

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 multi-point
- Removable screw-terminal connection
- LED signalling for Link/Act Ethernet, serial RX - TX, power supply
- Galvanic Isolation on all ways
- CE / UL / UKCA mark
- DIN rail mounting in compliance with EN-50022



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, Sub-net mask, etc..) and the Modbus RTU side options (baud rate, etc..).

The device guarantees a full isolation between lines, allowing its use even in heavy environmental conditions.

The LEDs of signalling of Ethernet activity and data transmission RX - TX on the serial line allow a direct monitoring of the system functionality.

The connection is made by removable screw-terminals (supply and RS-485) and RJ45 plug (Ethernet).

The device 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.

It 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

The Gateway can be connected directly to SCADA, HMI or OPC-servers software, that implement the Modbus TCP protocol.

It is possible to connect up to 8 clients at the same time; each request sent from a client by Modbus TCP protocol over the Ethernet network will be re-transmitted by Modbus RTU protocol to the slave devices connected over the RS-485 network. As the response from the slave will be received by the device, it will be re-transmitted to the client which sent the request.

By means of Telnet interface, it is possible to set all the configuration options from any remote terminal.

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

ETHERNET		RS-485	GENERAL SPECIFICATIONS	
In compliance with standard Ethernet IEEE 802.3		In compliance with standard RS485	DC power supply voltage	18 .. 30 Vdc
Ethernet interface	Ethernet 10/100Base-T	Baud-rate up to 115.2 Kbps	Reverse polarity protection	60 Vdc max
Protocol	Modbus TCP		Max. Current consumption	80 mA
Port	502	Cable Length 1200 m / 4000 ft max	ISOLATION (test time 1 min)	
Ethernet connection	RJ-45		Power supply / Ethernet	1500 Vac, 50 Hz
Configuration protocol	Telnet	The reachable maximum distance depends on the number of devices connected, on the type of cable used and its immunity against noises.	Power supply / RS485	2000 Vac, 50 Hz
			Ethernet / RS485	2000 Vac, 50 Hz
Port	9999	Number of modules in multipoint up to 32	ENVIRONMENTAL CONDITIONS	
		Switching time TX/RX 150 us.	Operative temperature	-20°C .. +60°C
			UL Operative Temperature	-10°C .. +40°C
		Internal terminator resistance (optional) 120 Ohm	Storage temperature	-40°C .. +85°C
			Humidity (not condensing)	0 .. 90 %
		Connection removable screw terminals	Maximum Altitude	2000 m slm
			Installation	Indoor
			Category of Installation	II
			Pollution Degree	2
			MECHANICAL SPECIFICATIONS	
			Material	Self-extinguish plastic
			IP Code	IP20
			Wiring	wires with diameter 0.8÷2.1 mm² AWG 14-18
			Tightening Torque	0.5 N m
			Mounting	in compliance with DIN rail standard EN-50022
			Weight	about 160 g.
			CERTIFICATIONS	
			EMC (for the Industrial Environments)	
			Immunity	EN 61000-6-2
			Emission	EN 61000-6-4
			UKCA (ref S.I. 2016 N°1091)	
			Immunity	BS EN 61000-6-2
			Emission	BS EN 61000-6-4
			UL	
			US Standard	UL 61010-1
			Canadian Standard	CSA C22.2 No 61010-1
			CCN	NRAQ/NRAQ7
			Typology	Open Type device
			Classification	Industrial Control Equipment
			File Number	E352854

INSTALLATION INSTRUCTIONS

The device is suitable for fitting to DIN rails in the vertical position.

For optimum operation and long life follow these instructions:

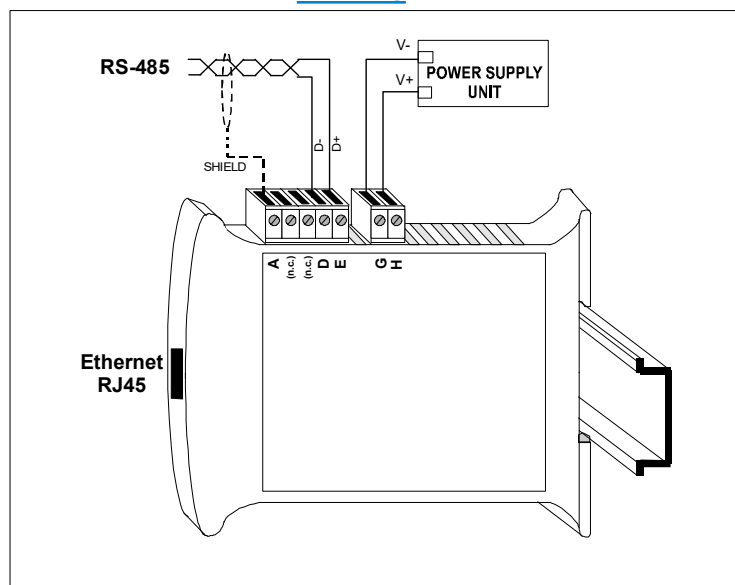
When the devices are installed side by side it may be necessary to separate them by at least 5 mm if panel temperature exceeds 45°C and high power supply value (> 27Vdc).

