Isolated Ethernet Gateway Modbus TCP / Modbus RTU

SS 8580

FEATURES
- Interface Ethernet 10/100 Base-T Modbus TCP
- RJ45 Connector
- Configuration via integrated web server
- Serial interface RS-485
- Modbus RTU Master
- Baud rate up to 115.2 Kbps
- Distance up to 1200 m, up to 32 modules connected in multipoint
- Connection by removable screw-terminals
- LED signalling for Link/Act Ethernet, power supply
- Galvanic isolation on all the ways
- EMC compliant – CE mark
- In compliance to EN-50022 DIN rail mounting

GENERAL DESCRIPTION
The device SS8580 allows to connect all the devices with Modbus RTU of a RS-485 serial line to the Ethernet with Modbus TCP protocol.
By the integrated web server it is possible to configure the option of Modbus TCP (IP address, subnet mask, etc..) and Modbus RTU (baud rate, etc...)
The device realizes a full electrical isolation between the lines, introducing a valid protection against the effects of all ground loops eventually existing in industrial applications.
The LEDs of signalling of Ethernet and the serial line communication activity and power supply allow a direct monitoring of the system functionality.
The connection is made by removable screw-terminals (inputs and power supply) and RJ45 plug (Ethernet).
The device is housed in a rough self-extinguishing plastic enclosure 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 SS8580 can be connected directly to the SCADA, HMI o OPC server on the market that implement the Modbus TCP protocol. It is possible to connect at the same time up to 8 clients; each command sent by a client over the Ethernet with Modbus TCP protocol is processed and re-transmitted over the RS-485 with Modbus RTU protocol to the slave devices connected. As soon as the response from the slave is received, it is processed and re-transmitted to client which sent the query. By the integrated web server it is possible to configure the settings of network and serial line from any remote terminal.

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

In compliance to		POWER SUPPLY	
	Ethernet IEEE 802.3 e RS485	DC Power Supply	10 ÷ 30 Vdc
		Current consumption	45 mA typ. @ 24Vdc (standby)
Ethernet interface	Ethernet 10/100Base-T		80 mA max.
Protocol	Modbus TCP		
RS485 Interface		**ISOLATION**	
Baud rate	configurable up to 115.2 Kbps	Ethernet / RS485	1500 Vac, 50 Hz, 1 min.
		Power supply / RS485	1500 Vac, 50 Hz, 1 min.
		ENVIRONMENTAL CONDITIONS	
		Operative Temperature	-20°C .. +60°C
Max. Distance / Baud Rate Ratio	1.2 Km @ 38400 bps	Storage Temperature	-40°C .. +85°C
(recommended) (1)	2 Km @ 19200 bps	Humidity (not condensed)	0 .. 90 %
	3 Km @ 9600 bps	Maximum Altitude	2000 m
	4 Km @ 4800 bps	Installation	Indoor
	5 Km @ 2400 bps	Category of installation	II
	7 Km @ 1200 bps	Pollution Degree	2
Number of modules in multipoint	32 max.	**MECHANICAL SPECIFICATIONS**	
		Material	Self-extinguish plastic
Switching time TX/RX (RS485)	150 us.	Dimensions in mm.(WxHxT)	100 x 120 x 22.5
		IP Code	IP20
Termination resistance	120 Ohm	Mounting	DIN rail EN-50022 EN-50035
		Weight	about 160 g
Connections			
Ethernet	RJ-45		
RS-485	removable screw terminals pitch 5.08 mm	**CERTIFICATIONS**	
Power supply	removable screw terminals pitch 5.08 mm	**EMC (for industrial environments)**	
		Immunity	EN 61000-6-2
		Emission	EN 61000-6-4
(1) – The maximum distance depends of: number of devices connected, type of cabling, noises, etc...			

INSTALLATION INSTRUCTIONS

The device is suitable for fitting to DIN rails in the vertical position.
It is always a good thing to space the devices together 5mm. Make sure that sufficient air 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. Install the device in a place without vibrations. It is also suggested to avoid routing conductors near power signal cables and to use shielded cables for connecting signals.

