

FEATURES

- Modbus Slave device on RS-485
- Modbus RTU/ Modbus ASCII protocol
- 16 digital inputs with 8 digital 16 bit counters up to 100 Hz
- Communication parameters configurable by dip-switches
- Watch-Dog Alarm
- Remotely Configurable
- 1500 Vac 3-ways Galvanic Isolation
- LEDs of signalling on front side for power supply and communication
- LEDs of signalling on front side for digital inputs state
- Connection by removable screw terminals
- High Accuracy
- CE mark
- DIN rail mounting in compliance with EN-50022

GENERAL DESCRIPTION

The device SS10148 is able to acquire up to 16 digital inputs with connection NPN or PNP. The data are transmitted with MODBUS RTU/ASCII protocol over the RS-485 network.

To ensure the plant safety, a Watch-Dog timer alarm is provided.

The isolation between the parts of circuit removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

The device is housed in a 6 module DIN rough self-extinguishing plastic box for mounting on EN-50022 standard DIN rail.

COMMUNICATION PROTOCOLS

The device is designed to work with the MODBUS RTU/MODBUS ASCII protocol: standard protocol in field-bus; allows to directly interface SS10000 series devices to the larger part of PLCs and SCADA applications available on the market.

USER INSTRUCTIONS

Before to install the device, please read the "Installation Instruction" section.

It is possible to configure the device in two modes: by the dip-switches located on the front of the device or via software using the INIT modality.

Connect the terminal INIT to the terminal REF; at the power-on the device will be automatically set in the configuration set-up.

Connect power supply, serial bus, digital inputs as shown in the "Wiring" section.

The LEDs state depends on the working condition of the device: see the "Light Signalling" section to verify the device working state.

To simplify handling or replacing of the device, it is possible to remove the wired terminals even with the device powered.

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

INPUT Channels 16 Voltage input (bipolar) OFF State 0 ÷ 3 V ON State 10 ÷ 30 V Impedance 4.7 KΩ Sample time 5 ms Number of counters 8 Counter register size 16 bit Counter frequency up to 100 Hz Minimum pulse width 1 ms Data Transmission (RS-485 asynchronous serial) Baud Rate 115.2 Kbps Max. distance 1.2 Km – 4000 ft	POWER SUPPLY Power supply voltage 10 .. 30 Vdc Reverse polarity protection 60 Vdc max Current consumption (operative) 40 mA max@24Vdc 85 mA max@10Vdc
	ISOLATION Between all the ways 1500 Vac, 50 Hz, 1 min
	ENVIRONMENTAL CONDITIONS Operative Temperature -10°C .. +60°C Storage Temperature -40°C.. +85°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 Wiring wires with diameter 0.8÷2.1 mm ² /AWG 14-18 Tightening Torque 0.5 N m Mounting in compliance to DIN rail standard EN-50022 Weight about 200 g.
	CERTIFICATIONS EMC (for industrial environments) Immunity EN 61000-6-2 Emission EN 61000-6-4

INSTALLATION INSTRUCTIONS

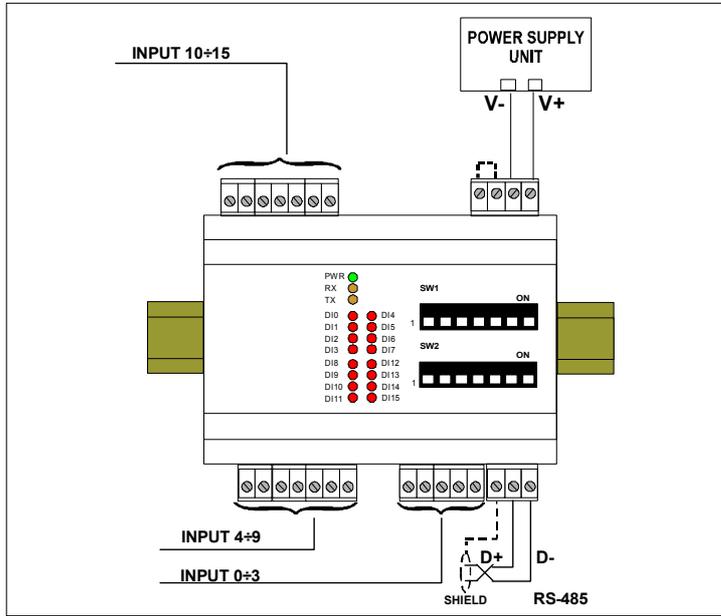
The SS10148 is suitable for fitting to DIN rails in the vertical position. For optimum operation and long life follow these instructions:

