Smart relays
Zelio Logic

Catalog

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General contents

Zelio Logic - Smart relays

Analogue interfaces

Product reference index

Smart relays - Zelio Logic
Smart relays for simple automation solutions

Step into an intuitive world!

Designed for the management of simple automation systems Zelio Logic smart relays, with their unique combination of value for money and ease of use, provide a real alternative to solutions based on cabled logic or specific cards.

Simple to select, install and program, Zelio Logic is suitable for all your applications.

Flexible, it offers you the choice of two ranges

> Compact versions with fixed configurations,

> Modular versions which allow the use of extension modules,

with two programming languages (FBD or LADDER).

Life Is On Schneider Electric

Smart relays - Zelio Logic
Smart relays for simple automation solutions

Benefits

More performance

> 2x more programming memory and more function blocks only via firmware update

More functionality

> PID function for HVAC applications and 2G/3G modem (1)

More efficiency, Reduce engineering time

> Free downloadable software & firmware from Schneider Electric website

> Software handling in less than one hour, simplified Ladder or FBD language & SFC programmable without tool for small applications

> Access to the program & modification of settings on embedded display

More flexibility - Easy design, maintenance and commissioning

> Compact and Modular Smart relay range with expandable units

> Programmable logic: a smart alternative to cabled logic or specific cards

System components

Monochrome HMI

The HMISTO501 is the Magelis terminal dedicated to Zelio Logic smart relays: 3.4" monochrome touch screen

+ Vijeo Designer Programming software

Colour HMI

The HMISTO705 is the Magelis terminal recommanded for Zelio Logic smart relays: 4.3" color touch screen

+ Vijeo XD Programming software

Zelio Logic Smart relay
> Compact
> with or without display

Zelio Logic Communication module
> Modem GSM/UMTS

Zelio Soft 2
Programming software

Zelio Logic Smart relay
> Modular
> with display

Zelio Logic I/O extension modules
> Analog I/Os
> Digital I/Os

Zelio Logic communication modules
> Modem GSM/UMTS
> Modbus serial line
> Ethernet Modbus/TCP

(1) Available 3rd Quarter 2017

Zelio Logic - Smart relays
Compact smart relays

Product type	**Compact smart relays**											
												
Supply voltage	**24 V ∿**		**48 V ∿**	**100...240 V ∿**			**12 V ⎓**		**24 V ⎓**		
Number of I/O	12	20	20	10	12	20	12	20	10	12	20
Number of discrete inputs (including analog inputs)	8 (0)	12 (0)	12 (0)	6 (0)	8 (0)	12 (0)	8 (4)	12 (6)	6 (0)	8 (4)	12 (2), 12 (6)
Number of "relay"/"transistor" outputs	4/0	8/0	8/0	4/0	4/0	8/0	4/0	8/0	4/0	4/0, 0/4	8/0, 0/8
With display, with clock Programming language	**SR2B●●1B** FBD *(1)* or LADDER		–	**SR2B●●●1FU** FBD *(1)* or LADDER			**SR2B●●1JD** FBD *(1)* or LADDER		**SR2B●●●BD** FBD *(1)* or LADDER		
With display, without clock Programming language	–		**SR2A201E** LADDER only	**SR2A●●●1FU** LADDER only			–		**SR2A●●●BD** LADDER only		
Without display, with clock Programming language	**SR2E●●1B** FBD *(1)* or LADDER		–	**SR2E●●●1FU** FBD *(1)* or LADDER			–		**SR2E●●●BD** FBD *(1)* or LADDER		
Without display, without clock Programming language	–		–	**SR2D●●●1FU** LADDER only			–		**SR2D●●●BD** LADDER only		
Programming software (see page 10)	"Zelio Soft 2" **SR2SFT01**			"Zelio Soft 2" **SR2SFT01**							
Connection accessories (see page 20) **Serial link cable**	**SR2CBL01**			**SR2CBL01**							
Connection accessories (see page 20) **USB connecting cable**	**SR2USB01**			**SR2USB01**							
Connection accessories (see page 20) **Magelis terminal connecting cable**	**SR2CBL08** for **XBTN**, **XBTR**, and **XBTRT** Magelis terminals **SR2CBL09** for **HMISTO501** and **HMISTO705** Magelis terminals			**SR2CBL08** for **XBTN**, **XBTR**, and **XBTRT** Magelis terminals **SR2CBL09** for **HMISTO501** and **HMISTO705** Magelis terminals							
Connection accessories (see page 20) **Bluetooth interface**	**SR2BTC01**			**SR2BTC01**							
Memory cartridge (see page 20)	**SR2MEM02** (⚠ incompatible with SR2COM01)			**SR2MEM02** (⚠ incompatible with SR2COM01)							
"Discovery" packs (see page 18)	–			**SR2PACK●FU**			–		**SR2PACK●BD**		
Modem communication interface (see page 32)	**SR2COM01**			**SR2COM01** (for SR2B and SR2E)			**SR2COM01**		**SR2COM01** (for SR2B and SR2E)		
GSM/UMTS modem (see page 32)	**SR2MOD02**			**SR2MOD02**			**SR2MOD02**		**SR2MOD02**		
Alarm management software (see page 33)	"Zelio Logic Alarm" **SR2SFT02**			"Zelio Logic Alarm" **SR2SFT02**			"Zelio Logic Alarm" **SR2SFT02**		"Zelio Logic Alarm" **SR2SFT02**		
Converters (thermocouple types J and K, Pt100 probes and voltage/current)	–			–			**RM●●●●BD**: *See Zelio Analog interfaces, page 38*				
Power supplies for DC control circuit	–			Please consult our website www.schneider-electric.com							
References	**SR2●●●1B**		**SR2A201E**	**SR2●●●1FU**			**SR2B●●1JD**		**SR2●●●●BD**		
Pages	16 and 17		16	16 and 17			16		16 and 17		

(1) FBD: Function Block Diagram

Zelio Logic - Smart relays
Modular smart relays and extensions

Product type	**Modular smart relays**								
									
Supply voltage	**24 V ∼**		**100...240 V ∼**		**12 V ⎓**	**24 V ⎓**			
Number of I/O	10	26	10	26	26	10	26		
Number of discrete inputs (including analog inputs)	6 (0)	16 (0)	6 (0)	16 (0)	16 (6)	6 (4)	16 (6)		
Number of "relay"/"transistor" outputs	4/0	10/0	4/0	10/0	10/0	4/0, 0/4	10/0, 0/10		
With display, with clock	Yes				Yes				
Programming language	FBD *(1)* or LADDER				FBD *(1)* or LADDER				
Programming software (see page 10)	"Zelio Soft 2" **SR2SFT01**				"Zelio Soft 2" **SR2SFT01**				
Connection accessories (see page 20) – **Serial link cable**	**SR2CBL01**				**SR2CBL01**				
Connection accessories (see page 20) – **USB connecting cable**	**SR2USB01**				**SR2USB01**				
Connection accessories (see page 20) – **Magelis terminal connecting cable**	**SR2CBL08** for **XBTN**, **XBTR**, and **XBTRT** Magelis terminals **SR2CBL09** for **HMISTO501** and **HMISTO705** Magelis terminals				**SR2CBL08** for **XBTN**, **XBTR**, and **XBTRT** Magelis terminals **SR2CBL09** for **HMISTO501** and **HMISTO705** Magelis terminals				
Connection accessories (see page 20) – **Bluetooth interface**	**SR2BTC01**				**SR2BTC01**				
Memory cartridge (see page 20)	**SR2MEM02** (⚠ incompatible with SR2COM01)				**SR2MEM02** (⚠ incompatible with SR2COM01)				
"Discovery" packs (see page 18)	–		**SR3PACK●BD**		–	**SR3PACK●BD**			
Modem communication interface (see page 32)	**SR2COM01**				**SR2COM01**				
GSM/UMTS modem (see page 33)	**SR2MOD02**				**SR2MOD02**				
Alarm management software (see page 33)	"Zelio Logic Alarm" **SR2SFT02**				"Zelio Logic Alarm" **SR2SFT02**				
Converters (thermocouple types J and K, Pt100 probes, and voltage/current)	–				**RM●●●●BD:** *See Zelio Analog interfaces, page 38*				
Power supplies for DC control circuit	–				Please consult our website www.schneider-electric.com				
References	**SR3B●●1B**		**SR3B●●1FU**		**SR3B261JD**	**SR3B●●●BD**			
Pages	19		19		19	19			

Associated extensions	**Discrete I/O extensions**						**Network communication extensions**		**I/O extensions**			
							Modbus serial link (slave)	**Ethernet port (server)**	**Analog**	**Discrete**		
							 or  and		 or 			
Number of I/O	6	10	14	6	10	14	6	10	14	■ Number of words: □ 4 (inputs) □ 4 (outputs) □ 4 (clock) □ 1 (status)	■ Number of words: □ 4 (inputs) □ 4 (outputs) □ 4 (clock) □ 1 (status)	4	6	10	14
Type and number of discrete inputs (or analog inputs)	4 (0)	6 (0)	8 (0)	4 (0)	6 (0)	8 (0)	4 (0)	6 (0)	8 (0)			0 (2)	4 (0)	6 (0)	8 (0)
Type and number of relay outputs (or analog outputs)	2 (0)	4 (0)	6 (0)	2 (0)	4 (0)	6 (0)	2 (0)	4 (0)	6 (0)			0 (2)	2 (0)	4 (0)	6 (0)
References	**SR3XT●●●B**			**SR3XT●●●FU**			**SR3XT●●●JD**		**SR3MBU01BD**	**SR3NET01BD**		**SR3XT43BD**	**SR3XT●●●BD**		
Pages	19			19			19		29			31	19		

(1) FBD: Function Block Diagram

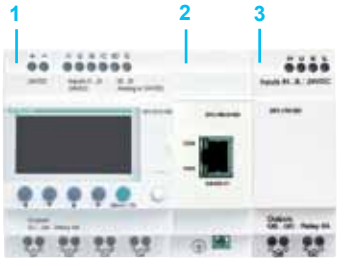
More technical information on www.schneider-electric.com

Zelio Logic - Smart relays
Compact and modular smart relays

Zelio Logic compact smart relay

Combination of modular smart relays and extensions

1 Modular Zelio Logic smart relay (10 or 26 I/O)
2 Discrete (6, 10, or 14 I/O) or analog (4 I/O) I/O extension



1 Modular Zelio Logic smart relay (10 or 26 I/O)
2 Modbus serial link or Ethernet Modbus/TCP network communication extensions
3 Discrete (6, 10, or 14 I/O) or analog (4 I/O) I/O extension

⚠ Observe the order of assembly above when using a Modbus slave or Ethernet server network communication extension and a discrete or analog I/O extension. An I/O extension cannot be inserted before the Modbus slave network communication extension.

Presentation

Zelio Logic smart relays are designed for use in small automated systems. They are used in both the industrial and commercial sectors.

■ **For industry:**
□ automation of small finishing, production, assembly, or packaging machines
□ small automated systems operating at 48 V ∿ (hoisting application, etc.)
□ decentralized automation of ancillary equipment for large and medium-sized machines (in the textile, plastics, materials processing sectors, etc.)
□ automation systems for agricultural machinery (irrigation, pumping, greenhouses, etc.)

■ **For the commercial/building sectors:**
□ automation of barriers, roller shutters, access control
□ automation of lighting systems
□ automation of compressors and air conditioning systems
□ etc.

Their compact size and ease of setup make them a competitive alternative to solutions based on cabled logic or specific cards.

