONSUMPTION

35 mA typ. @ 24Vdc

ISOLATIONS

Power Supply/ RS232	2000 Vac, 50 Hz, 1 min.
Power Supply/ RS485-422	
RS232 / RS485-422	

TEMPERATURE & HUMIDITY

Operative temperature	-20°C ÷ +60°C
Storage temperature	-40°C ÷ +85°C
Humidity (not condensed)	0 ÷ 90 %

EMC (for industrial environments)

DIRECTIVE 2004 / 108 / EC

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

HOUSING

Material	Self-extinguishing plastic
Mounting	DIN rail
Dim. (mm)	W x L x H : 120 x 100 x 22.5
Weight	About 150 g.

CONNECTION

RS-232	DB9 and removable screw terminals
RS-485/422	removable screw terminals

RS485 Interface

Baud-rate	up to 115.2 Kbps
Max. distance / baud-rate ratio (recommended) (1)	1.2 Km @ 38400 bps
	2 Km @ 19200 bps
	3 Km @ 9600 bps
	4 Km @ 4800 bps
	7 Km @ 1200 bps
Number of modules in multipoint	32 max.
Switching time TX/RX (RS485)	150 us.
Internal terminator resistance (optional)	120 Ohm (optional)

(1) = The maximum distance depends of: number of devices connected, type of cabling, noises, etc...

DAT3000 SERIES

DAT 3580-USB



GENERAL DESCRIPTION

The device DAT3580-USB is an isolated interface converter between USB port and asynchronous serial lines RS485 or RS422 that guarantees a full isolation between power supply, USB and serial line RS-485 or 422 removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions. It is designed to operate either on serial interface RS-422 full-duplex 4 wires or RS485 half-duplex 2 wires, with a baud-rate transmission up to 115.2 Kbps. The transmission is asynchronous without settings of protocol, data format and baud rate.

FEATURES

- Asynchronous serial data transmission
- Automatic baud-rate fitting up to 115.2 Kbps
- Distance up to 1200 m
- Point to point connection or multipoint connection up to 32 modules
- DC or AC power supply
- Galvanic isolation on all ways
- EMC compliance – CE mark
- USB 2.0. EIA RS485 and RS422 compliant
- Suitable for DIN rail mounting in compliance with EN-50022



Application areas



POWER SUPPLY

10 ÷ 30 Vdc
9 ÷ 18 Vac (18 ÷ 30 Vac optional)

CURRENT CONSUMPTION

35 mA typ. @ 24Vdc

ISOLATIONS

Power Supply/ USB	2000 Vac, 50 Hz, 1 min.
Power Supply/ RS485-422	
USB / RS485-422	

TEMPERATURE & HUMIDITY

Operative temperature	-20°C ÷ +60°C
Storage temperature	-40°C ÷ +85°C
Humidity (not condensed)	0 ÷ 90 %

EMC (for industrial environments)

DIRECTIVE 2004 / 108 / EC

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

HOUSING

Material	Self-extinguishing plastic
Mounting	DIN rail
Dim. (mm)	W x L x H : 120 x 100 x 22.5
Weight	About 150 g.

CONNECTION

USB	USB cable integrated
RS-485/422	removable screw terminals

RS485 Interface

Baud-rate	up to 115.2 Kbps
Max. distance / baud-rate ratio (recommended) (1)	1.2 Km @ 38400 bps
	2 Km @ 19200 bps
	3 Km @ 9600 bps
	4 Km @ 4800 bps
	7 Km @ 1200 bps
Number of modules in multipoint	32 max.
Switching time TX/RX (RS485)	150 us.
Internal terminator resistance (optional)	120 Ohm (optional)

(1) = The maximum distance depends of: number of devices connected, type of cabling, noises, etc...

ETHERNET ISOLATED GATEWAY MODBUS TCP ↔ MODBUS RTU

DAT 3580-MBTCP



GENERAL DESCRIPTION

The gateway DAT3580-MBTCP allows to connect the Modbus RTU devices of a RS-485 network to the Ethernet network through the Modbus TCP protocol. By means of the Telnet interface it is possible to configure all the Modbus TCP side options (IP address, subnet mask, etc..) and the Modbus RTU side options (baud rate, etc...). The device guarantees a full isolation between lines, allowing the use even in the heavy environmental conditions.

FEATURES

- Network interface
- Ethernet 10/100Base-T, Modbus TCP
- Telnet configuration
- RJ45 connection
- RS-485 Serial interface
- Modbus RTU Master
- Baud rate up to 115.2 Kbps
- Distance up to 1200 m, up to 32 devices in multipoint
- Removable screw-terminal connection
- LED signalling for Link/Act Ethernet, serial RX-TX, power supply
- Galvanic Isolation on all ways
- EMC compliance – CE mark
- Ethernet IEEE 802.3 and RS485 compliant
- Suitable for DIN rail mounting in compliance with EN-50022



Application areas



POWER SUPPLY

18 ÷ 30 Vdc

CURRENT CONSUMPTION

45 mA typ. @ 24Vdc (sleep mode)

80 mA max

ISOLATIONS

Power Supply/ Ethernet	1500 Vac, 50 Hz, 1 min.
Power Supply/ RS485	2000 Vac, 50 Hz, 1 min.
Ethernet / RS485	2000 Vac, 50 Hz, 1 min.

TEMPERATURE & HUMIDITY

Operative temperature	-20°C ÷ +60°C
Storage temperature	-40°C ÷ +85°C
Humidity (not condensed)	0 ÷ 90 %

EMC (for industrial environments)

DIRECTIVE 2004 / 108 / EC

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

HOUSING

Material	Self-extinguishing plastic
Mounting	DIN rail
Dim. (mm)	W x L x H : 120 x 100 x 22.5
Weight	About 150 g.

CONNECTION

Ethernet	RJ-45
RS-485	removable screw terminals

Network interface

Ethernet 10/100 Base-T

Protocol

Modbus TCP

Connection

RJ-45

Baud-rate (RS-485)

up to 115.2 Kbps

Max. distance / baud-rate ratio (recommended) (1)

1.2 Km @ 38400 bps
2 Km @ 19200 bps
3 Km @ 9600 bps
4 Km @ 4800 bps
5 Km @ 2400 bps
7 Km @ 1200 bps

Number of modules in multipoint

32 max.

Switching time TX/RX (RS485)

150 us.

Internal terminator resistance (optional)

120 Ohm (optional)

(1) = The maximum distance depends of: number of devices connected, type of cabling, noises, etc...

REPEATER/ ISOLATOR RS485 / 422

DAT 3590



GENERAL DESCRIPTION

The device DAT 3590 is an isolated repeater between asynchronous serials lines RS485 or RS422 that guarantees a full isolation between power supply and serial line removing eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions. It is designed to operate either on serial interface RS-422 full-duplex 4 wires or RS485 half-duplex 2 wires, with a baud-rate transmission up to 115.2 Kbps. The transmission is asynchronous without settings of protocol, data format and baud rate.

