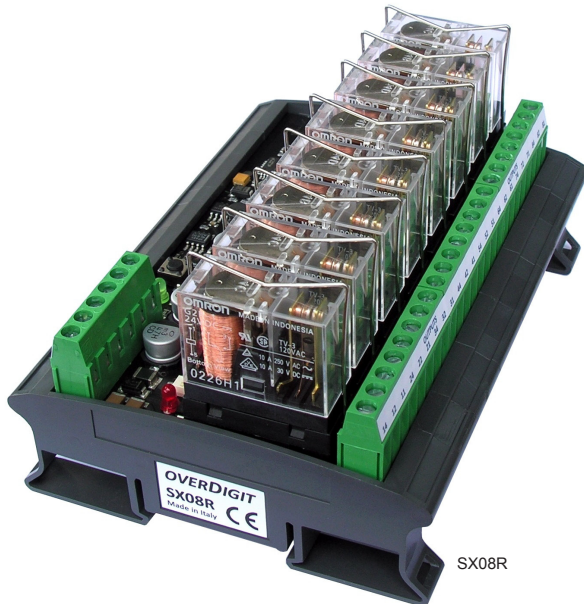


OVERDIGIT

Modbus I/O interfaces



SX08R

SX08R

- ✓ I/O interface - remotable on RS485 fieldbus
- ✓ 8 digital outputs with relay on socket
- ✓ High current relay: 10A/250Vac - 10A/30Vdc
- ✓ RS485 serial port with high speed (1Mb/s max)
- ✓ Modbus RTU protocol, configurable over RS485
- ✓ Security timer for communication supervisory
- ✓ CoDeSys libraries for configuration and use
- ✓ PC tool for configuring and testing modules
- ✓ Plastic support with DIN rail mounting

Interface with 8 relays on socket and Modbus RTU protocol

Relays interface module controlled via Modbus RTU over RS485 serial bus at high speed. The modules can also be installed hundreds of meters away with simplifications and savings in wiring.

The relays are equipped with LEDs signalling the state for an immediate diagnosis of the system and with sockets plus retaining spring for a simple and quick replacement.

Programmable timer for forcing outputs in the inactive state in case of the communication fault.

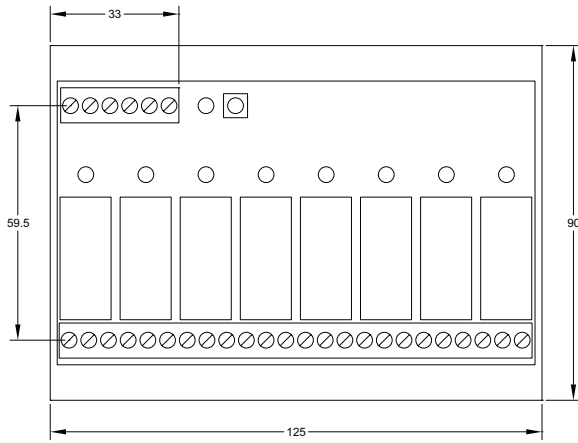
Configurable over fieldbus with Modbus direct commands, function block of CoDeSys library and PC software.

Easy integration into "PLC Configuration" menu of CoDeSys using a configuration file. Extensions of the Modbus protocol for updating the I/O up to 1Mb/s in a single frames exchange.

SPECIFICATION

Relay outputs	8
Max current (cos ϕ = 1)	10A @ 250Vac, 10A @ 30Vdc
Max current (cos ϕ = 0.4)	7.5A @ 250Vac, 5A @ 30Vdc
Max voltage	380Vac, 125Vdc
Max switching (cos ϕ = 1)	2500VA @ 250Vac, 300W @ 30Vdc
Max switching (cos ϕ = 0.4)	1875VA @ 250Vac, 150W @ 30Vdc
Min load	100mA @ 5Vdc, 1mA @ 5Vdc
Resistance	30m Ω max
Activation time / release time	15ms / 20ms max
Mechanical life	20 x 10 ⁶ min
Electrical life	10 ⁵ min
Dielectric strength	5000Vac (coil / contact)
Fieldbus	RS485 (fully compliant to TIA/EIA-485A)
Max nodes / Termination	64 / insertable 120 Ω load
Protection	Thermal / ESD 15kV
Baudrate	300b/s ÷ 1Mb/s (continuously prog.)
Protocol	Modbus RTU, address 1 ÷ 247, parity None/Odd/Even
Function codes	1, 3, 5, 6, 15, 16, 17, 23, 101, 102, 109, 110
Security timer	0 ÷ 600" (10ms step prog.)
Max performance	Complete I/O update within 250 μ s (measured at 1Mb/s with OVERDIGIT master)
Power supply	24Vdc \pm 15% / 210mA max
Operative temp.	-20°C to 70°C
Connections	Screw terminals for 28÷12AWG / 2.5mm ² cables
Support	ABS with 35mm DIN rail mount
Max dimensions	90 x 125 x 66 mm (H x W x D)

Dimensions



Modbus configuration

The modules of "SX series" are fully compatible with the "EX series" modules. All the functional features and programming mode remain unchanged from the EX series to which reference is made for further documentation.