■ **Programming**
Simple programming, backed up by the universal nature of the languages, meets the requirements of automation specialists and the needs of electricians.
Programming can be performed:
□ locally, using the buttons on the Zelio Logic smart relay (ladder language)
□ on a PC using “Zelio Soft 2” software
When using a PC, programming can be performed either in ladder language or in function block diagram (FBD) language (see page 10).

The LCD display unit backlight *(1)* is activated by pressing one of the 6 programming buttons on the Zelio Logic smart relay or by programming with “Zelio Soft 2” software (e.g. flashing when diagnosing a malfunction).

The clock has a lithium battery, which gives it an independent operating time of 10 years.
Data backup (preset values and current values) is provided by an EEPROM Flash memory (with the same lifetime as the smart relay).

Compact smart relays

Compact smart relays meet requirements for simple automation systems.
The number of I/O can be:
■ 12 or 20 I/O, supplied with 24 V ∿ or 12 V ⎓ power
■ 20 I/O, supplied with 48 V ∿ power
■ 10, 12, or 20 I/O, supplied with 100…240 V ∿ or 24 V ⎓ power

Modular smart relays and extensions

The number of I/O for modular smart relays can be:
■ 26 I/O, supplied with 12 V ⎓ power
■ 10 or 26 I/O, supplied with 24 V ∿, 100…240 V ∿, or 24 V ⎓ power

To improve performance and flexibility, Zelio Logic modular smart relays can take extensions to obtain a maximum of 40 I/O.
■ Modbus serial link or Ethernet Modbus/TCP network communication extensions, supplied with 24 V ⎓ power via the Zelio Logic smart relay at the same voltage
■ analog I/O extension with 4 I/O, supplied with 24 V ⎓ power via the Zelio Logic smart relay at the same voltage
■ discrete I/O extensions with 6, 10, or 14 I/O, supplied with power via the Zelio Logic smart relay at the same voltage

(1) LCD: Liquid cristal display

Connecting cable

Bluetooth interface

Memory cartridge

Modbus serial link communication extension

Ethernet Modbus/TCP communication extension

Modem communication interface

GSM/UMTS modem

HMISTO501 Small Panel with monochrome touch screen

SR2CBL09

HMISTO705 Small Panel with color touch screen

Communication

Cabled and wireless programming tools

■ These programming tools allow the Zelio Logic smart relay to be connected to a PC running “Zelio Soft 2” software:

□ Cable connection:
- SR2USB01 cable to USB port

or
- SR2CBL01 cable to 9-way serial port

□ Wireless link:
- SR2BTC01 Bluetooth interface

■ Memory cartridge

The Zelio Logic smart relay can take a backup memory cartridge that allows the application program to be copied to another Zelio Logic smart relay (it is only possible to load and update the firmware with the SR2MEM02 memory cartridge).

The memory cartridge also enables a backup copy of the program to be saved prior to replacing the product.

When used with a smart relay without display or buttons, the copy of the program contained in the cartridge is automatically transferred to the Zelio Logic smart relay on power-up.

Modbus serial link and Ethernet Modbus/TCP network communication extensions

The Modbus serial link and Ethernet Modbus/TCP network communication extension modules allow connection to automation system equipment such as display units or PLCs (see page 22).

Modem communication interface

The “modem communication interface” offer in the Zelio Logic range includes:
- an SR2COM01 modem communication interface connected between a Zelio Logic smart relay and a modem
- an SR2MOD02 GSM/UMTS *(1)* modem
- SR2SFT02 “Zelio Logic Alarm” software

This offer is designed for monitoring or remote control of machines or installations that operate without personnel.

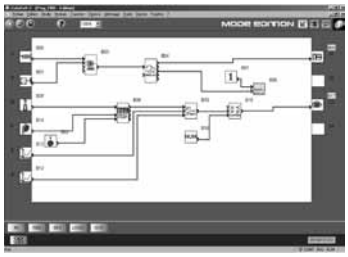
The modem communication interface, supplied with 12...24 V ⎓ power, enables messages, phone numbers, and calling conditions to be stored (see page 32).

HMI terminals

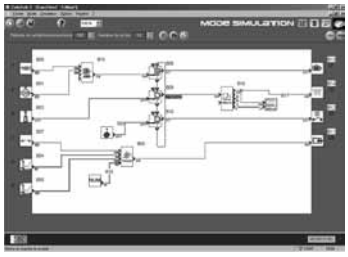
HMISTO Small Panels offer added value to the equipment by enabling the creation of eye-catching dialog screens.
They are available in monochrome (HMISTO501) or color (HMISTO705) versions.
The connect directly to the front panel of the smart relays in the memory cartridge slot via the special cable (SR2CBL09).
The terminals are configured using Vijeo Designer (HMISTO501) or Vijeo XD (HMISTO705) software. Exchanges with the smart relay are simplified using the SLIn and SLout data exchange blocks in“Zelio Soft 2” (FBD language only).
24 words can be exchanged in each direction.

(1) Global System Mobile (2G)/Universal Mobile Telecommunications System (3G)

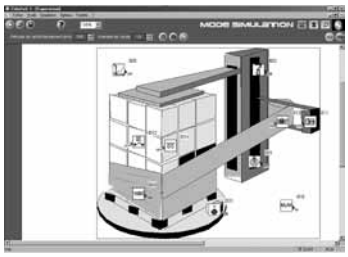
Zelio Logic - Smart relays
Compact and modular smart relays
“Zelio Soft 2” programming software



Programming in FBD language



Simulation mode



Monitoring window

“Zelio Soft 2” for PC - version 5.0 *(1)*

“Zelio Soft 2” software enables:
- programming in ladder language or function block diagram (FBD) language (see page 12)
- simulation, monitoring, and supervision
- uploading and downloading of programs
- print-out of customized files
- automatic program compilation
- online help

Consistency checks and application languages

“Zelio Soft 2” monitors applications by means of its consistency check function. An indicator turns red at the slightest input error (ladder language). The problem can be located simply by clicking the mouse.
“Zelio Soft 2” software allows users to switch between the 6 languages (English, French, German, Italian, Portuguese, and Spanish) at any time and edit the application file in the selected language.

Inputting messages for display on Zelio Logic

“Zelio Soft 2” software allows text function blocks to be configured, which can then be displayed on Zelio Logic smart relays that have a display.

Program testing

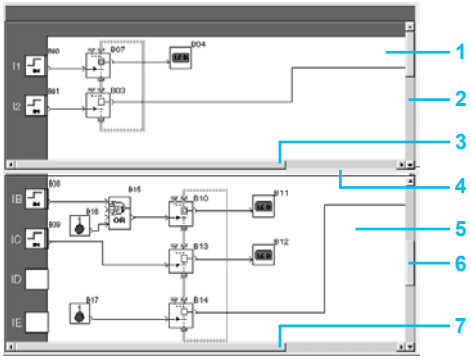
2 test modes are provided:
- The **simulation** mode in “Zelio Soft 2” is used to test a program without a Zelio Logic smart relay, i.e.:
  - to enable discrete inputs
  - to display output status
  - to vary the voltage of the analog inputs
  - to enable the programming buttons
  - to simulate the application program in real time or in accelerated time
  - to display the different active elements of the program dynamically in red

- The **monitoring** mode in “Zelio Soft 2” is used to test the program executed by the smart relay, i.e.:
  - to display the program “online”
  - to force inputs, outputs, auxiliary relays, and current function block values
  - to adjust the date and time
  - to change from STOP mode to RUN mode and vice versa

In simulation or monitoring mode, the supervision window allows users to view the status of the smart relay I/O within the application environment (diagram or image).

(1) These functions exist for versions ≥ V 5.0.

Zelio Logic - Smart relays
Compact and modular smart relays
“Zelio Soft 2” programming software



Structure of a split wiring sheet

User interfaces

“Zelio Soft 2” software (versions ≥ 4.1) improves the ease of use of user interfaces for the following functions:

“Split wiring sheet” function (FBD language)

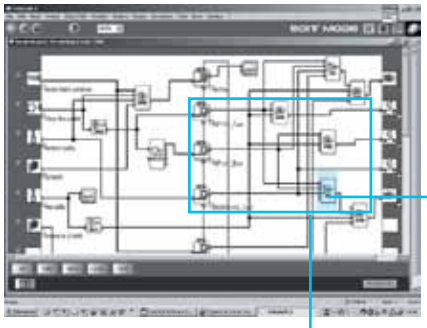
The wiring sheet can be split into 2 to allow two separate parts of the wiring sheet to be displayed on the same screen.

This can be used to:
- Display the required function blocks in the top and bottom parts of the screen
- Move the split bar as required
- Connect the function blocks between the 2 parts of the wiring sheet

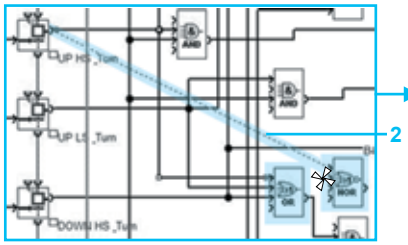
The split wiring sheet is structured as follows:
1 View of top part
2 Top window vertical scroll bar
3 Top window horizontal scroll bar
4 Split bar
5 View of bottom part
6 Bottom window vertical scroll bar
7 Bottom window horizontal scroll bar

“Replace function block” function (FBD language)

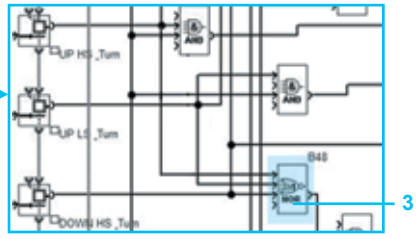
This function allows a block to be replaced without losing the input and output connections.
E.g. Replacing an “OR” block with a “NOR” block



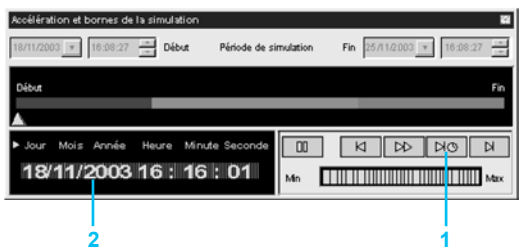
1 “OR” block to be replaced



2 Move the links to the new “NOR” block



3 Delete the “OR” block and position the “NOR” block in its place



“Acceleration and simulation terminals” window

“Time Prog simulation” function (ladder and FBD languages)

Ladder or FBD program simulation mode allows the program to be debugged by simulating it on the software workshop host computer.
A function allows the time on the simulator clock to be modified by setting to 3 s before the start of the next event.

The “Next event” button 1 is used to modify the simulator clock 2.

Zelio Logic - Smart relays
Compact and modular smart relays
"Zelio Soft 2" programming software

Ladder language

Definition


Text function block


Timer


Up/down counter


Fast counter

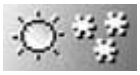

Analog comparator


Clock


Auxiliary relay


Counter comparator


LCD backlight


Daylight saving time change


Output coil

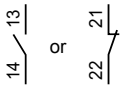
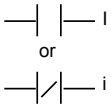

Message

Ladder language enables a ladder program to be written with elementary functions, elementary function blocks, and derived function blocks, as well as with contacts, coils, and variables.
The contacts, coils, and variables can be annotated. Text can be placed freely within the graphic.

■ **Ladder diagram input modes**
"Zelio input" mode allows users who have programmed the Zelio Logic smart relay directly on the device to achieve the same ease of use, even when using the software for the first time.
"Ladder input" mode, which is more intuitive, is very user-friendly and incorporates many additional features.
Two types of symbol can be used in ladder programming language:
□ ladder symbols
□ electrical symbols
"Ladder input" mode also allows the creation of mnemonics and comments associated with each program line.
Instant switching from one input mode to the other is possible at any time, simply by clicking the mouse.
Up to 240 *(1)* ladder diagram lines can be programmed, with 5 contacts and 1 coil per program line.

