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Isolated Wifi Gateway Modbus TCP / Modbus RTU

SS 10680-MOD

FEATURES
- **Interface Ethernet 10/100 Base-T RJ45 connector, Wifi 802.11.b/g/n/ac**
- **Configuration via web interface**
- **Serial interface RS-485 with baud rate up to 115.2 Kbps**
- **Distance up to 1200 m, up to 32 modules connected in multipoint**
- **Modbus RTU - Modbus TCP gateway**
- **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

SS10680-MOD gateway is a device that provides an RS485 serial interface for Modbus RTU master protocol and an Ethernet/Wifi interface for Modbus TCP slave protocol, featuring a low-profile format which makes it suitable for DIN rail mounting inside industrial electrical cabinets. Electrical connections are available via plug-in screw terminals. The full galvanic isolation ensures a good protection against interference present in industrial environments.
A dedicated hardware Watch-Dog manages the automatic reset of the device. Signalling leds allow an immediate diagnosis of device operation. The device power supply requires a voltage between 10 Vdc and 30Vdc. The device is protected against power supply polarity inversion.

USER INSTRUCTIONS

SS10680-MOD gateway 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 LAN 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 web interface 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	**Ethernet IEEE 802.3 e RS485**
Ethernet interface	Ethernet 10/100Base-T - Wifi 802.11.b/g/n/ac
Protocol	Modbus TCP

RS485 Interface	
Baud rate	configurable up to 115.2 Kbps
Parity	configurable as even / odd / space
Stop Bit	configurable as 1 or 2
Max. Distance / Baud Rate Ratio (recommended) (1)	1 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.
Termination resistance	120 Ohm

Connections	
Ethernet	RJ-45
RS-485	removable screw terminals pitch 5.08 mm
Power supply	removable screw terminals pitch 5.08 mm

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

POWER SUPPLY	
DC Power Supply	10 ÷ 30 Vdc
Current consumption	300 mA max

ISOLATION	
Ethernet / RS485	1500 Vac, 50 Hz, 1 min.
Ethernet / Power Supply	1000 Vac, 50 Hz, 1 min.
Power supply / RS485	1500 Vac, 50 Hz, 1 min.

ENVIRONMENTAL CONDITIONS	
Operative Temperature	0°C .. +60°C
Storage Temperature	-20°C .. +70°C
Humidity (not condensed)	0 .. 90 %
Maximum Altitude	2000 m
Installation	Indoor
Category of installation	II
Pollution Degree	2

MECHANICAL SPECIFICATIONS	
Material	Self-extinguish plastic
IP Code	IP20
Mounting	in compliance to DIN rail
standard	EN-50022 and EN-50035
Weight	about 200 g.

CERTIFICATIONS	
EMC (for industrial environments)	
Immunity	EN 61000-6-2
Emission	EN 61000-6-4

INSTALLATION INSTRUCTIONS

The SS10680 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.
When the devices are installed beside a power supply unit it is necessary to separate them by at least 10 mm.
To connect the serial line RS485 it is suggested to use the cable Belden type 9842 suitable for RS485.
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 to connect signals.

DEFAULT ETHERNET CONFIGURATION

- IP address : 192.168.1.100
- Subnet Mask : 255.255.255.0
- Gateway Mask: 192.168.1.1

CONFIGURATION VIA WEB INTERFACE

To configure the device by web server:
- Connect to the device via an internet browser
- Insert User Name (admin) and Password (password)
- Select the language
- Modify the parameters as desired
- Click on “Save”

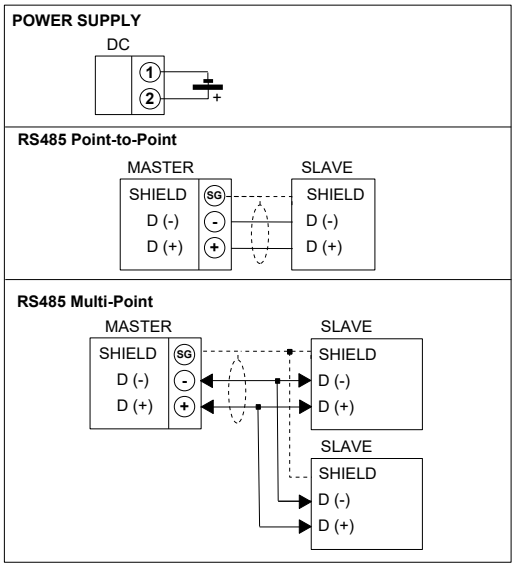
FUNCTION BUTTON “RST”