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 power supply voltage 10 Vdc. 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.

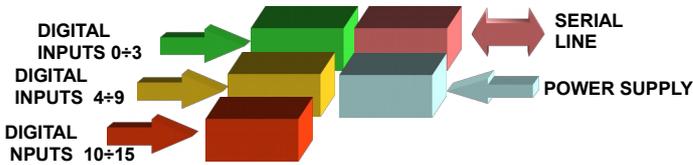
WIRING



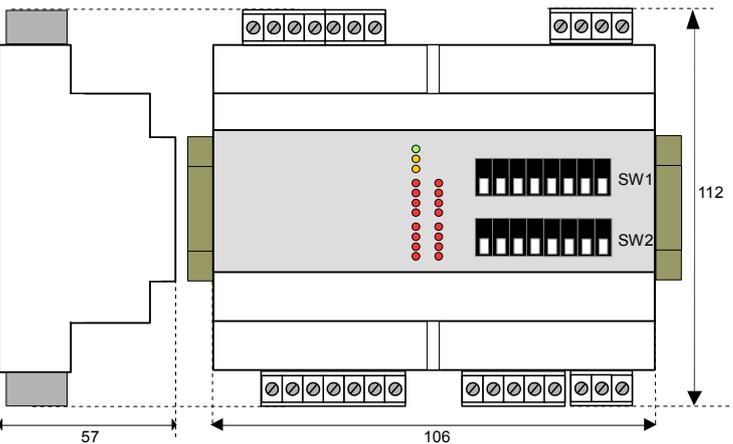
LIGHT SIGNALLING

LED	COLOUR	STATE	DESCRIPTION
PWR	GREEN	ON	Device powered
		OFF	Device not powered
		BLINK	~1 sec. - Watch-Dog alarm condition occurred
RX	ORANGE	BLINK	Stream of data over receiving line of RS-485
OFF		No data over receiving line of RS-485	
TX	ORANGE	BLINK	Stream of data over transmission line of RS-485
		OFF	No data over transmission line of RS-485
Din	RED	ON	Digital input ON state
		OFF	Digital input OFF state