MODULE CONFIGURATION

To configure the SS8000 series devices, it is necessary to enable the **INIT** mode. This mode allows you to access the device with the following default parameters :

I**P Address:192.168.1.174** (DHCP disabled), or IP provided by DHCP (if enabled)
Modbus Address: 245

To enter the INIT mode follow these steps:
- Turn off the device;
- Connect the INIT terminal to the -V terminal as shown in figure.
- Turn on the device and connect with an internet browser to the device using the default parameters listed above and using the default login credentials:

> **Username:** admin
> **Password:** admin

To exit INIT mode follow these steps:
- Turn off the device;
- Remove the INIT connection;
- Turn on the device and connect with the new parameters.

RESET FUNCTION- "P" BUTTON

If it is necessary to restore the default device parameters, with device powered and not in INIT condition, push the front located "P" button for at least 5 seconds.
The green led PWR will switch-off, the yellow led STS will become orange and the reset of the device will occur. When the reset procedure will be finished, both the leds will set back to the default condition and the following parameters will be loaded :

Ethernet:
- IP Address: 192.168.1.100
- Subnet Mask : 255.255.255.0
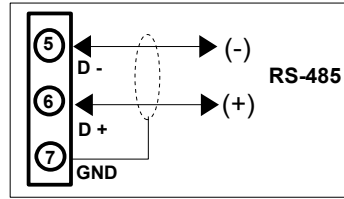- Gateway Mask: 192.168.1.1

Username: admin
Password: admin

*Modbus Address:* 245
Baud Rate: 38400 bps
Timeout: 50 m

LIGHT SIGNALLING

| LED	COLOR	STATE	DESCRIPTION
PWR	GREEN	ON	Device powered
		OFF	Device not powered / Wrong RS-485 connection
STS	YELLOW	BLINK	INIT Mode
		OFF	RUN Mode
RX2	RED	BLINK	PORT 1 – Data received (the blink frequency depends on Baud-rate)
		OFF	No reception in progress
TX2	RED	BLINK	PORT 1 – Data transmitted (the blink frequency depends on Baud-rate)
		OFF	No reception in progress

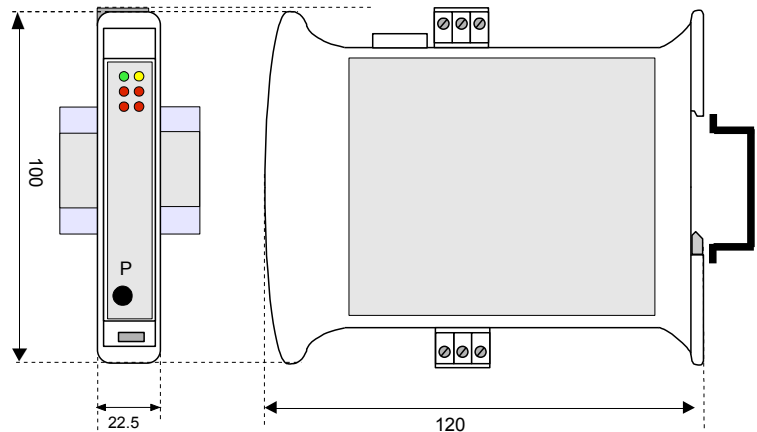## WIRING

RS-485 Master (Port 1)

POWER SUPPLY

10÷30 Vdc

INIT

ON: short circuit to GND

ISOLATIONS STRUCTURE

ETHERNET — RS485 — POWER SUPPLY
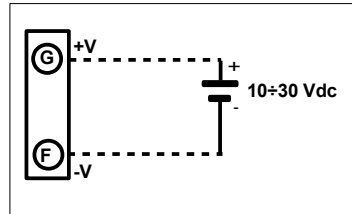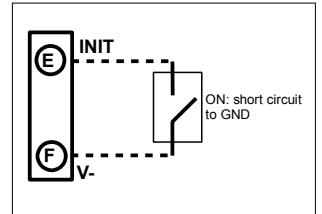
MECHANICAL DIMENSIONS (mm)

100

22.5

120

HOW TO ORDER

" SS 8580 "

= Requested
= Optional