■ **Functions**
□ 16 text function blocks
□ 28 *(1)* timers, each of which can be configured from among 11 different types (from 1/10 second to 9999 hours)
□ 28 *(1)* up/down counters from 0 to 32767
□ 1 fast counter (1 kHz)
□ 16 analog comparators
□ 8 clocks, each with 4 channels
□ 56 *(1)* auxiliary relay
□ 8 counter comparators
□ LCD screen with programmable backlight
□ automatic daylight saving time changeover
□ variety of functions: coil, latching (Set/Reset), impulse relay, contactor
□ 28 message blocks (with modem communication interface, see page 32)

Functions

Function	Electrical scheme	Ladder language	Comment
Contact			I corresponds to the real state of the contact wired to the smart relay input. i corresponds to the inverse state of the contact wired to the smart relay input.
Standard coil			The coil is energized when the contacts to which it is connected are closed.
Latch coil (Set)			The coil is energized (set) when the contacts to which it is connected are closed. It remains energized even if the contacts are no longer closed.
Unlatch coil (Reset)			The coil is de-energized (reset) when the contacts to which it is connected are closed. It remains de-energized even if the contacts are no longer closed.

(1) Possible using version V5.0 and above of "Zelio Soft 2" provided that the SR2COM01 communication module is not used. If this module is used, 16 timers, 16 counters, and 32 auxiliary relays are available and the program is limited to 120 ladder diagram lines.

Function block language (FBD/Grafcet SFC/logic functions) *(1)*

Definition

FBD language allows graphical programming based on the use of predefined function blocks, and provides the use of:
- 34 preprogrammed functions for counting, time delay, timing, switching threshold definition (e.g. temperature regulation), pulse generation, time programming, multiplexing, display
- 7 SFC functions
- 6 logic functions

Pre-programmed functions

Zelio Logic smart relays provide a high processing capacity, up to 500 *(2)* function blocks, including 34 pre-programmed functions:

TIMER AC


Timer. Function A/C
(ON-delay and OFF-delay)

TIMER BH


Timer. Function BH.
(adjustable pulsed signal)

TIMER Li


Pulse generator
(ON-delay, OFF-delay)

TIMER BW


Timer. Function BW
(pulse on edge)

TIMER AC


Timer. Function A/C with external preset adjustment
(ON-delay and OFF-delay)

TIMER BH


Timer. Function BH with external preset adjustment
(adjustable pulsed signal)

TIMER Li


Pulse generator with external preset adjustment
(ON-delay and OFF-delay)

BISTABLE


Impulse relay function

SET- RESET


Bistable latching - Priority assigned either to SET or RESET function

BOOLEAN


Allows logic equations to be created between connected inputs

CAM


Cam programmer

PRESET COUNT


Up/down counter

UP DOWN COUNT


Up/down counter with external preset

PRESET H-METER


Hour counter
(hour, minute preset)

TIME PROG


Time programmer, weekly and annual

GAIN


Allows conversion of an analog value by change of scale and offset

TRIGGER


Defines an activation zone with hysteresis

MUX


Multiplexing functions on 2 analog values

COMP IN ZONE


Zone comparison
(Min. ⩽ Value ⩽ Max.)

ADD/SUB

Add and/or subtract function

MUL/DIV

Multiply and/or divide function

TEXT


Display of digital and analog data, date, time, messages for Human-Machine interface

DISPLAY


Display of digital and analog data, date, time, messages for Human-Machine interface

COM


Sending of messages with communication interface
(see page 32)

COMPARE


Comparison of 2 analog values using the operands
=, >, <, ⩽, ⩾

STATUS


Access to smart relay status

ARCHIVE


Storage of 2 values simultaneously

SPEED COUNT


Fast counting up to 1 kHz

CAN


Analog-to-digital converter

CNA


Digital-to-analog converter

SL In


Input of a word via serial link

SL Out


Output of a word via serial link

SUNTRACK


Follows the sun's position

SUNRISE/SUNSET

Outputs the sunrise and sunset times

SFC functions *(3)* (GRAFCET)

RESET-INIT


Reinitializable step

INIT STEP


Initial step

STEP


SFC step

DIV-OR 2


Divergence to OR

CONV-OR 2


Convergence to OR

DIV-AND 2


Divergence to AND

CONV-AND 2

Convergence to AND

Logic functions

AND

AND function

OR

OR function

NAND

NOT AND function

NOR

NOT OR function

XOR

Exclusive OR function

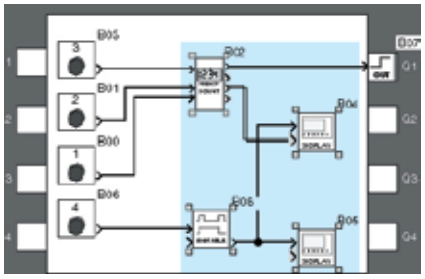
NOT

NOT function

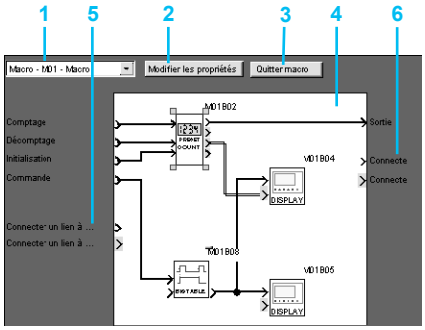
(1) Function block diagram
(2) Possible in version V5.0 or above of "Zelio Soft 2"
(3) Sequential function chart

Function block language (FBD/Grafcet SFC/logic functions) (continued)

Macro function

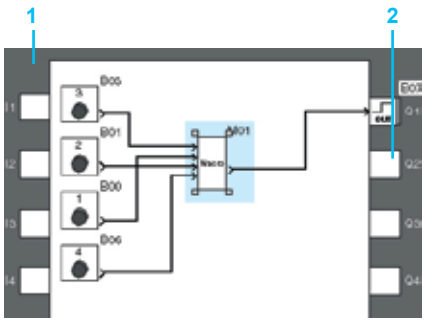


Creating a macro



Inside a macro

1 Select macro
2 Edit properties
3 Return to external view of a macro
4 Internal function block in the macro
5 Non-connected inputs
6 Non-connected outputs



External view of a macro

1 Input connections
2 Output connection

A macro is a group of function blocks. It is characterized by its number, name, links, internal function blocks (255 max.), and its I/O connections.

Seen from the outside, a macro behaves like a function block with inputs and/or outputs likely to be connected to links.
Once created, a macro can be manipulated like a function block.

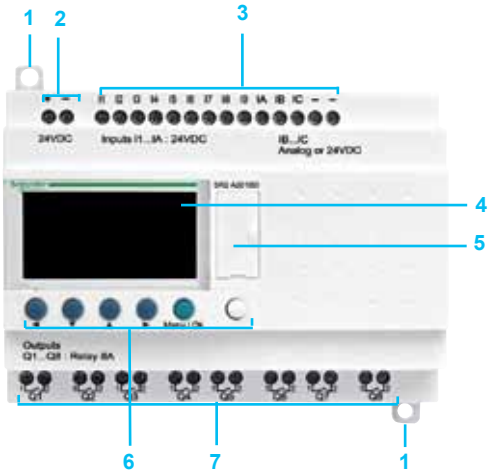
■ Macro characteristics:
- ☐ The maximum number of macros is 64.
- ☐ A password dedicated to macros can be used to protect their content.
- ☐ A macro can be edited/duplicated.
- ☐ A macro's comments can be edited.

■ Macro properties:
A "Macro Properties" dialog box is used to enter or modify the properties of a macro.
The properties of a macro are as follows:
- ☐ Macro name (optional)
- ☐ Block symbol, which may be:
  - an identifier
  - an image
- ☐ Name of inputs
- ☐ Name of outputs

Zelio Logic - Smart relays
Compact and modular smart relays

Compact smart relays

With display - 10, 12, and 20 I/O



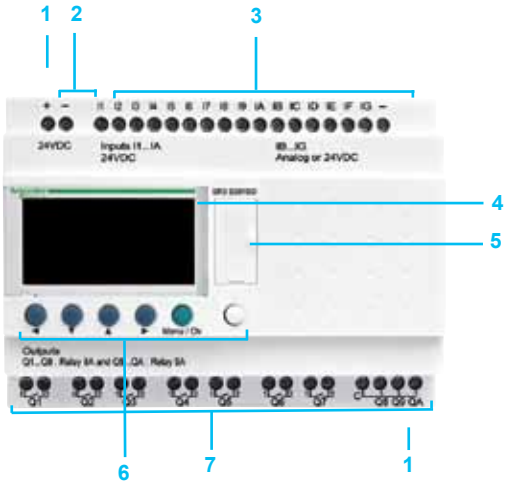
Without display - 10, 12, and 20 I/O

Zelio Logic compact smart relay front panels comprise:

1 Two retractable mounting feet
2 Two power supply terminals
3 Terminals for connecting the inputs
4 Backlit LCD display with 4 lines of 18 characters
5 Slot for memory cartridge or connection to PC, modem communication interface, or HMI terminal (Magelis Small Panel)
6 6 buttons for programming and parameter entry
7 Terminals for connecting the outputs

Modular smart relays

With display - 10 and 26 I/O



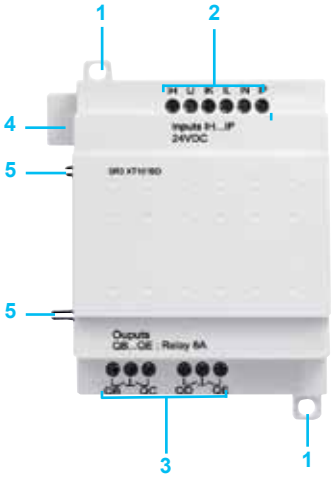
Zelio Logic modular smart relay front panels comprise:

1 Two retractable mounting feet
2 Two power supply terminals
3 Terminals for connecting the inputs
4 Backlit LCD display with 4 lines of 18 characters
5 Slot for memory cartridge or connection to PC, modem communication interface, or HMI terminal (Magelis Small Panel)
6 6 buttons for programming and parameter entry
7 Terminals for connecting the outputs

Discrete I/O extensions

6 discrete I/O

10 and 14 discrete I/O



Discrete I/O extension front panels comprise:

1 Two retractable mounting feet
2 Terminals for connecting the inputs
3 Terminals for connecting the outputs
4 Connector for connection to the Zelio Logic smart relay (powered via the Zelio Logic smart relay)
5 Locating pegs

Zelio Logic - Smart relays
Compact smart relays

SR2A201BD

SR2SFT01

SR2PACK●●●

Modem communication interface

Compact smart relays with display

Number of I/O	Discrete inputs	Including 0-10 V ⎓ analog inputs	Relay outputs	Transistor outputs	Clock	Reference	Weight kg / lb
24 V ∿ power supply							
12	8	0	4	0	Yes	**SR2B121B**	0.250 / *0.551*
20	12	0	8	0	Yes	**SR2B201B**	0.380 / *0.838*
48 V ∿ power supply							
20	12	0	8	0	No	**SR2A201E** *(1)*	0.380 / *0.838*
100...240 V ∿ power supply							
10	6	0	4	0	No	**SR2A101FU** *(1)*	0.250 / *0.551*
12	8	0	4	0	Yes	**SR2B121FU**	0.250 / *0.551*
20	12	0	8	0	No	**SR2A201FU** *(1)*	0.380 / *0.838*
					Yes	**SR2B201FU**	0.380 / *0.838*
12 V ⎓ power supply							
12	8	4	4	0	Yes	**SR2B121JD**	0.250 / *0.551*
20	12	6	8	0	Yes	**SR2B201JD**	0.380 / *0.838*
24 V ⎓ power supply							
10	6	0	4	0	No	**SR2A101BD** *(1)*	0.250 / *0.551*
12	8	4	4	0	Yes	**SR2B121BD**	0.250 / *0.551*
			0	4	Yes	**SR2B122BD**	0.220 / *0.485*
20	12	2	8	0	No	**SR2A201BD** *(1)*	0.380 / *0.838*
		6	8	0	Yes	**SR2B201BD**	0.380 / *0.838*
			0	8	Yes	**SR2B202BD**	0.280 / *0.617*