ISOLATION STRUCTURE

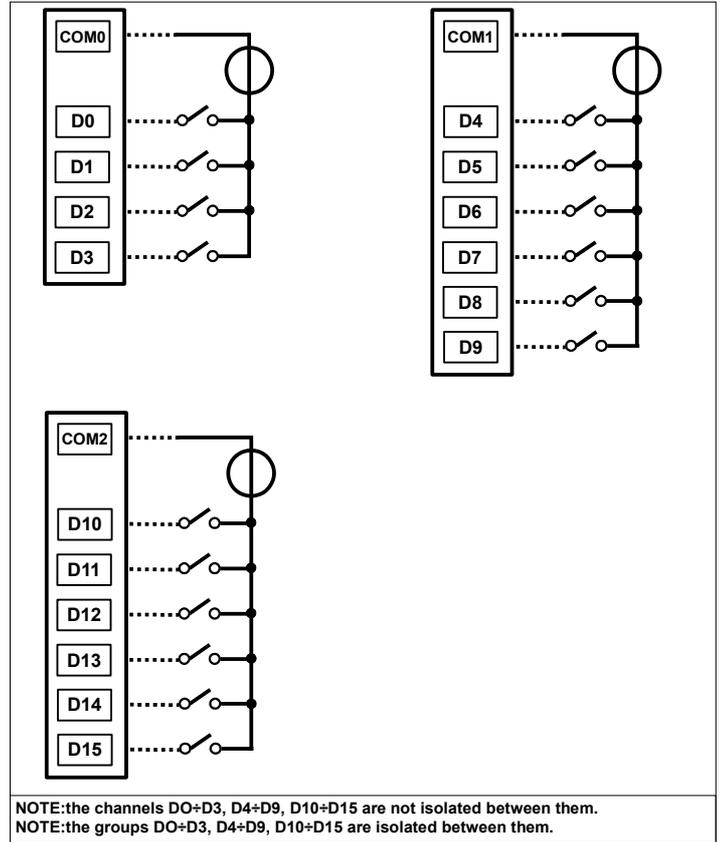


MECHANICAL DIMENSIONS (mm)



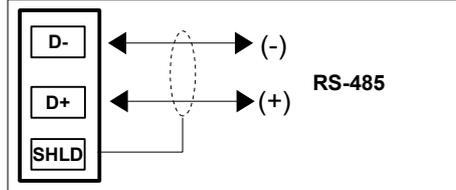
CONNECTIONS

DIGITAL INPUTS

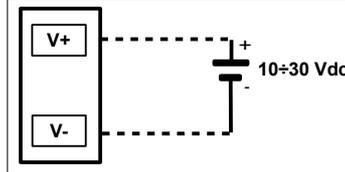


NOTE: the channels DO÷D3, D4÷D9, D10÷D15 are not isolated between them.
NOTE: the groups DO÷D3, D4÷D9, D10÷D15 are isolated between them.

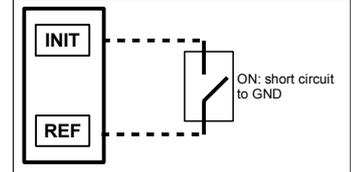
SERIAL LINE RS-485



POWER SUPPLY



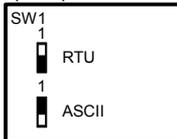
INIT



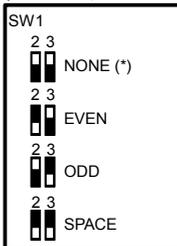
DIP-SWITCHES : TABLES OF CONFIGURATION

Warning: set all the dip-switches in OFF position to access to the device in EEPROM modality (the device will follow all the communication parameters set by software) or INIT. Power-off the device before to change the set of the dip-switches.

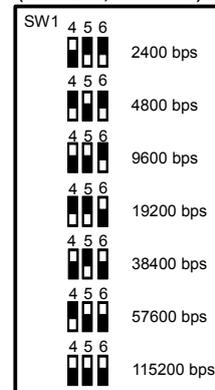
TAB.1 Mode settings (Pos.1)



TAB.2 Parity settings (Pos.2 LSB; Pos.3 MSB)



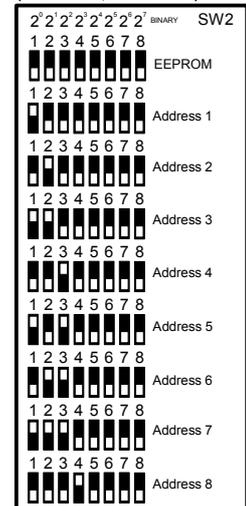
TAB.3 Baud rate settings (Pos.4 LSB; Pos.6 MSB)



DIP POSITION



TAB.4 Address Selection 1÷247 (Pos.1 LSB; Pos.8 MSB)



Note (*):
- in Modbus RTU Mode the setting is NONE; number of bit = 8
- in Modbus ASCII Mode the setting is MARK; number of bit = 7

HOW TO ORDER

SS 10148