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

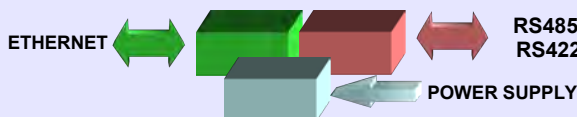
CABLING



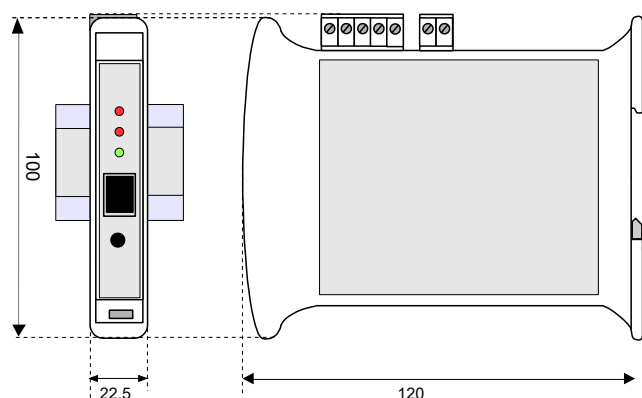
LIGHT SIGNALLING

LED	COLOUR	STATE	DESCRIPTION
PWR	GREEN	ON	Device powered
		OFF	Device not powered
TX	RED	FAST BLINK	Data transmitted from Ethernet (blink frequency depends to baud-rate)
		OFF	No communication in progress
RX	RED	FAST BLINK	Data received on port RS485/422 (blink frequency depends to baud-rate)
		OFF	No communication in progress

ISOLATION STRUCTURE



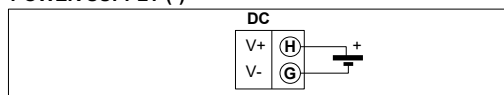
MECHANICAL DIMENSIONS (mm)



The symbol reported on the product indicates that the product itself must not be considered as a domestic waste. It must be brought to the authorized recycle plant for the recycling of electrical and electronic waste. For more information contact the proper office in the user's city, the service for the waste treatment or the supplier from which the product has been purchased.

WIRING

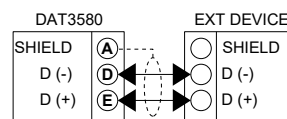
POWER SUPPLY (*)



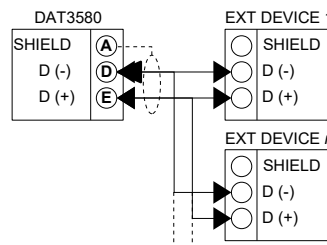
(*) Note: for UL installation the device must be powered using a power supply unit classified NEC class 2 or SELV with limited energy

RS485

Point to point



Multi point



CONFIGURATION BY TELNET

To configure the device it is necessary to activate the option "Client Telnet" in the section of Windows called Windows Features (refer to the user guide of the operating system in use to access the proper section). Run Command Prompt (cmd.exe) as Administrator.

To establish a connection to the device send the command:

telnet "IP address" 9999, where "IP Address" is the IP address of the device.

The default Ethernet parameters are:

IP Address: 192.168.1.100

Gateway mask: 192.168.1.1

Sub-Net mask: 255.255.255.0

The default setting of the serial parameters is:

Device attached: Slave

Protocol: RTU

Serial parameters: 38400 , 8 , n , 1

The software will let the user to edit the several parameters using the dedicated menus.

For more details refer to the User Guide of the device.

At the end of configuration the software will ask to save or discard the changes.

In case of save, the connection to the device (host) will be interrupted because the device will be reset. It will be necessary establish a new connection using the new parameters set.

BUTTON "RST"

The button RST located on the front side of the device executes a Reset Hardware only and doesn't modify the communication parameters back to default.

In case of loss of communication or IP address unknown, follow the recovery procedures written in the User Guide of the device.

HOW TO ORDER

" DAT 3580-MBTCP "

Configuration:

IP Address: . . .

SubNet mask: . . .

Gateway: . . .

RS485 settings: Baud-Rate, bit, parity, stop

☒ = Requested

☐ = Optional