FEATURES

- Asynchronous serial data transmission
- Automatic baud-rate fitting up to 115.2 Kbps
- Distance up to 1200 m
- Point to point connection or multipoint connection up to 32 modules
- DC or AC power supply
- Galvanic isolation
- EMC compliance – CE mark
- EIA RS485 and RS422 compliant
- Suitable for DIN rail mounting in compliance with EN-50022



Application areas



POWER SUPPLY

10 ÷ 30 Vdc

9 ÷ 18 Vac (18÷24 Vac optional)

CURRENT CONSUMPTION

35 mA @ 24Vdc

ISOLATIONS

Power Supply/ RS485-422	2000 Vac, 50 Hz, 1 min.
RS485-422 / RS485-422	2000 Vac, 50 Hz, 1 min.

TEMPERATURE & HUMIDITY

Operative temperature	-20°C ÷ +60°C
Storage temperature	-40°C ÷ +85°C
Humidity (not condensed)	0 ÷ 90 %

EMC (for industrial environments)

DIRECTIVE 2004 / 108 / EC

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

HOUSING

Material	Self-extinguishing plastic
Mounting	DIN rail
Dim. (mm)	W x L x H : 120 x 100 x 22.5
Weight	About 150 g.

CONNECTION

RS485/422	removable screw terminals
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Baud-rate

up to 115.2 Kbps

Max. distance / baud-rate ratio (recommended) (1)

1.2 Km @ 38400 bps
2 Km @ 19200 bps
3 Km @ 9600 bps
4 Km @ 4800 bps
5 Km @ 2400 bps
7 Km @ 1200 bps

Number of modules in multipoint

32 max.

Switching time TX/RX (RS485)

150 us.

Internal terminator resistance (optional)

120 Ohm

(1) = The maximum distance depends of: number of devices connected, type of cabling, noises, etc...

DISTRIBUTED I/O MODULE 4 DIGITAL INPUTS + 4 RELAY OUTPUTS ON RS-485 NETWORK

DAT 3130



GENERAL DESCRIPTION

The device DAT 3130 is able to acquire up to 4 digital inputs and to drive up to 4 relay outputs. The data are transmitted with MODBUS RTU/ASCII protocol on RS-485 network.

To assure safe operation of the system, the device is equipped with two Watch-Dog timers: in case of alarm, the outputs are forced automatically on the safe configuration. The 1500 Vac galvanic isolation between inputs, outputs, power supply and RS-485 serial line cancels any ground-loop effect noise, allowing the use of the device in worst ambient conditions.

FEATURES

- Field Bus data acquisition
- Master/Slave communication on RS-485 network
- MODBUS RTU/ASCII protocol
- 4 digital inputs
- 4 relay outputs (2 SPDT + 2 SPST)

- Watch-Dog alarm
- Configurable from a remote terminal
- Three ways galvanic isolation 1500 Vac
- High accuracy
- EMC compliance – CE Mark
- In compliance to EN-50022 DIN rail mounting



Application areas



POWER SUPPLY

Supply Voltage	18 .. 30 Vdc
Current consumption	45 mA @ 24 Vdc
Rever. Polarity protection	60 Vdc max

ISOLATIONS

Inputs – RS485	1500 Vac 50 Hz, 1 min.
Inputs – Supply	
RS-485 – Supply	

TEMPERATURE & HUMIDITY

Operating Temperature	-10°C .. +60°C
Storage Temperature	-40°C .. +85°C
Humidity (not condensed)	0 .. 90 %

EMC (for industrial environments)

DIRECTIVE 2004 / 108 / EC

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

HOUSING

Material	Self-extinguishing plastic
Mounting	DIN rail
Dim. (mm)	W x L x H : 120 x 100 x 22.5
Weight	About 210 g.

DIGITAL INPUTS

Input channels	4
Input voltage (bipolar)	
OFF State	0 ÷ 3 V
ON State	10 ÷ 30 V
Impedance	4.7 KΩ
Data Transmission (asynchronous serial)	
Baud rate	up to 38.4 Kbps
Max. Distance	1.2 Km - 4000ft
Sample time	5 ms max

OUTPUT

Output channels	4
Type	
	n° 2 SPDT relays
	n° 2 SPST N.O. relays
Switching power (max.)	
	2 A @ 250 Vac (resistive load) per contact
	2 A @ 30 Vdc (resistive load) per contact
Minimum load	5Vdc , 10mA
Max. Voltage	250Vac (50 / 60 Hz), 110Vdc

DAT3000 SERIES

DISTRIBUTED I/O MODULE 4 DIGITAL INPUTS + 8 NPN OUTPUTS ON RS-485 NETWORK

DAT 3140



GENERAL DESCRIPTION

The device DAT 3140 is able to acquire up to 4 digital inputs and to drive up to 8 transistor outputs. The data are transmitted with MODBUS RTU/ASCII protocol on RS-485 network.

To assure safe operation of the system, the device is equipped with two Watch-Dog timers: in case of alarm, the outputs are forced automatically on the safe configuration. The galvanic isolation between inputs, outputs, power supply and RS-485 serial line cancels any ground-loop effect noise, allowing the use of the device in worst ambient conditions.

FEATURES

- Field Bus data acquisition
- Master/Slave communication on RS-485 network
- MODBUS RTU/ASCII protocol
- 4 digital inputs
- 8 digital outputs, NPN type

- Watch-Dog alarm
- Configurable from a remote terminal
- Galvanic isolation on all ways
- High accuracy
- EMC compliance – CE Mark
- In compliance to EN-50022 DIN rail mounting



Application areas



POWER SUPPLY

Supply Voltage	10 .. 30 Vdc
Current consumption	45 mA @ 24 Vdc
Rever. Polarity protection	60 Vdc max

ISOLATIONS

Inputs – Outputs	1000 Vac 50 Hz, 1 min.
Inputs – RS485	2000 Vac 50 Hz, 1 min.
Inputs – Supply	2000 Vac 50 Hz, 1 min.
Outputs – RS485	2000 Vac 50 Hz, 1 min.
Outputs – Supply	2000 Vac 50 Hz, 1 min.
RS-485 – Supply	2000 Vac 50 Hz, 1 min.

TEMPERATURE & HUMIDITY

Operating Temperature	-10°C .. +60°C
Storage Temperature	-40°C .. +85°C
Humidity (not condensed)	0 .. 90 %

EMC (for industrial environments)

DIRECTIVE 2004 / 108 / EC

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

HOUSING

Material	Self-extinguishing plastic
Mounting	DIN rail
Dim. (mm)	W x L x H : 120 x 100 x 17.5
Weight	About 210 g.

