DATEXEL

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CSQ UNI EN ISO 9001:2008

Ethernet Gateway
Modbus TCP◄►Modbus RTU

DAT 3580-MBTCP

FEATURES

- **Network interface Ethernet 10/100Base-T, Modbus TCP**
- **RJ45 connection**
- **Telnet configuration**
- **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**
- **UL / CE mark**
- **Suitable for DIN rail mounting in compliance with EN-50022**

c UL us LISTED   Pb lead-free   RoHS Compliant   CE

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.
DAT3000 series devices are designed to be easily mounted on DIN rail, optimizing the space encumbrance. Whereas the thermal dissipation allows it, the devices can be mounted side by side, allowing a relevant reduction of space requiring. The connections are made by means of removable screw terminals, to simplify the handling of the devices.
LED signalling of Ethernet activity and data rx-tx on the serial line allows a direct monitoring of the system functionality. The connection is made by removable screw-terminals (supply and RS-485) and RJ45 plug (Ethernet).
The DAT 3580-MBTCP is in compliance with the Directive UL 61010-1 for US market and with the Directive CSA C22.2 No 61010-1 for the Canadian market.
The device is housed in a rough self-extinguishing plastic container which, thanks to its thin profile of 22.5 mm only, allows a high density mounting on EN-50022 standard DIN rail.

USER INSTRUCTIONS

DAT 3580-MBTCP can be connected directly to the SCADA, HMI or OPC-server software, that are implementing the Modbus TCP protocol. It is possible to connect up to 8 clients at the same time; each request sent by a client with the Modbus TCP protocol on the Ethernet network will be retransmitted with the Modbus RTU protocol to the slave devices connected on the RS-485 network. Just the response will be received by the device, it will be retransmitted to the client who sent the request. By means of Telnet interface, it is possible to set all the configuration options from any remote terminal.
To configure the device by means of the Telnet interface, send the following command:
" telnet 192.168.1.100 9999 "
Default configuration:

IP address: 192 . 168 . 1 . 100   **SubNet Mask:** 255 . 255 . 255 . 0   **Gateway:** 192 . 168 . 1 . 1
RS485 setting: 38400 , 8 , n , 1

TECHNICAL SPECIFICATIONS (Typical @ 25 °C and in the nominal conditions)

In compliance with standard		ISOLATION	
	Ethernet IEEE 802.3 and RS485		
		Power supply / Ethernet	1500 Vac, 50 Hz, 1 min.
Network interface	Ethernet 10/100Base-T	Power supply / RS485-422	2000 Vac, 50 Hz, 1 min.
Protocol	Modbus TCP	Ethernet / RS485-422	2000 Vac, 50 Hz, 1 min.
		ENVIRONMENTAL CONDITIONS	
RS485 Interface		Operative Temperature	-20°C .. +60°C
Baud-rate	up to 115.2 Kbps	UL Operative Temperature	-10°C .. +40°C
		Storage Temperature	-40°C.. +85°C
Max. distance / baud-rate ratio	1.2 Km – 4000 ft @ 38400 bps	Humidity (not condensed)	0 .. 90 %
(recommended) (1)	2 Km – 6560 ft @ 19200 bps	Maximum Altitude	2000 m
	3 Km – 9840 ft @ 9600 bps	Installation	Indoor
	4 Km – 13100 ft @ 4800 bps	Category of installation	II
	5 Km – 16400 ft @ 2400 bps	Pollution Degree	2
	7 Km – 23000 ft @ 1200 bps	**MECHANICAL SPECIFICATIONS**	
Number of modules in multipoint	up to 32	Material	Self-extinguish plastic
		IP Code	IP20
Switching time TX/RX (RS485)	150 us.	Wiring	wires with diameter
			0.8÷2.1 mm² /AWG 14-18
Internal terminator resistance (optional) 120 Ohm		Tightening Torque	0.5 N m
		Mounting	in compliance with DIN rail
POWER SUPPLY			standard EN-50022
Power supply voltage	18 ÷ 30 Vdc	Weight	about 160 g.
Reverse polarity protection	60 Vdc max		
Current consumption	80 mA max.	**CERTIFICATIONS**	
		EMC (for industrial environments)	
Connection		Immunity	EN 61000-6-2
Ethernet	RJ-45	Emission	EN 61000-6-4
RS-485/422	removable screw terminals	**UL**	
		US Standard	UL 61010-1
		Canadian Standard	CSA C22.2 No 61010-1
		CCN	NRAQ/NRAQ7
		Typology	Open Type device
(1) – The maximum distance depends of: number of devices connected, type of cabling, noises, etc...		Classification	Industrial Control Equipment
		File Number	E352854

INSTALLATION INSTRUCTIONS

The DAT 3580-MBTCP is suitable for fitting to DIN rails in the vertical position.
For optimum operation and long life follow these instructions:

When the devices are installed side by side it may be necessary to separate them by at least 5 mm in the following case:
- If panel temperature exceeds 45°C and high power supply value(> 27Vdc).