"Zelio Soft 2" software

See page 20

Connection accessories

See page 20

Compact "discovery" packs

Number of I/O	Pack contents: - Compact smart relay with display - "Zelio Soft 2" programming software on CD-ROM - SR2USB01 PC connecting cable Description of compact smart relay with display	Reference	Weight kg / lb
100...240 V ∿ power supply			
12	SR2B121FU	**SR2PACKFU**	0.700 / *1.543*
20	SR2B201FU	**SR2PACK2FU**	0.850 / *1.874*
24 V ⎓ power supply			
12	SR2B121BD	**SR2PACKBD**	0.700 / *1.543*
20	SR2B201BD	**SR2PACK2BD**	0.700 / *1.543*

Modem communication interface

12...24 V ⎓ power supply

Description	Reference
Modem communication interface	See page 32

(1) Programming in ladder language only

Zelio Logic - Smart relays
Compact smart relays

SR2E121BD

SR2SFT01

SR2USB01

Modem communication interface

Compact smart relays without display

Number of I/O	Discrete inputs	Including 0-10 V ⎓ analog inputs	Relay outputs	Transistor outputs	Clock	Reference	Weight kg *lb*
24 V ∼ power supply							
12	8	0	4	0	Yes	**SR2E121B**	0.220 *0.485*
20	12	0	8	0	Yes	**SR2E201B**	0.350 *0.772*
100...240 V ∼ power supply							
10	6	0	4	0	No	**SR2D101FU** *(1)*	0.220 *0.485*
12	8	0	4	0	Yes	**SR2E121FU**	0.220 *0.485*
20	12	0	8	0	No	**SR2D201FU** *(1)*	0.350 *0.772*
					Yes	**SR2E201FU**	0.350 *0.772*
24 V ⎓ power supply							
10	6	0	4	0	No	**SR2D101BD** *(1)*	0.220 *0.485*
12	8	4	4	0	Yes	**SR2E121BD**	0.220 *0.485*
20	12	2	8	0	No	**SR2D201BD** *(1)*	0.350 *0.772*
		6	8	0	Yes	**SR2E201BD**	0.350 *0.772*

"Zelio Soft 2" software

See page 20

Accessories

See page 20

Modem communication interface

12...24 V ⎓ power supply

Description	Reference
Modem communication interface	See page 32

(1) Programming in ladder language only

Zelio Logic - Smart relays
Modular smart relays

SR3B261B

SR2SFT01

SR2PACK●●●

Modular smart relays with display

Number of I/O	Discrete inputs	Including 0-10 V ⎓ analog inputs	Relay outputs	Transistor outputs	Clock	Reference	Weight kg / lb
24 V ∿ power supply							
10	6	0	4	0	Yes	**SR3B101B**	0.250 / *0.551*
26	16	0	10 *(1)*	0	Yes	**SR3B261B**	0.400 / *0.882*
100...240 V ∿ power supply							
10	6	0	4	0	Yes	**SR3B101FU**	0.250 / *0.551*
26	16	0	10 *(1)*	0	Yes	**SR3B261FU**	0.400 / *0.882*
12 V ⎓ power supply							
26	16	6	10 *(1)*	0	Yes	**SR3B261JD**	0.400 / *0.882*
24 V ⎓ power supply							
10	6	4	4	0	Yes	**SR3B101BD**	0.250 / *0.551*
			0	4	Yes	**SR3B102BD**	0.220 / *0.485*
26	16	6	10 *(1)*	0	Yes	**SR3B261BD**	0.400 / *0.882*
			0	10	Yes	**SR3B262BD**	0.300 / *0.661*

"Zelio Soft 2" software

See page 20.

Connection accessories

See page 20.

Modular "discovery" packs

Number of I/O	Pack contents: - Modular smart relay with display - "Zelio Soft 2" programming software on CD-ROM - SR2USB01 PC connecting cable Description of modular smart relay with display	Reference	Weight kg / lb
100...240 V ∿ power supply			
10	SR3B101FU	**SR3PACKFU**	0.700 / *1.543*
26	SR3B261FU	**SR3PACK2FU**	0.850 / *1.874*
24 V ⎓ power supply			
10	SR3B101BD	**SR3PACKBD**	0.700 / *1.543*
26	SR3B261BD	**SR3PACK2BD**	0.850 / *1.874*

(1) Including 8 outputs at maximum current of 8 A and 2 outputs at maximum current of 5 A.
***Note**: The Zelio Logic smart relay and its associated extensions have an identical voltage to be able to operate together.*

Zelio Logic - Smart relays
Modular smart relays

Modbus serial link communication extension

Ethernet Modbus/TCP communication extension

SR3XT141JD

Modem communication interface

Communication extension *(1)*

24 V ⎓ power supply (via SR3B...BD smart relays)

For use with	Communication ports	Reference
SR3B●●1BD and SR3B●●2BD Zelio Logic modular smart relays	Modbus RS485 serial link (RJ45)	See page 22
	Ethernet Modbus/TCP (RJ45)	See page 22

Analog I/O extension *(2)*

24 V ⎓ power supply (via Zelio logic SR3B...BD smart relay)

Number of I/O	Inputs	Including ⎓		Including Pt100	0 - 10 V ⎓ output	Reference
		0 - 10 V	0 - 20 mA			
4	2 *(3)*	2 max.	2 max.	1 max.	2	See page 30

Discrete I/O extensions

Number of I/O	Discrete inputs	Relay outputs	Reference	Weight kg *lb*
24 V ∿ power supply (via Zelio logic SR3B●●●B smart relays)				
6	4	2	**SR3XT61B**	0.125 *0.276*
10	6	4	**SR3XT101B**	0.200 *0.441*
14	8	6 *(4)*	**SR3XT141B**	0.220 *0.485*
100-240 V ∿ power supply (via Zelio logic SR3B●●●FU smart relays)				
6	4	2	**SR3XT61FU**	0.125 *0.276*
10	6	4	**SR3XT101FU**	0.200 *0.441*
14	8	6 *(4)*	**SR3XT141FU**	0.220 *0.485*
12 V ⎓ power supply (via Zelio logic SR3B261JD smart relay)				
6	4	2	**SR3XT61JD**	0.125 *0.276*
10	6	4	**SR3XT101JD**	0.200 *0.441*
14	8	6 *(4)*	**SR3XT141JD**	0.220 *0.485*
24 V ⎓ power supply (via Zelio logic SR3B●●●BD smart relays)				
6	4	2	**SR3XT61BD**	0.125 *0.276*
10	6	4	**SR3XT101BD**	0.200 *0.441*
14	8	6 *(4)*	**SR3XT141BD**	0.220 *0.485*

Modem communication interface

12...24 V ⎓ power supply

Description	Reference
Modem communication interface	See page 32

(1) See page 22.
(2) See page 30.
(3) See page 31.
(4) Including 4 outputs at maximum current of 8 A and 2 outputs at maximum current of 5 A.
***Note**: The Zelio Logic smart relay and its associated extensions have an identical voltage to be able to operate together.*

SR_531_CPFJR16066B-14108

SR2SFT01

PA577329

HMISTO501

PF153902B

HMISTO705

SR_531_CPFJR16063

SR2USB01

SR_531_CPF_JR16062B

SR2CBL09

SR_531_CPFJR16058B

SR2BTC01

SR_531_CPFJR16068

SR2MEM02

Programming

Description	Use	Reference	Weight kg *lb*
"Zelio Soft 2" software			
Programming software "Zelio Soft 2", multi-language, supplied on CD-ROM *(1)*	For PC and 32-bit and 64-bit operating systems compatible with Windows 7, 8.1, and 10	**SR2SFT01**	0.200 *0.441*
HMI			
Magelis Small Panel with monochrome touch screen	3.4" monochrome screen with 3 colors (green, orange, red) 16 MB application memory capacity Programmed using Vijeo Designer ≥ V6.0	**HMISTO501**	0.200 *0.441*
Magelis Small Panel with color TFT touch screen	4.3" color screen 26 MB application memory capacity Programmed using Vijeo XD	**HMISTO705** *(2)*	0.220 *0.485*
Connection accessories			
Connecting cables Length: 3 m *(9.84 ft.)* For use with "Zelio Soft 2"	Between the PC (9-way SUB-D connector and the Zelio Logic smart relay (programming port connector)	**SR2CBL01**	0.150 0.331
	Between the PC (USB connector) and the Zelio Logic smart relay (programming port connector)	**SR2USB01**	0.100 *0.220*
Connecting cables Length: 2.5 m *(8.20 ft.)*	Between the Magelis XBTN, XBTR, or XBTRT Small Panel (8-way mini-DIN connector) and the Zelio Logic smart relay (programming port connector)	**SR2CBL08**	0.100 *0.220*
	Between the Magelis HMISTO501 or HMISTO705 Small Panel (9-way removable screw terminal block) and Zelio Logic smart relays (programming port connector)	**SR2CBL09**	-
Bluetooth interface for Zelio Logic smart relays	Between the PC (wireless link) and the Zelio Logic smart relay. Range of 10 m *(32.80 ft.)* (class 2)	**SR2BTC01**	0.015 *0.033*
Memory cartridges *(3)*			
EEPROM memory cartridges	For firmware (software embedded in the smart relay) version ≤ 2.4	**SR2MEM01**	0.010 *0.022*
	For firmware (software embedded in the smart relay) version ≥ 3.0	**SR2MEM02**	0.010 *0.022*

Documentation available online

User Manuals for direct programming on the Zelio Logic smart relay (in English, French, German, Italian, Portuguese, or Spanish): please consult our website www.schneider-electric.com

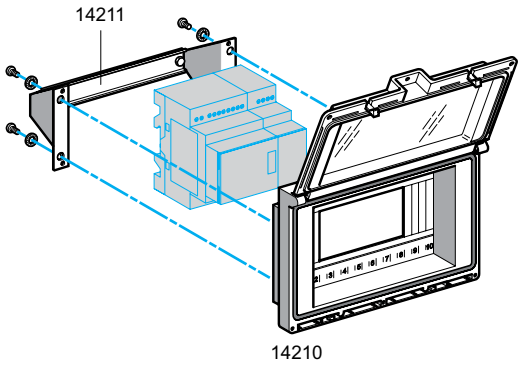
Regulated switch mode power supplies

Input voltage	Nominal output voltage	Reference
100...240 V ∿ (50/60 Hz)	5 V ⎓, 12 V ⎓, or 24 V ⎓	Please consult our website www.schneider-electric.com

Converters

Description	Reference
Converters for J and K type thermocouples, for Pt100 probes, and voltage/current	See page 38

(1) Also available as a free download from www.schneider-electric.com.
(2) The SR2CBL09 cable used to connect an HMISTO705 terminal to a smart relay must be equipped with a shunt between the terminals marked CTS and RTS.
(3) The use of memory cartridge SR2MEM02 to load the program is not compatible with the SR2COM01 modem communication interface.