DIGITAL INPUTS

Input channels	4
Input voltage (bipolar)	
OFF State	0 ÷ 3 V
ON State	10 ÷ 30 V
Impedance	4.7 KΩ
Data Transmission (asynchronous serial)	
Baud rate	up to 38.4 Kbps
Max. Distance	1.2 Km - 4000ft
Sample time	20 ms max

OUTPUT

Output channels	8
Type	NPN
Max. Load	600 mA per channel 3 A max per module
Max. Voltage	30 Vdc
Over-current protection	NO

DISTRIBUTED I/O MODULE 8 DIGITAL INPUTS ON RS-485 NETWORK

DAT 3148/8



GENERAL DESCRIPTION

The device DAT 3148/8 is able to acquire up to 8 digital inputs. The data are transmitted with MODBUS RTU/ASCII on RS-485 network. To assure safe operation of the system, the device is equipped with two Watch-Dog timers. The 2000 Vac galvanic isolation between inputs, power supply and RS-485 serial line cancels any ground-loop effect noise, allowing the use of the device in worst ambient conditions.

FEATURES

- Field Bus data acquisition
- Master/Slave communication on RS-485 network
- MODBUS RTU/ASCII protocol
- 8 digital inputs
- Watch-Dog alarm
- Configurable from a remote terminal
- Four ways galvanic isolation 2000 Vac
- High accuracy
- EMC compliance – CE Mark
- In compliance to EN-50022 DIN rail mounting



Application areas



POWER SUPPLY

Supply Voltage	10 .. 30 Vdc
Current consumption	35 mA @ 24 Vdc
Rever. Polarity protection	60 Vdc max

ISOLATIONS

Input 0÷7	1500 Vac 50 Hz, 1 min.
Inputs – RS485	2000 Vac 50 Hz, 1 min.
Inputs – Supply	2000 Vac 50 Hz, 1 min.
RS-485 – Supply	2000 Vac 50 Hz, 1 min.

TEMPERATURE & HUMIDITY

Operating Temperature	-10°C .. +60°C
Storage Temperature	-40°C .. +85°C
Humidity (not condensed)	0 .. 90 %

EMC (for industrial environments)

DIRECTIVE 2004 / 108 / EC

Immunity EN 61000-6-2

Emission EN 61000-6-4

HOUSING

Material Self-extinguishing plastic

Mounting DIN rail

Dim. (mm) W x L x H : 120 x 100 x 17.5

Weight About 210 g.

DIGITAL INPUTS

Input channels	8
Input voltage (bipolar)	
OFF State	0 ÷ 3 V
ON State	10 ÷ 30 V
Impedance	4.7 KΩ
Data Transmission (asynchronous serial)	
Baud rate	38.4 Kbps
Max. Distance	1.2 Km - 4000ft
Sample time	5 ms max

DISTRIBUTED I/O MODULE 12 DIGITAL INPUTS ON RS-485 NETWORK

DAT 3148/12



GENERAL DESCRIPTION

The device DAT 3148/12 is able to acquire up to 12 digital inputs. The data are transmitted with MODBUS RTU/ASCII on RS-485 network. To assure safe operation of the system, the device is equipped with two Watch-Dog timers. The 2000 Vac galvanic isolation between inputs, power supply and RS-485 serial line cancels any ground-loop effect noise, allowing the use of the device in worst ambient conditions.

FEATURES

- Field Bus data acquisition
- Master/Slave communication on RS-485 network
- MODBUS RTU/ASCII protocol
- 12 digital inputs
- Watch-Dog alarm
- Configurable from a remote terminal
- Four ways galvanic isolation 2000 Vac
- High accuracy
- EMC compliance – CE Mark
- In compliance to EN-50022 DIN rail mounting



Application areas



POWER SUPPLY

Supply Voltage	10 .. 30 Vdc
Current consumption	35 mA @ 24 Vdc
Rever. Polarity protection	60 Vdc max

ISOLATIONS

Input 0÷7 / 8÷11	1500 Vac 50 Hz, 1 min.
Inputs – RS485	2000 Vac 50 Hz, 1 min.
Inputs – Supply	2000 Vac 50 Hz, 1 min.
RS-485 – Supply	2000 Vac 50 Hz, 1 min.

TEMPERATURE & HUMIDITY

Operating Temperature	-10°C .. +60°C
Storage Temperature	-40°C .. +85°C
Humidity (not condensed)	0 .. 90 %

EMC (for industrial environments)

DIRECTIVE 2004 / 108 / EC

Immunity EN 61000-6-2

Emission EN 61000-6-4

HOUSING

Material Self-extinguishing plastic

Mounting DIN rail

Dim. (mm) W x L x H : 120 x 100 x 17.5

Weight About 210 g.

DIGITAL INPUTS

Input channels	12
Input voltage (bipolar)	
OFF State	0 ÷ 3 V
ON State	10 ÷ 30 V
Impedance	4.7 KΩ
Data Transmission (asynchronous serial)	
Baud rate	38.4 Kbps
Max. Distance	1.2 Km - 4000ft
Sample time	5 ms max

DISTRIBUTED I/O MODULE 4 DIGITAL INPUTS + 8 PNP OUTPUTS ON RS-485 NETWORK

DAT 3188/4



GENERAL DESCRIPTION

The device DAT 3188/4 is able to acquire up to 4 digital inputs and to drive up to 8 transistor outputs. The data are transmitted with MODBUS RTU/ASCII protocol on RS-485 network (is available the RS-232 interface model). To assure safe operation of the system, the device is equipped with two Watch-Dog timers: in case of alarm, the outputs are forced automatically on the safe configuration. Also, the outputs are protected against over currents and over temperature. The 2000 Vac galvanic isolation between inputs, outputs, power supply and RS-485 serial line cancels any ground-loop effect noise, allowing the use of the device in worst ambient conditions.

FEATURES

- Field Bus data acquisition
- Master/Slave communication on RS-485 network
- MODBUS RTU/ASCII protocol
- 4 digital inputs
- 8 digital outputs, PNP type
- Over-temperature and over-current protection
- Watch-Dog alarm
- All the ways galvanic isolation 2000 Vac
- High accuracy
- EMC compliance – CE Mark
- In compliance to EN-50022 DIN rail mounting



Application areas



POWER SUPPLY

Supply Voltage	10 .. 30 Vdc
Current consumption	45 mA @ 24 Vdc
Rever. Polarity protection	60 Vdc max

ISOLATIONS (Input / Output / RS485 / Supply)

2000 Vac 50 Hz, 1 min.

TEMPERATURE & HUMIDITY

Operating Temperature	-10°C .. +60°C
Storage Temperature	-40°C .. +85°C
Humidity (not condensed)	0 .. 90 %

EMC (for industrial environments)

DIRECTIVE 2004 / 108 / EC

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

HOUSING

Material	Self-extinguishing plastic
Mounting	DIN rail
Dim. (mm)	W x L x H : 120 x 100 x 17.5
Weight	About 210 g.

