

Isolated Ethernet Gateway

Modbus TCP ↔ Modbus RTU

TU-RS485-TCP-3580MB



Characteristics

- **Network interface**
Ethernet 10/100Base-T, Modbus TCP
Configuration via Telnet
RJ45 connector
- **Serial interface RS-485**
Modbus RTU Master
Baud rate until 115.2 Kbps
Distance up to 1200 m, up to 32 modules in multipoint
- **Removable terminal connection**
- **Signalling LED Link/Act Ethernet, serial RX-TX, power supply**
- **Galvanic isolation on 3-way**
- **Compliant with standards CE+EMC**
- **Suitable for DIN rail mounting EN-50022**

General description

The TU-RS485TCP-3580MB module allows all Modbus RTU RS-485 devices to be connected to the Ethernet network with Modbus TCP protocol.

Via the Telnet interface, Modbus TCP options (IP address, subnet mask, etc..) and Modbus RTU options (baud rate, etc..) can be configured. The module achieves complete electrical isolation between lines, introducing valuable protection against disturbances found in industrial environments..

The modules can be mounted on DIN rails for maximum space utilisation.

LEDs indicating Ethernet activity and data flow on the serial line allow convenient monitoring of system operation. Removable screw terminals are used for connection; the connection to the Ethernet network is via the RJ-45 connector. This allows the user to remove the modules directly, thus simplifying maintenance.

Operating instructions

The TU-RS485TCP-3580MB module is integrated with most SCADA, HMI or OPC server packages on the market, implementing the Modbus TCP protocol.

Up to 8 clients can be connected simultaneously; each command sent by a client with Modbus TCP protocol on the Ethernet network is retransmitted with Modbus RTU protocol to the slave modules connected on the RS-485 network. As soon as a response is received from the module, it is retransmitted to the client that sent the command.

From any remote terminal, network and serial port settings can be configured via the Telnet connection.

Default configuration:

IP address: 192 . 168 . 1 . 100

SubNet Mask: 255 . 255 . 255 . 0

Gateway: 192 . 168 . 1 . 1

Setting RS-485: 38400 , 8 , n , 1

To configure the device via the Telnet interface, send the following command:

“telnet 192.168.1.100 9999”



Technical Specifications

(Typical at 25 °C and under nominal conditions)

Compliant with Ethernet specifications IEEE 802.3 e RS485

Network Interface	Ethernet 10/100Base-T
Protocol	Modbus TCP
Connection	RJ-45
Interface RS-485	
Transmission speed	up to 115,2 Kbps
Max. distance / speed ratio (suggested) ⁽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
Multipoint connectable terminals	32 max.
Switching time TX/RX (RS485)	150 us.
Internal terminating resistor	120 Ohm (option)
Power supply	18 ÷ 30 Vdc
	18 ÷ 28 Vac
Consumption	45 mA tip. @ 24Vdc (at rest)
	80 mA max
Isolation	
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.
EMC (for industrial environments)	
Immunity	EN 61000-6-2
Emission	EN 61000-6-4
Temperature and Humidity	
Operating temperature	-20 ÷ +60 °C
Storage temperature	-40 ÷ +85 °C
Relative humidity (without condensation)	0 ÷ 90 %
Connections	
Ethernet	RJ-45
RS-485	Removable screw terminals
Container	
Material	Self-extinguishing plastic
Mounting	DIN rail standard EN-50022
Dimensions (W x H x T)	100 x 120 x 22,5 mm
Weight	160 gr.

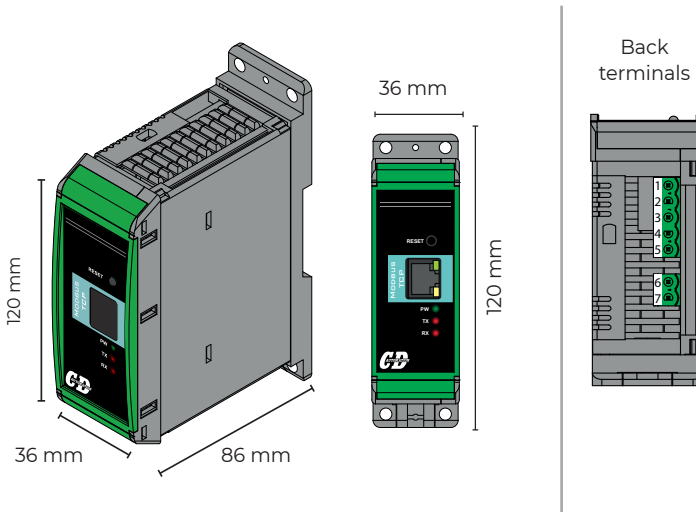
(1) The maximum achievable distance depends on the number of connected devices, the type of cabling, disturbances, etc...



Installation instructions

- The device is suitable for DIN-rail mounting in vertical position.
- **For optimal function, if the devices are mounted side by side, they must be spaced at least 5 mm apart in the case of:**
 - cabinet temperature greater than 45 °C
 - high supply voltage (>27Vdc).
- Prevent ventilation slits from being occluded by ducts or other objects near them.
- Avoid mounting the devices above heat-generating equipment; it is recommended to mount the device at the bottom of the installation (panelboard or cabinet).
- Install the device in a vibration-free location.
- It is recommended that cabling should not be run close to power cables and that the connection should be made using appropriately shielded cables.

Dimensions

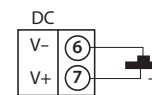


Light signalling

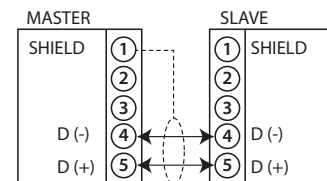
Led	Status	Description
PWR	Green ON	Module powered
	OFF	Module NOT powered / Incorrect connection RS-485
RX	Red Blinking	Data received from RS485 network (the blink rate depends on the baud-rate)
	OFF	No reception in progress
TX	red Blinking	Data received from RS485 network (the blink rate depends on the baud-rate)
	OFF	No reception in progress

Connections

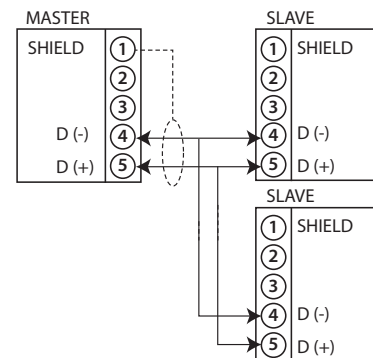
Power supply



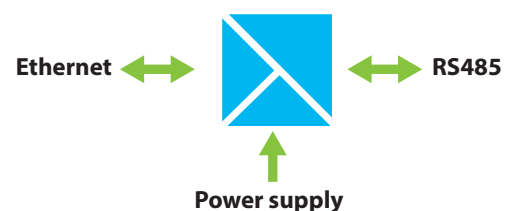
RS-485 point-to-point



RS-485 Multi-point



Insulation structure





Order Code



TU-RS485-TCP-3580MB

TU (Terminal Unit) Modbus TCP Protocol converter

	1	2	-	3	4	5	6	7	-	8	9	10	-	11	12	13	14	15	16
Order Code	T	U	-	R	S	4	8	5	-	T	C	P	-	3	5	8	0	M	B