Mounting accessories

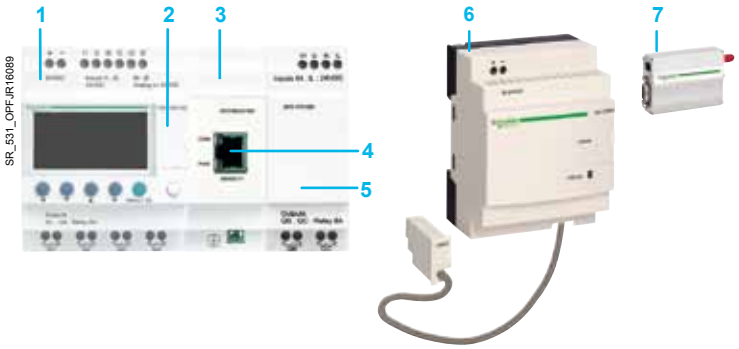
Description/use	Mounting capacity	Reference	Weight kg *lb*
Dust and damp-proof enclosure with split blanking plate arrangement, equipped with an IP 55 dust and damp proof window with hinged flap for mounting through a door	- 1 or 2 SR2 smart relays with 10 or 12 I/O - or 1 SR2 smart relay with 20 I/O - or 1 SR3 smart relay with 10 I/O + 1 I/O extension with 6, 10, or 14 I/O - or 1 SR3 smart relay with 26 I/O + 1 I/O extension with 6 I/O	**14210**	0.350 *0.772*
Mounting bracket and symmetrical mounting rail	For mounting enclosure **14210** through a door panel	**14211**	0.210 *0.463*

Zelio Logic - Smart relays
Communication

Presentation

In order to communicate with their environment, Zelio Logic compact and modular smart relays and their extensions are equipped with various types of communication port.

- Compact and modular smart relays feature 1 serial link port for connecting a PC, the modem communication interface, a memory cartridge slot, or an HMI terminal. This port uses a dedicated Zelio Logic communication protocol.
- Zelio Logic modular smart relay extensions feature:
  - 1 RS 485 serial link port using the Modbus protocol on the **SR3MBU01BD** extension
  - 1 Ethernet Modbus/TCP 10/100 base T port on the **SR3NET01BD** extension



1 Modular smart relay (10 or 26 I/O)
2 Serial link port, Zelio Logic connector
3 Modbus slave or Ethernet server communication extension module
4 RJ45 connector for Modbus serial link or Ethernet Modbus/TCP network connection
5 Discrete (6, 10, or 14 I/O) or analog (4 I/O) I/O extension
6 Modem communication interface
7 GSM/UMTS modem

⚠ *Observe the order of assembly above when using a Modbus serial link (slave) or Ethernet Modbus/TCP (server) network communication extension and a discrete or analog I/O extension. An I/O extension cannot be inserted before the Modbus serial link (slave) or Ethernet Modbus/TCP (server) network communication extension.*

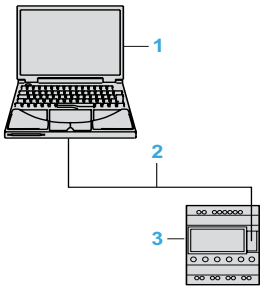
Communication ports on Zelio Logic smart relays and their extensions

Smart relays	Smart relay serial link port	Modbus serial link port on SR3MBU01BD extension	Ethernet Modbus/TCP port on SR3NET01BD extension	Modem communication interface port
	Physical layer			
	Proprietary	**RS 485**	**10/100 base T**	**RS 232**
	Connector			
	Zelio Logic	**RJ45**	**RJ45**	**Dedicated Zelio**
Compact	All types (connection and isolation via SR2CBL01 or SR2USB01 cable)	–	–	All SR2B●●●●● and SR2E●●●●● smart relays with clock (see page 32)
Modular	All types (connection and isolation via SR2CBL01 or SR2USB01 cable)	All SR3B●●●BD smart relays with 24 V ⎓ power supply	All SR3B●●●BD smart relays with 24 V ⎓ power supply	All types (see page 32)

Zelio Logic - Smart relays
Communication

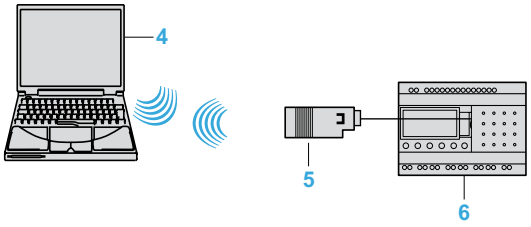
Description

Cable connection



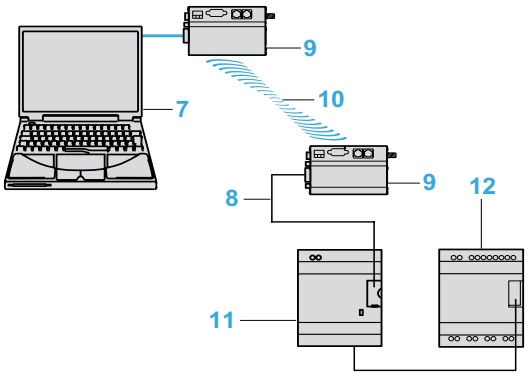
1 Programming PC
2 USB cable (SR2USB01) or serial link cable (SR2CBL01) *(See page 20)*
3 Zelio Logic compact or modular smart relay

Wireless link



4 Programming PC with integrated Bluetooth technology *(See page 20)*
5 Bluetooth interface (SR2BTC01) for Zelio Logic smart relay *(See page 20)*
6 Zelio Logic compact or modular smart relay

Modem link



7 Programming PC
8 Modem interface connecting cable included with SR2COM01 *(See page 32)*
9 SR2MOD02 data transmission/reception modem
10 Phone or radio link
11 SR2COM01 communication interface
12 Zelio Logic compact or modular smart relay

Zelio Logic - Smart relays
Communication
Modbus serial link communication protocol

SR_531_CPF_JR16052

Modbus serial link network communication extension

Presentation

The Modbus communication protocol is the master/slave type.
Two exchange methods are possible:
- Request/response:
  - The request from the master is addressed to a specific slave.
  - The response is expected by return from the polled slave.
- Broadcast:
  - The master broadcasts a request to all slave stations on the bus. These stations execute the command without transmitting a response.

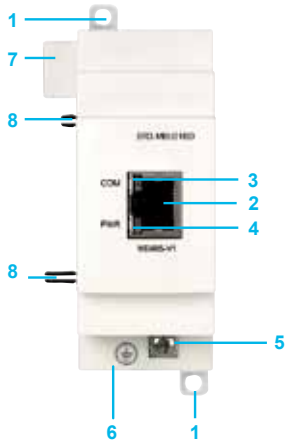
Zelio Logic modular smart relays are connected to the Modbus network via the Modbus slave network communication extension. This extension is a slave that is not electrically isolated.
The Modbus slave network communication extension must be connected to an SR3B●●●BD modular smart relay with a 24 V ⎓ power supply.

Configuration

The Modbus slave network communication extension can be configured:
- locally, using the buttons on the smart relay *(1)*
- on a PC using “Zelio Soft 2” software (see page 10)

When using a PC, programming can be performed either in ladder language or in function block diagram (FBD) language (see page 12).

Description



The **SR3MBU01BD** Modbus slave network communication extension comprises:

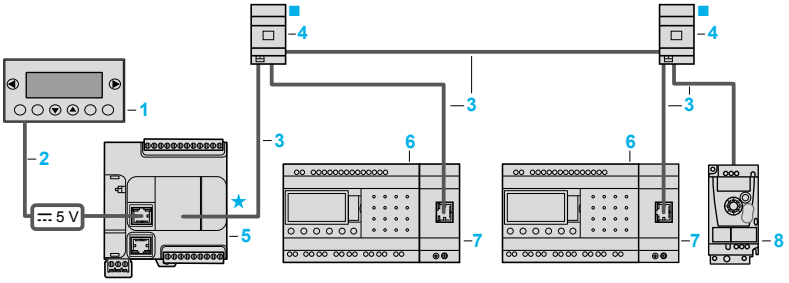
1 Two retractable mounting lugs
2 A Modbus network connection (RJ45 shielded female connector)
3 A communication LED (COM)
4 A power LED (PWR)
5 A screw terminal block for the protective ground connection
6 Spring for clip-on mounting on a 35 mm/*1.38 in* rail
7 Connector for connection to the Zelio Logic smart relay (powered via the Zelio Logic smart relay)
8 Locating pegs

(1) Programming via the buttons on the front panel of the smart relay is only possible in ladder language.

Zelio Logic - Smart relays
Communication
Modbus serial link communication protocol

Connection examples

Example 1

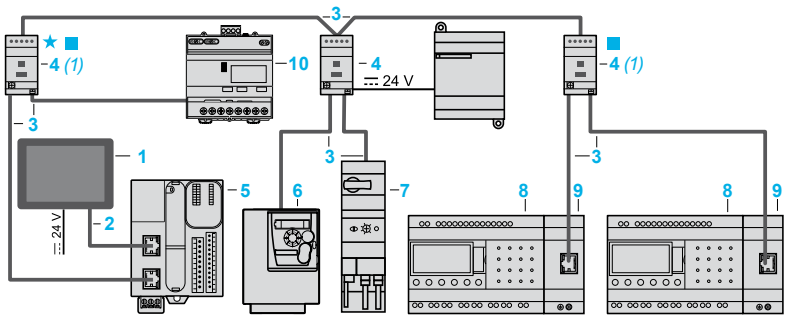


- Total length of cables between M221 and ATV 12: ⩽ 30 m (98.425 ft)
- Length of cable 3: ⩽ 10 m (32.808 ft)
★ Line polarization active ■ Line terminator

1 Slave display unit **XBTN401**
2 Controller to Magelis HMI cordsets
3 Modbus RS485 cordsets (**VW3A8306R●●** extension cables)
4 Junction box **TWDXCAT3RJ** (1 x RJ45 for trunk cable, 2 x RJ45 for drop)
5 Modicon master logic controller **TM221C●●●** equipped with **TMC2SL1** communication cartridge *(1)*
6 Modular smart relay **SR3B●●●BD**
7 Modbus communication extension module **SR3MBU01BD**
8 Altivar 12 variable speed drive

(1) Polarization must be enabled in the Modicon M221 master.

Example 2



- Total length of cables between isolation boxes 4: ⩽ 1,000 m (3,281 ft.)
- Length of drop cables 3: ⩽ 10 m (32.808 ft.)
★ Line polarization active ■ Line terminator

1 Master display unit **HMISCU**
2 Controller to Magelis HMI cordsets
3 Modbus RS485 cordsets (**VW3A8306R●●** extension cables)
4 Serial link tap isolation box **TWDXCAISO** (1 x RJ45 for trunk cable, 2 x RJ45 for drop)
5 Modicon master logic controller **TM221M●●●** *(2)*
6 Altivar 312 variable speed drive
7 TeSys U motor starter controller
8 Modular smart relay **SR3B●●●BD**
9 Modbus communication extension module **SR3MBU01BD**
10 Power meter **IEM31**

(1) Box powered by the logic controller
(2) Network master connected to serial link port (SERIAL1)

Function description

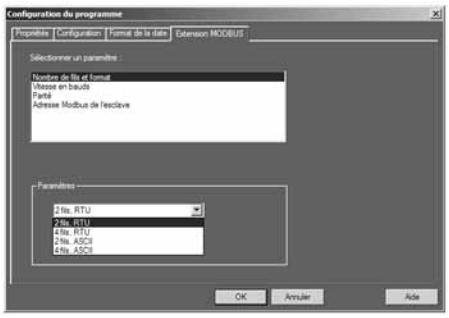
- The Modbus slave network communication extension is connected to a 2-wire or 4-wire Modbus network*(1)*.
- The maximum length between 2 **TWDXCAISO** taps configured as line terminators is 1,000 m/*3,280.83 ft* (9600 baud max., AWG 26).
- A maximum of 32 slaves can be connected to the Modbus network, or a maximum of 247 slaves with repeaters.
- The connection cable and its RJ45 male connectors must be shielded.
- The module ⏚ terminal must be connected directly to the protective ground at one point on the bus.