DIGITAL INPUTS

Input channels	4
Input voltage (bipolar)	
OFF State	0 ÷ 3 V
ON State	10 ÷ 30 V
Impedance	4.7 KΩ
Data Transmission (asynchronous serial)	
Baud rate	115.2 Kbps
Max. Distance	1.2 Km - 4000ft
Sample time	5 ms max

DIGITAL OUTPUTS

Output channels	8
Type	PNP
Max. Load	500 mA per channel*
	1 A per module
Inductive Load	48 Ω - 2 H max.
Voltage	10.5 ÷ 30 Vdc

(*) = Protection against over-current and over-temperature
Short circuit current 1.7 A max.

DAT3000 SERIES

DISTRIBUTED I/O MODULE 8 DIGITAL INPUTS + 8 PNP OUTPUTS ON RS-485 NETWORK

DAT 3188/8



GENERAL DESCRIPTION

The device DAT 3188/8 is able to acquire up to 8 digital inputs and to drive up to 8 transistor outputs. The data are transmitted with MODBUS RTU/ASCII protocol on RS-485 network (is available the RS-232 interface model). To assure safe operation of the system, the device is equipped with two Watch-Dog timers: in case of alarm, the outputs are forced automatically on the safe configuration. Also, the outputs are protected against over currents and over temperature. The 2000 Vac galvanic isolation between inputs, outputs, power supply and RS-485 serial line cancels any ground-loop effect noise, allowing the use of the device in worst ambient conditions.

FEATURES

- Field Bus data acquisition
- Master/Slave communication on RS-485 network
- MODBUS RTU/ASCII protocol
- 8 digital inputs
- 8 digital outputs, PNP type
- Over-temperature and over-current protection
- Watch-Dog alarm
- All the ways galvanic isolation 2000 Vac
- High accuracy
- EMC compliance – CE Mark
- In compliance to EN-50022 DIN rail mounting



Application areas



POWER SUPPLY

Supply Voltage	10 .. 30 Vdc
Current consumption	45 mA @ 24 Vdc
Rever. Polarity protection	60 Vdc max

ISOLATIONS (Input / Output / RS485 / Supply)

2000 Vac 50 Hz, 1 min.

TEMPERATURE & HUMIDITY

Operating Temperature	-10°C .. +60°C
Storage Temperature	-40°C .. +85°C
Humidity (not condensed)	0 .. 90 %

EMC (for industrial environments)

DIRECTIVE 2004 / 108 / EC

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

HOUSING

Material	Self-extinguishing plastic
Mounting	DIN rail
Dim. (mm)	W x L x H : 120 x 100 x 17.5
Weight	About 210 g.

DIGITAL INPUTS

Input channels	8
Input voltage (bipolar)	
OFF State	0 ÷ 3 V
ON State	10 ÷ 30 V
Impedance	4.7 KΩ
Data Transmission (asynchronous serial)	
Baud rate	115.2 Kbps
Max. Distance	1.2 Km - 4000ft
Sample time	5 ms max

DIGITAL OUTPUTS

Output channels	8
Type	PNP
Max. Load	500 mA per channel*
	1 A per module
Inductive Load	48 Ω - 2 H max.
Voltage	10.5 ÷ 30 Vdc

(*) = Protection against over-current and over-temperature
Short circuit current 1.7 A max.

UNIVERSAL REMOTE I/O MODULE ON RS-485 NETWORK

DAT 3011



GENERAL DESCRIPTION

The device DAT 3011 is able to acquire RTD or Tc sensors, mV, V or mA input signals connected to the universal analog input. Moreover a second V/mA analog input is available. The device is able to acquire up to 3 digital inputs and to drive one solid-state relay and two SPST relays. Data values are transmitted with MODBUS RTU protocol on the RS-485 network. By means of a 16 bit converter, the device guarantee a high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 1500 Vac isolation on all ways (Power Supply / RS485 / Universal input / V-mA input / Digital inputs / Relay outputs) removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

FEATURES

- Field-Bus remote data acquisition
- RS-485 Modbus RTU (Slave) communication
- 1 Universal Analog Input
- 1 V/mA Analog Input
- 2 0-20mA Analog Outputs
- 3 Digital Inputs
- 1 SSR Digital Output + 2 Relay Outputs
- Watch-Dog Alarm
- 1500 Vac galvanic isolation on all ways
- High Accuracy
- EMC compliance – CE Mark
- DIN rail suitable mounting (EN-50022)



Application areas



POWER SUPPLY		SERIAL PORT		TEMPERATURE & HUMIDITY	
Supply Voltage	18 ÷ 30 Vdc	Type	RS-485	Operating Temperature	-10°C .. +60°C
Current consumption	30 mA (100mA max)	Protocol	Modbus RTU (Slave)	Storage Temperature	-40°C .. +85°C
Rever. Polarity protection	60 Vdc max	Baud Rate	up to 38400 bps	Humidity (not condensed)	0 .. 90 %

EMC (for industrial environments)		ISOLATIONS		HOUSING	
DIRECTIVE 2004 / 108 / EC		Type of Isolation	1500 Vac (on all ways)	Material	Self-extinguishing plastic
Immunity	EN 61000-6-2			Mounting	DIN rail
Emission	EN 61000-6-4			Dimensions (mm)	W x L x H : 120 x 100 x 22.5
				Weight	About 150 g.

ANALOG INPUTS				
Type	Range	Accuracy	Linearity	Thermal Drift
100 mV	-100 ÷ +100 mV	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
10 V	-10 ÷ +10 V	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
20 mA	0 ÷ +20 mA	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Pt100	-200 ÷ +850 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Pt1K	-200 ÷ +200 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Ni100	-60 ÷ +180 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Ni1K	-60 ÷ +150 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Res	0 ÷ 2000 Ohm	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Pot	20 ÷ 2000 Ohm	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Tc J	-210 ÷ +1200 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Tc K	-210 ÷ +1370 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Tc R	-50 ÷ +1760 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Tc S	-50 ÷ +1760 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Tc B	+400 ÷ +1825 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Tc E	-210 ÷ +1000 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Tc T	-210 ÷ +400 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Tc N	-210 ÷ +1300 °C	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Lead wire res. influence				
RTD (3 wires)		0.05 %/Ω (50 Ω max)		
mV, Tc		< 0.8 uV/Ohm		
Excitation current				
RTD, Res, Pot		~ 0.7 mA		
Sample time				
		1 sec.		
Warm-up time				
		3 min.		