If it is necessary to restore device default parameters, power the gateway by keeping the "RST" button on the front of the instrument pressed for at least 5 seconds; the device will start in Recovery Mode. Perform restore according to your needs:

- Full reset
- Network interface reset
- Login credentials reset
- Configuration reset

In Recovery Mode it is also possible to:
- Download stored logs
- Clean temporary files, logs, etc.
- Update firmware

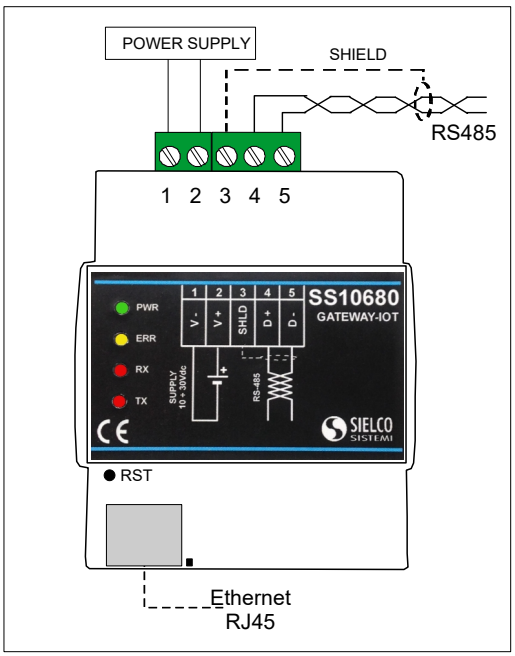
CONNECTIONS



LIGHT SIGNALLING

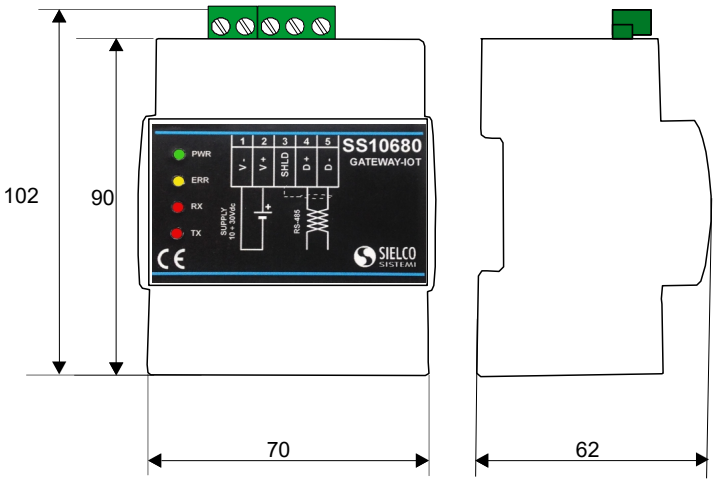
LED	COLOR	STATE	DESCRIPTION
PWR	GREEN	ON	Device powered
		OFF	Device not powered
ERROR	YELLOW	OFF	No error
		BLINK SLOW-FAST-FAST-FAST	Boot (about 60 sec, few minutes for the first boot)
		BLINK SLOW	Communication error (Modbus, MQTT etc.)
		BLINK FAST	Watchdog Restart
TX	RED	BLINK	Stream of data over transmission line of RS-485
		OFF	No data over transmission line of RS-485
RX	RED	BLINK	Stream of data over receiving line of RS-485
		OFF	No data over transmission line of RS-485

WIRING

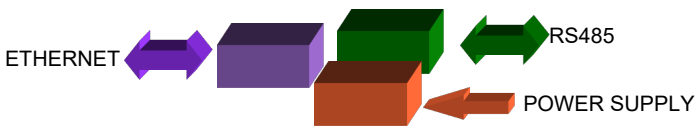


MECHANICAL DIMENSIONS (mm)

VIEW WITH TERMINAL COVER



ISOLATIONS STRUCTURE



HOW TO ORDER

“ SS10680-MOD “

Configuration:

IP Address: ☐☐☐☐ . ☐☐☐☐ . ☐☐☐☐ . ☐☐☐☐

SubNet Mask: ☐☐☐☐ . ☐☐☐☐ . ☐☐☐☐ . ☐☐☐☐

Gateway: ☐☐☐☐ . ☐☐☐☐ . ☐☐☐☐ . ☐☐☐☐

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

▭ = Requested
▭ = Optional