(1) Refer to the quick reference guide supplied with the product.

Zelio Logic - Smart relays

Communication

Modbus serial link communication protocol



Software workshop parameter entry window

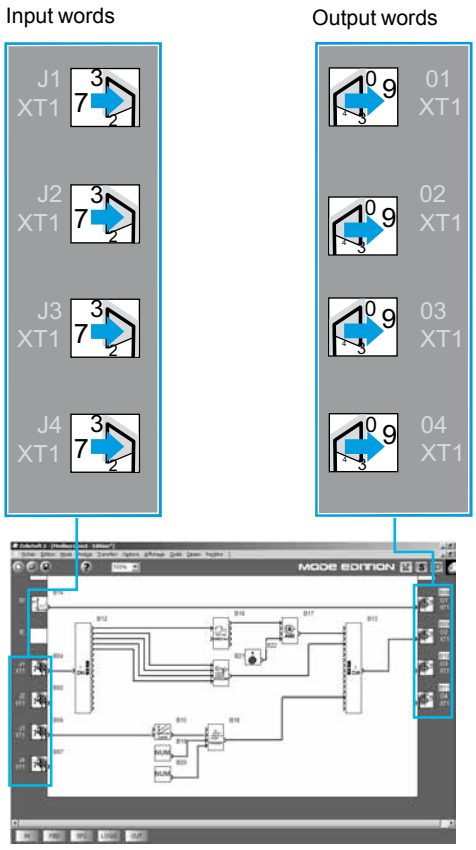
Parameter entry

Parameters can be entered either using “Zelio Soft 2” software, or directly using the buttons on the Zelio Logic smart relay *(1)*.
When the “RUN” command is issued, the Zelio Logic smart relay initializes the Modbus slave network communication extension in a configuration previously defined in the basic program.

The Modbus slave network communication extension has 4 parameters:
- number of UART wires and Modbus frame format
- transmission speed
- parity
- Modbus extension network address

The default parameter settings are as follows: 2-wire, RTU, 19,200 baud, even parity, address 1.

Parameters	Options
Number of wires	2 or 4
Frame format	RTU or ASCII
Transmission speed (baud)	1200, 2400, 4800, 9600, 19,200, 28,800, 38,400, 57,600
Parity	None, even, odd
Network address	1 to 247



FBD program editing window

Addressing Modbus exchanges

Ladder programming

In ladder mode, the 4 data words (16 bits) to be exchanged cannot be accessed by the application. Transfers with the master are implicit and are carried out in a way that is totally transparent.

Modbus exchanges	Code	Number of words
Image of smart relay I/O	Read 03	4
Clock words	Read/Write 16, 06, or 03	4
Status words	Read 03	1

Function block diagram (FBD) programming

In FBD mode, the 4 input data words (16 bits) (J1XT1 to J4XT1) and the 4 output data words (O1XT1 to O4XT1) can be accessed by the application. Conversion function blocks are used to:
- break down a word type input (16 bits) into 16 separate “bit” type outputs using the CAN (analog-to-digital conversion) function e.g. to break down a J1XT1 to J4XT1 type input and copy these status values to discrete outputs
- compose a word type output (16 bits) from 16 separate “bit” type outputs using the CNA (digital-to-analog conversion) function e.g. to transfer the status value of discrete inputs or the status of a function to an O1XT1 to O4XT1 type output

Modbus exchanges	Code	Number of words
Input words	Read/Write 16, 06, or 03	4
Output words	Read 03	4
Clock words	Read/Write 16, 06, or 03	4
Status words	Read 03	1

(1) Programming via the buttons on the front panel of the smart relay is only possible in ladder language.

Zelio Logic smart relays
Communication
Ethernet Modbus/TCP network

Ethernet (server) network communication extension

Presentation

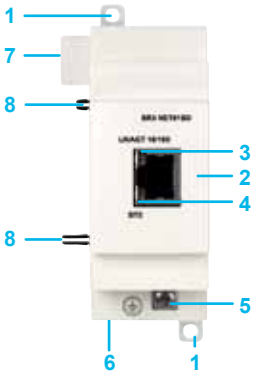
The **SR3NET01BD** extension is used to communicate over Ethernet via the Modbus/TCP protocol in server mode. It must be connected to an **SR3B●●●BD** modular smart relay with a 24 V ⎓ power supply.

Configuration

The extension is configured on a PC using “Zelio Soft 2” software (see page 10). Programming on the PC is performed in function block diagram (FBD) language (see page 12).

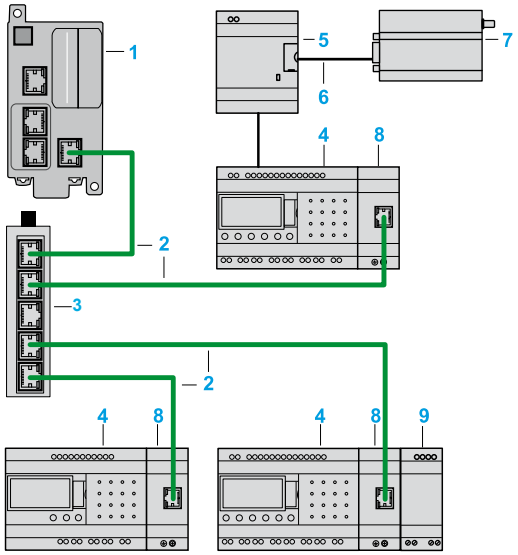
Description

The **SR3NET01BD** Ethernet Modbus/TCP network communication extension comprises:



1 Two retractable mounting lugs
2 An Ethernet network connection (RJ45 shielded female connector)
3 A communication LED (LK/ACT 10/100)
4 A status LED (STS)
5 A screw terminal block for the protective ground connection
6 Spring for clip-on mounting on a 35 mm/*1.38 in* rail
7 Connector for connection to the Zelio Logic smart relay (powered via the Zelio Logic smart relay)
8 Locating pegs

Connection example



1 Modicon logic controller **TM251MESE**
2 Ethernet network (**490NTW000●●** cordsets)
3 ConneXium switch **TCSESU●●●**
4 Zelio Logic SR3B●●●BD modular smart relay
5 SR2COM01 communication interface
6 Connecting cable **SR2CBL07** (included with the modem communication interface)
7 GSM modem
8 Ethernet (server) network communication extension **SR3NET01BD**
9 Analog I/O extension **SR3XT43BD**

Function description

- The Ethernet Modbus/TCP network communication extension is connected to a LAN.
- The maximum cable length between 2 devices is 100 m/*328.08 ft*.
- The connection cable must be at least category 5, and its RJ45 male connectors must be shielded.
- The ⏚ terminal must be connected directly to the protective ground.

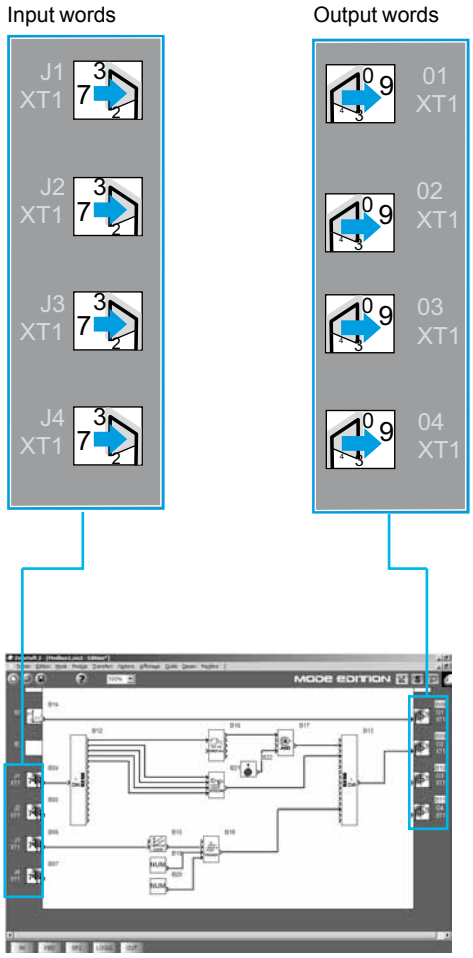
Zelio Logic - Smart relays
Communication
Ethernet Modbus/TCP network

Ethernet extension configuration window

Parameter entry

Parameters can be entered using “Zelio Soft 2” software.
When the “RUN” command is issued, the Zelio Logic smart relay initializes the Ethernet Modbus/TCP network communication extension in a configuration previously defined in the basic program.

The Ethernet Modbus/TCP network communication extension has 6 parameters:
- type of addressing (dynamic or static)
- IP address
- subnet mask
- gateway address
- reserved address
- time out



FBD program editing window

Addressing Ethernet exchanges

Function block diagram (FBD) programming

In FBD mode, the 4 input data words (16 bits) (J1XT1 to J4XT1) and the 4 output data words (O1XT1 to O4XT1) can be accessed by the application.
Conversion function blocks are used to:
- break down a word type input (16 bits) into 16 separate “bit” type outputs using the CAN (analog-to-digital conversion) function e.g. to break down a J1XT1 to J4XT1 type input and copy these status values to discrete outputs
- compose a word type output (16 bits) from 16 separate “bit” type outputs using the CNA (digital-to-analog conversion) function e.g. to transfer the status value of discrete inputs or the status of a function to an O1XT1 to O4XT1 type output

Ethernet exchanges	Code	Number of words
Input words	Read/Write 16, 06, or 03	4
Output words	Read 03	4
Clock words	Read/Write 16, 06, or 03	4
Status words	Read 03	1

Zelio Logic - Smart relays
Communication


SR3MBU01BD


SR3NET01BD


TWDXCAT3RJ


TWDXCAISO


499NES25100

Modbus serial link and Ethernet Modbus/TCP network communication extensions

For use with	Communication ports	Reference	Weight kg *lb*
SR3B●●1BD and SR3B●●2BD modular smart relays	Serial link (RJ45)	**SR3MBU01BD**	0.110 *0.242*
	Ethernet (RJ45)	**SR3NET01BD** *(1)*	0.110 *0.242*