ANALOG OUTPUT				
Type	Range	Accuracy	Linearity	Thermal Drift
20 mA	0 ÷ +20 mA	±0.05 % f.s.	±0.1 % f.s.	100 ppm/°C
Load Resistance		< 500 Ohm		
Auxiliary Voltage		>12V		

DIGITAL INPUTS	
Input channels	3
Input voltage (bipolar)	OFF State : 0÷3 V ON State : 10÷30 V
Input Impedance	4.7 KOhm

DIGITAL OUTPUTS	
N.1 Solid State Relay (dry contacts)	
Max. Voltage	48 V (ac/dc)
Max. Load	0.4A max (resistive)
N.2 Relays SPST	
Switching power (resistive load)	2 A @ 250 Vac (per contact) 2 A @ 30 Vdc (per contact)
Minimum load	5 Vdc , 10mA
Max. Voltage	250 Vac (50 / 60 Hz) ,110Vdc
Dielectric strength between contacts	1000 Vac, 50 Hz, 1 min.
Dielectric strength between coil and contacts	4000 Vac, 50 Hz, 1 min.

DAT 3014



GENERAL DESCRIPTION

The DAT 3014 device is able to acquire up to 4 analog input signals. Data values are transmitted with MODBUS RTU/ASCII protocol on the RS-485 network (RS-232 interface is available). It is possible to connect RTD, Potentiometers or Resistance signals. By means of a 16 bit converter, the device guarantees high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 2000 Vac isolation between input, power supply and serial line RS-485 (or RS-232) removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

FEATURES

- Field-Bus remote data acquisition
- RS-485 Master/Slave communication type
- MODBUS RTU/ASCII protocol
- 4 channel input
- RTD, Resistance and Potentiometer configurable input
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark
- DIN rail suitable mounting - EN-50022 compliance



Application areas



POWER SUPPLY

Supply Voltage	10 .. 30 Vdc
Current consumption	30 mA @ 24 Vdc
Rever. Polarity protection	60 Vdc max

ISOLATIONS

Inputs – RS485	2000 Vac 50 Hz, 1 min.
Power Supply– Input	
Power Supply– RS-485	

TEMPERATURE & HUMIDITY

Operating Temperature	-10°C .. +60°C
Storage Temperature	-40°C .. +85°C
Humidity (not condensed)	0 .. 90 %

EMC (for industrial environments)

DIRECTIVE 2004 / 108 / EC

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

HOUSING

Material	Self-extinguishing plastic
Mounting	DIN rail
Dim. (mm)	W x L x H : 120 x 100 x 17.5
Weight	About 150 g.

INPUT

Input type	Min	Max
RTD 2 or 3 wires		
Pt100	-200°C	850°C
Pt1000	-200°C	200°C
Ni100	-60°C	180°C
Ni1000	-60°C	150°C
Resistance 2 or 3 wires		
Low	0 Ω	500 Ω
High	0 Ω	2000 Ω
POT. (nom. value)		
Low	20 Ω	500 Ω
High	20 Ω	2000 Ω

Input Calibration (1)

RTD	±0.05 % f.s.
Res.	±0.05 % f.s.
Pot.	±0.05 % f.s.

Linearity (1)

RTD	± 0.1 % f.s.
-----	--------------

Lead wire res. influence (1)

RTD/res.3 wires	0.05 %/Ω (50 Ω max balanced)
-----------------	------------------------------

RTD excitation current

Typical	0.350 mA
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Thermal drift (1)

Full scale	± 0.01 % / °C
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Sample time

	0.5 ÷ 1 sec.
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Data Transmission (asynchronous serial)

Baud rate	38.4 Kbps
Max. Distance	1.2 Km - 4000ft

Warm-up time

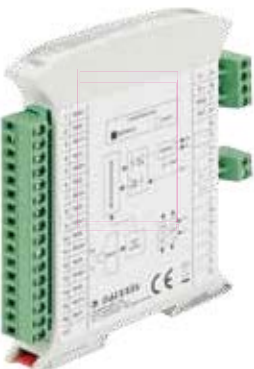
	3 min.
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(1) Referred to input Span (difference between max. and min. values)

DAT3000 SERIES

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DAT 3015-I



GENERAL DESCRIPTION

The device DAT 3015I is able to acquire on input up to 4 analog current signals. Data values are transmitted with MODBUS RTU/ASCII protocol on the RS-485 network (RS-232 interface is available). It is possible to connect up to ± 20mA current signals. By means of a 16 bit converter, the device guarantees high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 2000 Vac isolation between input, power supply and serial line RS-485 (or RS-232) removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

FEATURES

- Field-Bus remote data acquisition
- RS-485 Master/Slave communication type
- MODBUS RTU/ASCII protocol
- 4 channel input
- Up to ± 20mA input
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark
- DIN rail suitable mounting - EN-50022 compliance



Application areas



POWER SUPPLY

Supply Voltage	10 .. 30 Vdc
Current consumption	30 mA @ 24 Vdc
Rever. Polarity protection	60 Vdc max

ISOLATIONS

Inputs – RS485	2000 Vac 50 Hz, 1 min.
Power Supply– Input	
Power Supply– RS-485	

TEMPERATURE & HUMIDITY

Operating Temperature	-10°C .. +60°C
Storage Temperature	-40°C .. +85°C
Humidity (not condensed)	0 .. 90 %

EMC (for industrial environments)

DIRECTIVE 2004 / 108 / EC

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

HOUSING

Material	Self-extinguishing plastic
Mounting	DIN rail
Dim. (mm)	W x L x H : 120 x 100 x 17.5
Weight	About 150 g.

INPUT

Input type	Min	Max
Current		
20 mA	-20 mA	+20 mA
Input Calibration (1)		
± 20 uA		
Linearity (1)		
± 0.1% f.s.		
Input Impedance		
< / = 50 Ω		
Thermal drift (1)		
Full scale	± 0.005 % / °C	

Sample time

	0.5 ÷ 1 sec.
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Data Transmission (asynchronous serial)

Baud rate	38.4 Kbps
Max. Distance	1.2 Km - 4000ft

(1) Referred to input Span (difference between max. and min. values)

REMOTE I/O MODULE 4 CHANNELS +/-10V INPUT ON RS-485 NETWORK

DAT 3015-V



GENERAL DESCRIPTION

The device DAT 3015V is able to acquire on input up to 4 analog voltage signals. Data values are transmitted with MODBUS RTU/ ASCII protocol on the RS-485 network (RS-232 interface is available). It is possible to connect up to $\pm 10V$ voltage signals. By means of a 16 bit converter, the device guarantees high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 2000 Vac isolation between input, power supply and serial line RS-485 (or RS-232) removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

FEATURES

- Field-Bus remote data acquisition
- RS-485 Master/Slave communication type
- MODBUS RTU/ASCII protocol
- 4 channel input
- Up to $\pm 10V$ input
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark
- DIN rail suitable mounting - EN-50022 compliance



Application areas



POWER SUPPLY

Supply Voltage	10 .. 30 Vdc
Current consumption	30 mA @ 24 Vdc
Rever. Polarity protection	60 Vdc max

ISOLATIONS

Inputs – RS485	2000 Vac 50 Hz, 1 min.
Power Supply– Input	
Power Supply– RS-485	

TEMPERATURE & HUMIDITY

Operating Temperature	-10°C .. +60°C
Storage Temperature	-40°C .. +85°C
Humidity (not condensed)	0 .. 90 %

EMC (for industrial environments)

DIRECTIVE 2004 / 108 / EC

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

HOUSING

Material	Self-extinguishing plastic
Mounting	DIN rail
Dim. (mm)	W x L x H : 120 x 100 x 17.5
Weight	About 150 g.