The configuration of the protocol is done via commands sent over the fieldbus. The following parameters are available:

Parameter	Range	Default
Address	1 ÷ 247	1
Baudrate	300 ÷ 1000000	9600
Parity	0=No, 1=Odd, 2=Even, 3=No(1stop)	Even
Reset time	0 ÷ 60000 (x10ms, 0=No)	No

NOTE: to restore the default values the module must be powered on with PG button pressed for about 3".

The "Reset time" sets the maximum time allowed between two successive and correct sequences of communication. In case of absence or error of the frames, automatically the watchdog timer turns off the outputs of the module.

To change the communication parameters is available on PC the **Modbus-Tool** software that allows the reading and writing of the configuration of modules connected to the network and performs other useful service functions.

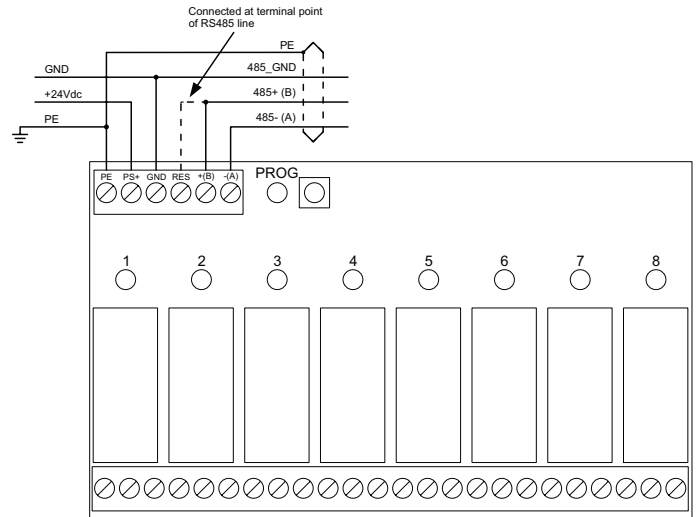
The "Test module" function automatically detects the type of device to a specific network address and allows testing of all its I/O resources.

The "Test function" menu can send the individual codes of protocol to one of the connected modules, acting as a Modbus master simulator.

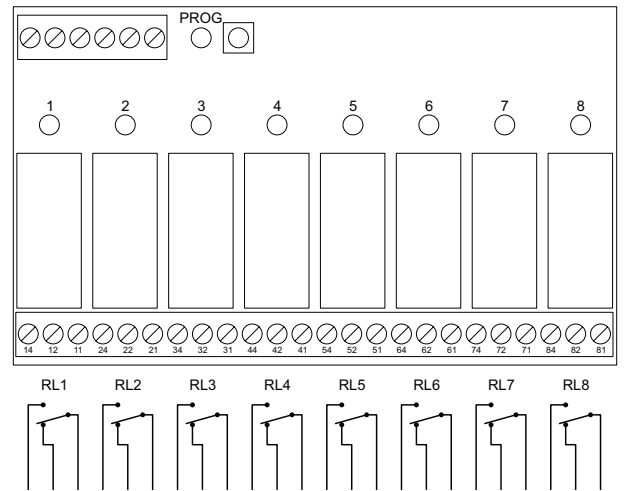
For the configuration can also be used a dedicated function block from **MODBUS_EX.lib** CoDeSys library. An IEC program, ready to be used as configuration utility, also indicates how to integrate this functionality into your application.

The SX series modules can be easily inserted into IEC application using CoDeSys development tool. The composition of "PLC Configuration" is made by loading consecutively all the modules connected, by selecting them from the menu listbox. The information on module resources are automatically readed from a specific file provided with the tool. For the Modbus communication management, a simple function block of library must be inserted in the application. This block extracts information from the PLC configuration to update all the I/O of modules.

Power supply and RS485 fieldbus



Digital outputs



Modbus data model

The resources available in the module are mapped to Modbus data areas using the following format:

Address	Fun. codes	Description
Coils		
0 ÷ 7	1, 5, 15	Output bits RL1 ÷ RL8
Holding Registers		
0	3, 6, 16, 23	RL1 ÷ RL8 outputs word

Order codes	
SX08R	Modbus slave, 8 Relays Out

Rev. 07/04/2018