Connection accessories

Designation	Description	Network	Length m/*ft*	Reference	Weight kg *lb*
T-junctions	□ 2 x RJ 45 connectors □ 1 integrated cable with RJ45 connector	Modbus serial link	0.3/*0.98*	**VW3A8306TF03**	0.190 *0.418*
			1/*3.28*	**VW3A8306TF10**	0.210 *0.462*
	□ 2 x RJ45 female connectors □ 1 x RJ45 male connector	Modbus serial link	Without cable	**170XTS04100**	0.020 *0.044*
Junction boxes	□ Screw terminal block for trunk cable □ 2 x RJ45 connectors for drop □ Isolation of RS 485 serial link □ Polarization and line termination □ 24 V ⎓ power supply □ Mounting on ⎍ rail (35 mm/*1.38 in.*)	Modbus serial link	–	**TWDXCAISO**	0.100 *0.220*
	□ 3 x RJ 45 connectors □ Polarization and line termination □ Mounting on ⎍ rail (35 mm/*1.38 in.*)	Modbus serial link	–	**TWDXCAT3RJ**	0.080 *0.176*
Line terminator	□ For RJ 45 connector □ R = 120 Ω, C = 1 nf	Modbus serial link	–	**VW3A8306RC**	0.200 *0.440*
RS 485 extension cables	□ 2 x RJ 45 connectors	Modbus serial link	0.3/*0.98*	**VW3A8306R03**	0.030 *0.066*
			1/*3.28*	**VW3A8306R10**	0.050 *0.110*
			3/*9.84*	**VW3A8306R30**	0.150 *0.330*
RS 485 double shielded twisted pair trunk cables	□ Modbus serial link, supplied without connector	Modbus serial link	100/*328.08*	**TSXCSA100**	5.680 *12.52*
			200/*656.17*	**TSXCSA200**	10.920 *24.074*
			500/*640.42*	**TSXCSA500**	30.00 *66.13*
Straight-through shielded twisted pair extension cables	□ 2 x RJ 45 connectors	Ethernet Modbus/TCP	2/*6.56*	**490NTW00002** *(2)*	–
			5/*16.40*	**490NTW00005** *(2)*	–
			12/*39.37*	**490NTW00012** *(2)*	–
			40/*131.23*	**490NTW00040** *(2)*	–
			80/*262.47*	**490NTW00080** *(2)*	–
ConneXium switch	–	Ethernet Modbus/TCP		**499NES25100**	0.190 *0.418*

(1) Can only be used in FBD language.
(2) Cable compliant with EIA/TIA-568 standard category 5 and IEC 1180/EN 50173 class D.
*For UL and CSA 22.1 approved cables, add the letter **U** at the end of the reference.*

Zelio Logic - Smart relays
Analog I/O extension

Analog I/O extension

Presentation

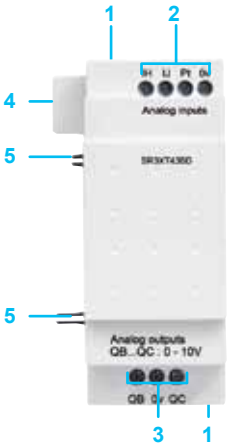
Modular smart relays and analog I/O extensions

To improve performance and flexibility, Zelio Logic modular smart relays can take analog I/O extensions with 10-bit resolution.
The inputs accept 0-10 V, 0-20 mA, and Pt 100 signals.

Using a Zelio Logic modular smart relay with a 24 V ⎓ power supply in conjunction with an analog 4 I/O extension makes it possible to obtain up to 30 I/O, including 8 analog inputs and 2 analog outputs.

The analog I/O extension works with SR3●●●BD smart relays with a 24 V ⎓ power supply.

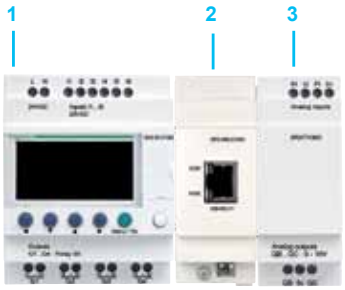
Description



The analog I/O extension front panel comprises:
1 Two retractable mounting feet
2 Terminals for connecting the inputs
3 Terminals for connecting the outputs
4 Connector for connection to the smart relay (powered via the smart relay)
5 Locating pegs

Combination of modular smart relays and extensions

1 Modular smart relay (10 or 26 I/O)
2 Analog I/O extension (4 I/O)



1 Modular smart relay (10 or 26 I/O)
2 Modbus serial link or Ethernet Modbus/TCP network communication extensions
3 Analog I/O extension (4 I/O)

⚠ *Observe the order of assembly above when using a network communication module and an analog I/O extension.*
An I/O extension cannot be inserted before the network communication extension.

Zelio Logic - Smart relays
Analog I/O extension

SR3XT43BD

Analog I/O extension

24 V ⎓ power supply (via SR3B●●●BD smart relays)

Number of I/O	Number of inputs	Including 0 - 10 V	Including 0 - 20 mA	Including Pt100	0 - 10 V output	Reference	Weight kg *lb*
4	2	2 max.	2 max.	1 max.	2	**SR3XT43BD** *(1)*	0.110 *0.243*

(1) Can only be used in FBD language.

Zelio Logic - Smart relays
Modem communication interface

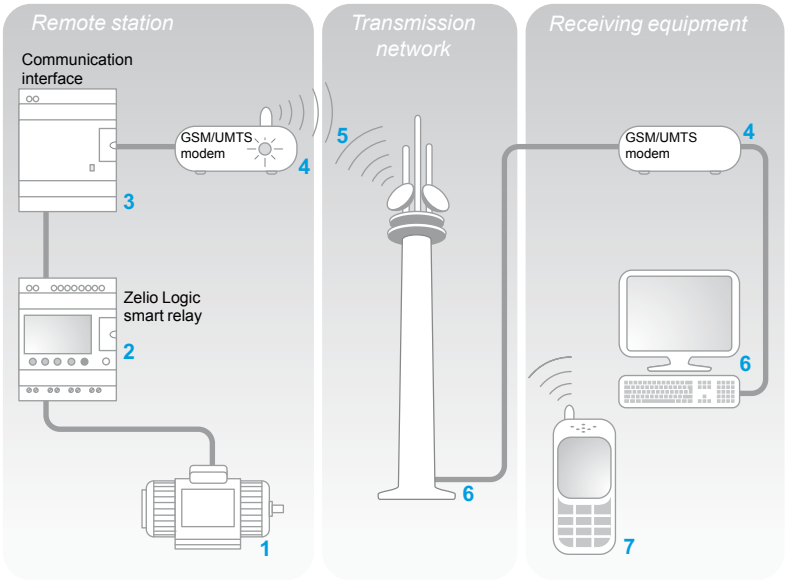
Modem communication interface

GSM/UMTS modem (1)

Presentation

The communication products in the Zelio Logic range are primarily designed for monitoring or remote control of machines or installations that operate without personnel.
Examples:
- monitoring of lift pumps, livestock buildings (ventilation, feed level, etc.), refrigeration units, car washes
- alarm in the event of failure of industrial or domestic heating boilers
- remote control of lighting: parking lots, warehouses
- remote control and monitoring of escalators, public transport
- refuse compactor full alert

The communication range comprises:
- a communication interface connected between a smart relay and a modem
- a GSM/UMTS modem *(1)*
- "Zelio Logic Alarm" software



The system comprises:
- A *remote station*, machine, or installation to be monitored **1**: control is achieved using a Zelio Logic smart relay with clock from the SR●B●●●●● or SR2E●●●●● range **2**, via its inputs and outputs. The smart relay is connected via a communication interface **3** to a GSM/UMTS modem *(1)* **4**.
- The GSM/UMTS telephone *transmission network* **5** provided by different telecommunications operators
- A monitoring or control *receiving device*, which may be one of the following:
  - a PC **6** equipped with a GSM/UMTS modem
  - a GSM/UMTS phone **7**

Note: *The majority of modems built into PCs can be used.*

Various combinations are possible between the types of modem used on the *remote station*, the type of *receiving device* (PC + modems or phone), and the type of GSM/UMTS network available.
The type of architecture selected will therefore mainly depend on whether there is a need to send SMS messages or not (see page 35).

(1) GSM = Global System Mobile (2G). UMTS = Universal Mobile Telecommunications System (3G).

Presentation (continued)

Smart relay (*remote station*)

The smart relay, as on a standalone machine or installation, is used for control *(1)*.
It contains the application program created using “Zelio Soft 2”.
The smart relay can be selected from the various models in the Zelio Logic range:
- according to the supply voltage
- wtih 10, 12, 20, or 26 I/O (up to 40 I/O with discrete extension)
- with or without display
- with clock

Modem communication interface (*remote station*)

The modem communication interface allows messages, telephone numbers, and calling conditions to be stored.
When the calling conditions are met, the messages, as well as any values to be sent, are date-stamped and stored in the interface.
The modem communication interface scales analog values to the physical values (degrees, bar, Pascal, etc.) required by the user.

GSM/UMTS modem

GSM/UMTS modem can both be used on the *remote station* and PC type *receiving device* (when the PC is not equipped with an internal modem). This modem automatically adapts to the available network, by prioritizing the GSM network, which offers the greatest functionality. If there is only a UMTS network available, there will be reduced functionality (see the table on page 35).

In order to exploit all the capabilities associated with the communication modem, the modem is equipped with DATA type SIM cards. VOICE type SIM cards may also be used but some functions will not be available (see the table on page 35).

“Zelio Logic Alarm” alarm management software *(PC type receiving device)*

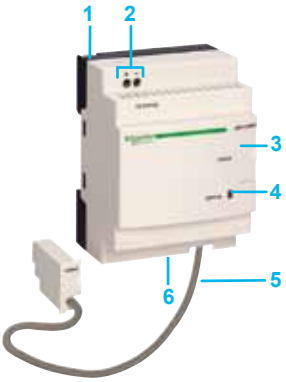
This software is used to:
- receive, classify, and export diagnostic alarm messages
- read or remotely force the status of program elements (inputs, outputs, auxiliary relays, timer or counter values, etc.)
- send control instructions (RUN, STOP, setting the time of the smart relay, etc.)
- send specific instructions (modifying access rights, recipients, etc.)

Note: This software can only be used on GSM networks (2G).

(1) Zelio Logic smart relays (see page 8)

Description

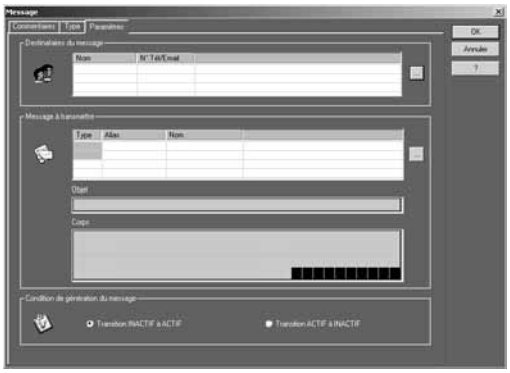
The Zelio Logic SR2COM01 communication interface comprises:



1 Retractable mounting lugs
2 12…24 V ⎓ power supply terminal block
3 Slot for connection to modem or PC
4 Interface status LED indicator
5 Connection cable to the smart relay
6 Spring for clip-on mounting on a 35 mm *(1.38 in.)* rail

Zelio Logic - Smart relays
Modem communication interface

Functions



Message parameter entry window

Sending alarms

This function is used to send an alarm message to a *receiving device*.
When the calling condition is met, a message is sent to one or several phone numbers or e-mail addresses.
Types of message:
- alarm message to a PC with modem and "Zelio Logic Alarm" software
- "SMS" message *(1)* to a GSM/UMTS phone
- e-mail via SMS *(1) (2)*

One or all of these solutions can be selected simultaneously.
The *remote station* to be monitored initiates the call.
The phone line is only used while the alarm message is being transmitted.
Up to 28 messages can be used.
These messages consist of:
- a 160-character text, which may contain discrete and/or analog values (counter values, analog input voltages that can be scaled, etc.)
- 1 to 10 recipient phone numbers/e-mail addresses

Receiving commands

This function allows the status or the value of a program element to be modified from the *receiving device*.
The operator initiates the call using the *receiving device* (PC or phone). It is then possible to force the status of the discrete and/or analog value of each of the 28 messages.