INPUT

Type input	Min	Max
Voltage		
10 V	-10 V	+10 V
Input Calibration (1)		± 10 mV
Linearity (1)		$\pm 0.1\%$ f.s.
Input Impedance		> 100 K Ω
Thermal drift (1)		
Full scale	± 0.005 % / °C	

Sample time

0.5 \div 1 sec.

Data Transmission (asynchronous serial)

Baud rate	38.4 Kbps
Max. Distance	1.2 Km - 4000ft

(1) Referred to input Span (difference between max. and min. values)

REMOTE I/O MODULE 4 CHANNEL mV / TC INPUT ON RS-485 NETWORK

DAT 3016



GENERAL DESCRIPTION

The DAT 3016 device is able to acquire up to 4 analog input signals. Data values are transmitted with MODBUS RTU/ASCII protocol on the RS-485 network (RS-232 interface is available). It is possible to connect Thermocouples or up to $\pm 1V$ voltage signals. The Cold Junction compensation for thermocouples is performed internally. By means of a 16 bit converter, the device guarantees high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 2000 Vac isolation between input, power supply and serial line removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions. The DAT 3016 is in compliance with the Directive 2004/108/EC on the electromagnetic compatibility. The device is housed in a rough self-extinguishing plastic container which, thanks to its thin profile of 17.5mm only, allows a high density mounting on EN-50022 standard DIN rail.

FEATURES

- Field-Bus remote data acquisition
- RS-485 Master/Slave communication type
- MODBUS RTU/ASCII protocol
- 4 channel input
- Up to $\pm 1V$ and TC configurable input Type J,K,R,S,B,E,T,N
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark
- DIN rail suitable mounting - EN-50022 compliance



Application areas



POWER SUPPLY

Supply Voltage	10 .. 30 Vdc
Current consumption	30 mA @ 24 Vdc
Rever. Polarity protection	60 Vdc max

ISOLATIONS

Inputs – RS485	2000 Vac 50 Hz, 1 min.
Power Supply– Input	
Power Supply– RS-485	

TEMPERATURE & HUMIDITY

Operating Temperature	-10°C .. +60°C
Storage Temperature	-40°C .. +85°C
Humidity (not condensed)	0 .. 90 %

EMC (for industrial environments)

DIRECTIVE 2004 / 108 / EC

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

HOUSING

Material	Self-extinguishing plastic
Mounting	DIN rail
Dim. (mm)	W x L x H : 120 x 100 x 17.5
Weight	About 150 g.

INPUT

Input type	Min	Max
Voltage		
25 mV	-25 mV	+25 mV
100 mV	-100 mV	+100 mV
250 mV	-250 mV	+250 mV
1000 mV	-1000 mV	+1000 mV
Thermocouple		
J	-210 °C	+1200 °C
K	-210 °C	+1372 °C
R	-50 °C	+1767 °C
S	-50 °C	+1767 °C
B	+400 °C	+1825 °C
E	-210 °C	+1000 °C
T	-210 °C	+400 °C
N	-210 °C	+1300 °C

Input Calibration (1)

the higher of $\pm 0.05\%$ or 5 μV (1)

Linearity (1)

mV	$\pm 0.1\%$ f.s.
TC	$\pm 0.2\%$ f.s.

CJC Comp.

	± 0.5 °C
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Input Impedance

mV, TC	$>=1$ M Ω
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Thermal drift (1)

Full scale	± 0.005 % / °C
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CJC Thermal drift

Full scale	± 0.02 °C / °C
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Lead wire res. influence (1)

mV, Tc	< 0.8 μV /Ohm
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Response time

	0.5 \div 1 sec.
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Data Transmission (asynchronous serial)

Baud rate	38.4 Kbps
Max. Distance	1.2 Km - 4000ft

Warm-up time

	3 min.
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(1) Referred to input Span (difference between max. and min. values)

DAT 3017-I



GENERAL DESCRIPTION

The device DAT 3017I is able to acquire on input up to 8 analog current signals. Data values are transmitted with MODBUS RTU/ASCII protocol on the RS-485 network (RS-232 interface is available). It is possible to connect up to ± 20mA current signals. By means of a 16 bit converter, the device guarantees a high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 2000 Vac isolation between input, power supply and serial line RS-485 (or RS-232) removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

FEATURES

- Field-Bus remote data acquisition
- RS-485 Master/Slave communication type
- MODBUS RTU/ASCII protocol
- 8 channel input
- Up to ± 20mA input
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark
- DIN rail suitable mounting - EN-50022 compliance



Application areas



POWER SUPPLY

Supply Voltage	10 .. 30 Vdc
Current consumption	30 mA @ 24 Vdc
Rever. Polarity protection	60 Vdc max

ISOLATIONS

Inputs – RS485	2000 Vac 50 Hz, 1 min.
Power Supply– Input	
Power Supply– RS-485	

TEMPERATURE & HUMIDITY

Operating Temperature	-10°C .. +60°C
Storage Temperature	-40°C .. +85°C
Humidity (not condensed)	0 .. 90 %

EMC (for industrial environments)

DIRECTIVE 2004 / 108 / EC

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

HOUSING

Material	Self-extinguishing plastic
Mounting	DIN rail
Dim. (mm)	W x L x H : 120 x 100 x 17.5
Weight	About 150 g.

Sample time

0.5 ÷ 2 sec.

Data Transmission (asynchronous serial)

Baud rate	38.4 Kbps
Max. Distance	1.2 Km - 4000ft

(1) Referred to input Span (difference between max. and min. values)

INPUT

Type input	Min	Max
Current		
20 mA	-20 mA	+20 mA
Input Calibration (1)		± 20 uA
Linearity (1)		± 0.1% f.s.
Input Impedance		<=50 Ω
Thermal drift (1)		
Full scale	± 0.005 % / °C	

DAT3000 SERIES

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DAT 3017-V



GENERAL DESCRIPTION

The devices DAT 3017V is able to acquire on input up to 8 analog voltage signals. Data values are transmitted with MODBUS RTU/ASCII protocol on the RS-485 network (RS-232 interface is available). It is possible to connect up to ± 10V voltage signals. By means of a 16 bit converter, the device guarantees a high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 2000 Vac isolation between input, power supply and serial line RS-485 (or RS-232) removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

FEATURES

- Field-Bus remote data acquisition
- RS-485 Master/Slave communication type
- MODBUS RTU/ASCII protocol
- 8 channel input
- Up to ± 10V input
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark
- DIN rail suitable mounting - EN-50022 compliance



Application areas



POWER SUPPLY

Supply Voltage	10 .. 30 Vdc
Current consumption	30 mA @ 24 Vdc
Rever. Polarity protection	60 Vdc max

ISOLATIONS

Inputs – RS485	2000 Vac 50 Hz, 1 min.
Power Supply– Input	
Power Supply– RS-485	

TEMPERATURE & HUMIDITY

Operating Temperature	-10°C .. +60°C
Storage Temperature	-40°C .. +85°C
Humidity (not condensed)	0 .. 90 %

EMC (for industrial environments)

DIRECTIVE 2004 / 108 / EC

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

HOUSING

Material	Self-extinguishing plastic
Mounting	DIN rail
Dim. (mm)	W x L x H : 120 x 100 x 17.5
Weight	About 150 g.