Make sure that sufficient air flow is provided for the device avoiding to place raceways or other objects which could obstruct the ventilation slits. Moreover it is suggested to avoid that devices are mounted above appliances generating heat; their ideal place should be in the lower part of the panel. Install the device in a place without vibrations.

Moreover it is suggested to avoid routing conductors near power signal cables (motors, induction ovens, inverters, etc...) and to use shielded cable for connecting signals.

CABLING

WIRING

POWER SUPPLY(*)

RS485 Point to point

RS485 Multi point
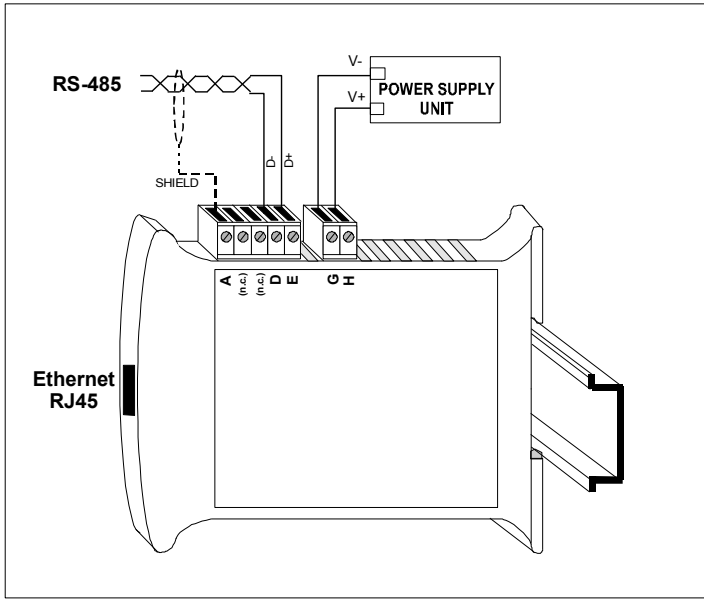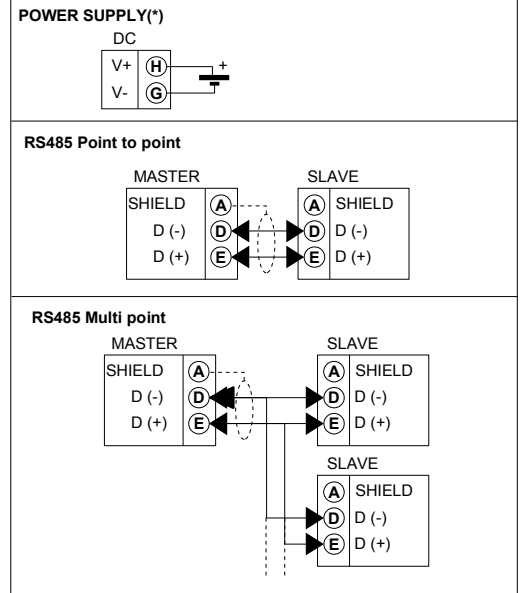
(*) Note: for UL installation the device must be powered using a power supply unit classified NEC class 2 or SELV

ISOLATION STRUCTURE

ETHERNET — RS485/RS422 — POWER SUPPLY

LIGHT SIGNALLING

LED	COLOUR	STATE	DESCRIPTION
PWR	GREEN	ON	Device powered
		OFF	Device not powered
RX	RED	BLINK	Data received on the RS485 port (blink frequency depends to baud-rate)
		OFF	No data reception
TX	RED	BLINK	Data transmitted on the RS485 port (blink frequency depends to baud-rate)
		OFF	No data transmission

DIMENSIONS (mm)

100

22.5

120
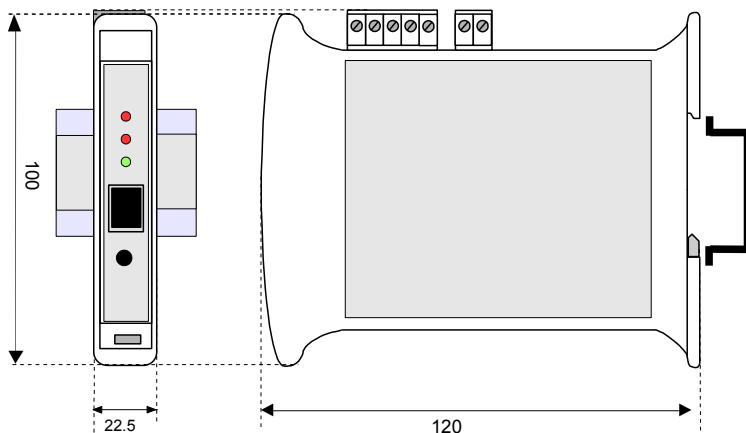
HOW TO ORDER

" DAT 3580-MBTCP "

Configuration:

IP address:

SubNet Mask:

Gateway:

RS485 setting: BaudRate, bit, parity, stop

= Requested

= Optional

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