Sample time

0.5 ÷ 2 sec.

Data Transmission (asynchronous serial)

Baud rate	38.4 Kbps
Max. Distance	1.2 Km - 4000ft

(1) Referred to input Span (difference between max. and min. values)

INPUT

Type input	Min	Max
Voltage		
10 V	-10 V	+10 V
Input Calibration (1)		± 10 mV
Linearity (1)		± 0.1% f.s.
Input Impedance		> 100 KΩ
Thermal drift (1)		
Full scale	± 0.005 % / °C	

REMOTE I/O MODULE 8 CHANNELS mV / TC INPUT ON RS-485 NETWORK

DAT 3018



GENERAL DESCRIPTION

The device DAT 3018 is able to acquire up to 8 analog input signals. Data values are transmitted with MODBUS RTU/ASCII protocol on the RS-485 network (RS-232 interface is available). It is possible to connect Thermocouples or up to +/- 1V voltage signals. The Cold Junction compensation for thermocouples is performed internally. By means of a 16 bit converter, the device guarantees a high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 2000 Vac isolation between input, power supply and serial line RS-485 (or RS-232) removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

FEATURES

- Field-Bus remote data acquisition
- RS-485 Master/Slave communication type
- MODBUS RTU/ASCII protocol
- 8 channel input
- Up to +/- 1V and TC configurable input ± 1V and TC Type J,K, R,S,B,E,T,N
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark
- DIN rail suitable mounting - EN-50022 compliance



Application areas



POWER SUPPLY

Supply Voltage	10 .. 30 Vdc
Current consumption	30 mA @ 24 Vdc
Rever. Polarity protection	60 Vdc max

ISOLATIONS

Inputs – RS485	2000 Vac 50 Hz, 1 min.
Power Supply– Input	
Power Supply– RS-485	

TEMPERATURE & HUMIDITY

Operating Temperature	-10°C .. +60°C
Storage Temperature	-40°C .. +85°C
Humidity (not condensed)	0 .. 90 %

EMC (for industrial environments)

DIRECTIVE 2004 / 108 / EC

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

HOUSING

Material	Self-extinguishing plastic
Mounting	DIN rail
Dim. (mm)	W x L x H : 120 x 100 x 17.5
Weight	About 150 g.

INPUT

Input type	Min	Max
Voltage		
25 mV	-25 mV	+25 mV
100 mV	-100 mV	+100 mV
250 mV	-250 mV	+250 mV
1000 mV	-1000 mV	+1000 mV
Thermocouple		
J	-210 °C	+1200 °C
K	-210 °C	+1372 °C
R	-50 °C	+1767 °C
S	-50 °C	+1767 °C
B	+400 °C	+1825 °C
E	-210 °C	+1000 °C
T	-210 °C	+400 °C
N	-210 °C	+1300 °C
Input Calibration (1)		
The higher of ± 0.05% or 5 uV (1)		

Linearity (1)

mV	± 0.1% f.s.
TC	± 0.2% f.s.
CJC Comp.	
	± 0.5 °C
Input Impedance	
mV, TC	> / = 1 MΩ
Thermal drift (1)	
Full scale	± 0.005 % / °C
Thermal drift CJC	
Full scale	± 0.02 % / °C
Lead wire res. influence (1)	
mV, TC	< 0.8 uV/Ohm
Sample time	
	0.5 ÷ 2 sec.
Data Transmission (asynchronous serial)	
Baud rate	38.4 Kbps
Max. Distance	1.2 Km - 4000ft
Warm-up time	
	3 min

(1) Referred to input Span (difference between max. and min. values)

REMOTE I/O MODULE 8 CHANNELS RTD INPUT ON RS-485 NETWORK

DAT 3019



GENERAL DESCRIPTION

The device DAT 3019 is able to acquire up to 8 analog input signals. Data values are transmitted with MODBUS RTU/ASCII protocol on the RS-485 network (RS-232 interface is available). It is possible to connect 2-wires RTD sensors or up to 2 KΩ resistance signals. By means of a 16 bit converter, the device guarantees a high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 2000 Vac isolation between input, power supply and serial line removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

FEATURES

- Field-Bus remote data acquisition
- RS-485 Master/Slave communication type
- MODBUS RTU/ASCII protocol
- 8 channel 2 wires input
- Pt100, Pt1K, Ni100, Ni1K and resistance up to 2 KΩ configurable input
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark
- DIN rail suitable mounting - EN-50022 compliance



Application areas



POWER SUPPLY

Supply Voltage	10 .. 30 Vdc
Current consumption	30 mA @ 24 Vdc
Rever. Polarity protection	60 Vdc max

ISOLATIONS

Inputs – RS485	2000 Vac 50 Hz, 1 min.
Power Supply– Input	
Power Supply– RS-485	

TEMPERATURE & HUMIDITY

Operating Temperature	-10°C .. +60°C
Storage Temperature	-40°C .. +85°C
Humidity (not condensed)	0 .. 90 %

EMC (for industrial environments)

DIRECTIVE 2004 / 108 / EC

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

HOUSING

Material	Self-extinguishing plastic
Mounting	DIN rail
Dim. (mm)	W x L x H : 120 x 100 x 17.5
Weight	About 150 g.

INPUT

Input type	Min	Max
RTD 2 wires		
Pt100	-200°C	850°C
Pt1000	-200°C	200°C
Ni100	-60°C	180°C
Ni1000	-60°C	150°C
Resistance 2 or 3 wires		
Low	0 Ω	500 Ω
High	0 Ω	2000 Ω

Input Calibration (1)

RTD	±0.2 % f.s.
Res.	±0.2 % f.s.
Linearity (1)	
RTD	± 0.2 % f.s.
Excitation current RTD	
Typical	0.450 mA
Thermal drift (1)	
Full scale	± 150 ppm/ °C
Sample time	
	0.5 ÷ 2 sec.
Data Transmission (asynchronous serial)	
Baud rate	38.4 Kbps
Max. Distance	1.2 Km - 4000ft
Warm-up time	
	3 min.

(1) Referred to input Span (difference between max. and min. values)

DAT 3022



GENERAL DESCRIPTION

The DAT 3022 device generates up to 2 output analog signals from digital commands. Data values are transmitted with MODBUS RTU/ASCII protocol on the RS-485 network (RS-232 interface is available). It is possible to generate voltage signals up to 10V and current signals up to 20mA, both active or passive loops. By means of a 16 bit converter, the device guarantees a high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 2000 Vac isolation between input, power supply and serial line RS-485 (or RS-232) removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

FEATURES

- Field-Bus remote data acquisition
- RS-485 Master/Slave communication type
- MODBUS RTU/ASCII protocol
- 2 channel output
- Voltage or Current configurable outputs
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark
- DIN rail suitable mounting – EN-50022 compliance



Application areas



POWER SUPPLY

Supply Voltage	18 .. 30 Vdc
Current consumption	typ. 35 mA @ 24 Vdc 60 mA max
Rever. Polarity protection	60 Vdc max

ISOLATIONS

Output – RS485	2000 Vac 50 Hz, 1 min.
Power Supply– Output	
Power Supply– RS-485	

TEMPERATURE & HUMIDITY

Operating Temperature	-10°C .. +60°C
Storage Temperature	-40°C .. +85°C
Humidity (not condensed)	0 .. 90 %

EMC (for industrial environments)

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

HOUSING

Material	Self-extinguishing plastic
Mounting	DIN rail
Dim. (mm)	W x L x H : 120 x 100 x 17.5
Weight	About 150 g.

OUTPUT

Output type	Min	Max
Voltage		
V	0 V	+10 V
Current		
mA	0 mA	+20 mA
Output calibration		
Voltage		±10 mV
Current		±20 mA
Load Resistance		
Voltage	> 5 KΩ	
Current	< 500 Ω	

Thermal drift

Full scale	100 ppm /°C
Auxiliary Voltage	> 12V @ 20mA (2 channels)

Rise time

Analog output Slew-rate (independent programming for each channel)	
Voltage V/s	Current mA/s
0.125	0.250
0.250	0.500
0.500	1.000
1.000	2.000
2.000	4.000
4.000	8.000
Immediate	Immediate

Data Transmission (asynchronous serial)

Baud rate	115.2 Kbps
Max. Distance	1.2 Km - 4000ft

DAT3000 SERIES

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REMOTE I/O MODULE 4 CHANNELS V / mA OUTPUT ON RS-485 NETWORK

DAT 3024



GENERAL DESCRIPTION

The device DAT 3024 generates up to 4 output analog signals from digital commands. Data values are transmitted with MODBUS RTU/ASCII protocol on the RS-485 network (RS-232 interface is available). It is possible to generate voltage signals up to 10V and current signals up to 20mA, both active or passive loops. By means of a 16 bit converter, the device guarantees a high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 2000 Vac isolation between input, power supply and serial line removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

FEATURES

- Field-Bus remote data acquisition
- RS-485 Master/Slave communication type
- MODBUS RTU/ASCII protocol
- 4 channel output
- Voltage or Current configurable outputs
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark
- DIN rail suitable mounting – EN-50022 compliance



Application areas



POWER SUPPLY

Supply Voltage	18 .. 30 Vdc
Current consumption	typ. 35 mA @ 24 Vdc 100 mA max
Rever. Polarity protection	60 Vdc max

ISOLATIONS

Output – RS485	2000 Vac 50 Hz, 1 min.
Power Supply– Output	
Power Supply– RS-485	

TEMPERATURE & HUMIDITY

Operating Temperature	-10°C .. +60°C
Storage Temperature	-40°C .. +85°C
Humidity (not condensed)	0 .. 90 %

EMC (for industrial environments)

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

HOUSING

Material	Self-extinguishing plastic
Mounting	DIN rail
Dim. (mm)	W x L x H : 120 x 100 x 17.5
Weight	About 150 g.

OUTPUT

Output type	Min	Max
Voltage		
V	0 V	+10 V
Current		
mA	0 mA	+20 mA
Output calibration		
Voltage		±10 mV
Current		±20 mA
Load Resistance		
Voltage	> 5 KΩ	
Current	< 500 Ω	

Thermal drift

Full scale	100 ppm /°C
Auxiliary Voltage	> 12V @ 20mA (4 channels)

Rise time

Analog output Slew-rate (independent programming for each channel)	
Voltage V/s	Current mA/s
0.125	0.250
0.250	0.500
0.500	1.000
1.000	2.000
2.000	4.000
4.000	8.000
Immediate	Immediate

Data Transmission (asynchronous serial)

Baud rate	115.2 Kbps
Max. Distance	1.2 Km - 4000ft

REMOTE I/O MODULE 8 CHANNELS VOLTAGE OUTPUT ON RS-485 NETWORK

DAT 3028



GENERAL DESCRIPTION

The device DAT 3028 generates up to 8 output analog signals from digital commands. Data values are transmitted with MODBUS RTU/ASCII protocol on the RS-485 network (RS-232 interface is available). It is possible to generate voltage signals up to 10V. By means of a 16 bit converter, the device guarantees a high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 2000 Vac isolation between input, power supply and serial line RS-485 (o RS-232) removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

FEATURES

- Field-Bus remote data acquisition
- RS-485 Master/Slave communication type
- MODBUS RTU/ASCII protocol
- 8 channel 0-10 V output
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark
- DIN rail suitable mounting - EN-50022 compliance



Application areas



POWER SUPPLY

Supply Voltage	18 .. 30 Vdc
Current consumption	typ. 35 mA @ 24 Vdc 100 mA max
Rever. Polarity protection	60 Vdc max

ISOLATIONS

Output – RS485	2000 Vac 50 Hz, 1 min.
Power Supply– Output	
Power Supply– RS-485	

TEMPERATURE & HUMIDITY

Operating Temperature	-10°C .. +60°C
Storage Temperature	-40°C .. +85°C
Humidity (not condensed)	0 .. 90 %

EMC (for industrial environments)

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Immunity	EN 61000-6-2
Emission	EN 61000-6-4

HOUSING

Material	Self-extinguishing plastic
Mounting	DIN rail
Dim. (mm)	W x L x H : 120 x 100 x 17.5
Weight	About 150 g.

OUTPUT

Output type	Min	Max
Voltage		
V	0 V	+10 V
Output calibration		±10 mV
Load Resistance		> 5 KΩ
Thermal drift		
Full scale	100 ppm /°C	

Rise time

Analog output Slew-rate
(independent programming for each channel)

Voltage V/s

0.125
0.250
0.500
1.000
2.000
4.000
Immediate

Data Transmission (asynchronous serial)

Baud rate	115.2 Kbps
Max. Distance	1.2 Km - 4000ft

DAT3000 SERIES

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DATEXEL

ELECTRONIC AND CONTROL PROCESS DEVICES