Remote dialog using "Zelio Soft 2"

This function enables use of the Transfer, Monitoring and Diagnostics modes available in "Zelio Soft 2" via the transmission network instead of via the physical link (SR2USB01 or SR2CBL01 cable) between the device (*remote station*) and the PC (*receiving device*).
It is then possible to:
- transfer a program created on a PC station to the *remote station*
- transfer a program installed on the *remote station* to the PC station
- modify the receiving device phone numbers/e-mail addresses and the alarm sending conditions from the PC
- update the firmware for the smart relay and the modem communication interface
- display and modify discrete and analog values
- perform diagnostics on the smart relay and modem communication interface

(1) Requires the use of a GSM/UMTS modem on the remote station side.
(2) Check with the transmission network operator that the e-mail by SMS service is available.

Functions available depending on the hardware architecture and/or type of SIM card

Function	***Remote station* device**				
	GSM network (2G) Type of SIM card				**UMTS network (3G)**
	DATA	DATA VOICE		VOICE	
		DATA No.	VOICE No.		
Send alarm/receive command with GSM/UMTS phone	■	■	■	■	■
Send alarm/receive command with PC equipped with "Zelio Logic Alarm" software *(1)*	■	■			
Program transfer, firmware update, monitoring *(1)*	■	■			
Send alarm via e-mail	■	■	■	■	

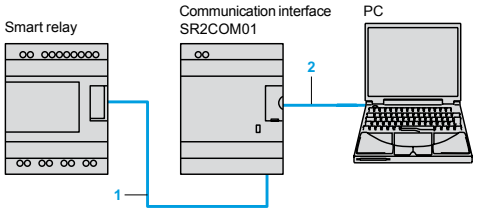
■ Functions available
Functions not available

Note: *Commands cannot be sent by e-mail.*

(1) When using a GSM/UMTS modem on the PC side, it is essential that the SIM card has a DATA number.

Zelio Logic - Smart relays
Modem communication interface

Installation setup



There are 2 steps involved in setting up the installation or machine to be monitored:

Connection for programming the smart relay and the interface

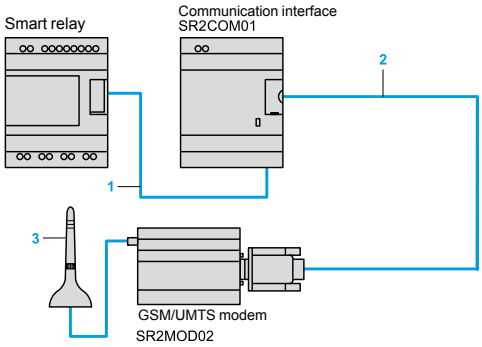
1 Interface cable marked COM-Z
2 SR2USB01 or SR2CBL01 cable

After having powered-up the smart relay and the interface, the application program can be transferred in order to simultaneously:

- load the automation system program into the smart relay
- load the alarm conditions, messages, and phone numbers into the interface

This operation can also be carried out remotely using “Transfer” mode, after having established the connections described below.

⚠ The use of memory cartridge SR2MEM01 or SR2MEM02 to load the program is not compatible with the SR2COM01 modem communication interface.



Connections for operation

1 Interface cable marked COM-Z
2 SR2CBL07 cable supplied with the interface
3 Antenna included with modem

References

SR2COM01

SR2MOD02

SR2CBL07

Modem communication interface

Description	For use with	Power supply	Reference	Weight kg/*lb*
Modem communication interface (including SR2CBL07 cable)	**SR●B●●●●●, SR2E●●●●●**	12…24 V ⎓	**SR2COM01**	0.200 *0.441*

Modem

Description	Supply voltage	Reference	Weight kg/*lb*
GSM/UMTS modem *(1)* including: □ power supply cable (1.5 m/4.921 ft) □ antenna with cable (2.5 m/8.202 ft) □ mounting on ⊔ rail (assembled with GSM/UMTS modem) □ 2 lugs for plate mounting	12…24 V ⎓	**SR2MOD02** *(2)*	0.335 *0.739*

Software

Description	Use Compatibility	Media	Reference	Weight kg/*lb*
Zelio Logic Alarm	PC Windows 98, NT4, 2000, and XP	CD-ROM	**SR2SFT02**	0.200 *0.441*

Connection accessories

Description	Composition/Use	Length m/*ft*	Reference	Weight kg/*lb*
Connection cables	9-way SUB-D/9-way SUB-D connectors Between Modem and PC	1.8/*5.906*	**SR1CBL03**	0.110 *0.243*
	Special Zelio/9-way SUB-D connector Between communication interface and modem	0.5/*1.640*	**SR2CBL07** *(3)*	0.050 *0.110*

(1) Global System Mobile (2G)/Universal Mobile Telecommunications System (3G)
(2) Not recommended for Japan
(3) Spare part (cable included as standard with SR2COM01 communication interface)

Analogue interfaces - Zelio Analog

Converters for thermocouples and Pt100 probes

Voltage/current converters

Product types		Converters for thermocouples				
						
Input type		J (Fe-CuNi)			K (Ni-CrNi)	
Input signal	Temperature range	0...150 °C 32...302 °F	0...300 °C 32...572 °F	0...600 °C 32...1112 °F	0... 600 °C 32...1112 °F	0...1200 °C 32...2192 °F
	Voltage	–				
	Current	–				
Output signal	Voltage/Current	Switchable: 0...10 V /0...20 mA; 4...20 mA				
Supply voltage	Rated	⎓ 24V ± 20%, not isolated				
Built-in protection	Outputs	Reverse polarity, overvoltage and short-circuit Output safety feature, if input not wired or wire broken				
	Supply	Reverse polarity				
Signalling		Green LED (power on)				
Conformity/Approvals	Conforming to standards	IEC 60947-1, IEC 60584-1				
	Approvals	UL, CSA, GL, CE				
Type		RMTJ40BD	RMTJ60BD	RMTJ80BD	RMTK80BD	RMTK90BD
Pages		40				

Converters for Universal and Optimum Pt100 probes					Voltage/current converters			
								
Pt100, 2, 3 et 4 fils					–			
- 40...40 °C - 40...104 °F	-100...100 °C - 148...212 °F	0...100 °C 32...212 °F	0...250 °C 32...482 °F	0...500 °C 32...932 °F	–			
–					0...10 V	0...10 V; ± 10 V	0...50 V 0...300 V 0...500 V ⎓ or ∿ 50/60 Hz	–
–					4...20 mA	0...20 mA 4...20 mA	–	0...1.5 A 0...5 A 0...15 A ⎓ or ∿ 50/60 Hz
Switchable: 0... 10 V/0...20 mA , 4...20 mA pour la gamme Universel **RMPT●0BD** 0...10 V ou 4...20 mA pour la gamme Optimum **RMPT●3BD**					0...10 V or 4...20 mA	Switchable: 0...10 V ±10 V/0...20 mA 4...20 mA	Switchable: 0...10 V/4...20 mA 0...20 mA	0...10 V or 0...20 mA or 4...20 mA
⎓ 24 V ± 20 %, non isolé						⎓ 24 V ± 20 %, isolé		
Reverse polarity, overvoltage and short-circuit Output safety feature, if input not wired or wire broken								
Reverse polarity								
Green LED (power on)								
IEC 60751, DIN 43 760					IEC 60947-1			
UL, CSA, GL, CE								
RMPT10BD, RMPT13BD	**RMPT20BD, RMPT23BD**	**RMPT30BD, RMPT33BD**	**RMPT50BD, RMPT53BD**	**RMPT70BD, RMPT73BD**	**RMCN22BD**	**RMCL55BD**	**RMCV60BD**	**RMCA61BD**
40 and 41								

Analogue interfaces - Zelio Analog
Converters for thermocouples and Pt100 probes
Voltage/current converters

The Zelio Analog range of converters is designed to convert signals emitted by sensors or electrical measurements into standard electrical signals which are compatible with automation platforms, controllers (thermal processes, speed, …). They also allow the connection distance between a sensor and the measurement acquisition device to be increased: for example between a thermocouple and a programmable controller.
Conforming to IEC standards, UL and CSA certified, these converters are suitable for universal use.

Measurement signals for thermocouples and Pt100 probes
The voltages induced by thermocouples vary between 10 and 80 µV/°C, Pt100 probes (100 ohms at 0 °C) produce about 0.5 mV/°C, with measurement currents of 1 mA. Depending on the sensor, the signal to be measured ranges from a few µV (thermocouple) to 250 and 700 mV for a Pt100 probe.
It is therefore difficult to transmit these low level signals over long electric lines without encountering problems of interference, signal reduction or errors.
Connecting Zelio Analog converters close to the sensors resolves these problems :
- 4-20 mA current loops transmitted over a long distance are less sensitive to interference than low level voltage signals from sensors,
- signal reductions during transmission (resistance) of voltages do not occur,
- the cables used to connect the converters to process equipment (programmable controllers) are standard cables, which are more cost effective than extension cables or compensation cables suitable for low level signals for Pt100 probes or thermocouples.

Presentation

The Zelio Analog range

The Zelio Analog range has been developed both to take account of the most common applications and to ensure great simplicity of installation:
- pre-set input and output scales, requiring no adjustment
- outputs protected against reverse polarity, overvoltage and short-circuits
- ⎓ 24 V power supply
- sealable protective cover
- rail mounting and screw fixing onto mounting plate
- LED indicator on the front panel
- input and output selector switches on the front panel
- output with fallback value if no input signal is present (due to failure of a sensor, for example).

The Zelio Analog converter range is divided into four families:
- Converters for J and K type thermocouples: **RMTJ/K**
- Universal converters for Pt100 probes: **RMPT●0**
- Optimum converters for Pt100 probes: **RMPT●3**
- Universal voltage/current converters: **RMC**.


RMTJ/K


RMPT●0


RMPT●3


RMC

Converters for J and K type thermocouples

Thermocouples, which consist of two metals with different thermo-electric characteristics, produce a voltage that varies according to temperature. This voltage is transmitted to the Zelio Analog converter which converts it to a standard signal.
Converters for thermocouples have cold junction compensation to allow detection of measurement errors induced by the connection to the device itself.

Converters for J and K type thermocouples have:
- for inputs, a pre-set temperature range, depending on the model:
  - Type J: 0...150 °C, 0...300 °C, 0...600 °C
  - Type K: 0...600 °C, 0...1200 °C.
- for outputs, a switchable signal:
  - 0...10 V, 0... 20 mA, 4... 20 mA.

Analogue interfaces - Zelio Analog

Converters for thermocouples and Pt100 probes

Voltage/current converter

RMPT70BD

Universal converters for Pt100 probes

Pt100 probes with platinum resistor are electrical conductors whose resistance varies according to the temperature.
This ohmic resistance is transmitted to the Zelio Analog converter which converts it to a standard signal.
Universal converters for Pt100 probes have :

- for inputs, a pre-set temperature range, depending on the model:
  - -100...100 °C,
  - - 40...40 °C,
  - 0...100 °C,
  - 0...250 °C,
  - 0...500 °C.
- for outputs, a switchable signal:
  - 0... 10 V, 0... 20 mA, 4... 20 mA.

The products in the family Universal converters for Pt100 probes allow wiring of Pt100 probes in 2, 3 and 4-wire mode.

Optimum converters for Pt100 probes

Derived from the above family, these converters have:

- for inputs, a pre-set temperature range identical to that of universal converters for Pt100 probes.
- for outputs: 0...10V signal dedicated to Zelio Logic analogue inputs.

They allow Pt100 probes to be wired in 2, 3 and 4-wire mode.

RMCA61BD

Universal voltage/current converters

This family of converters allows the adaptation of electrical values (voltage/current).
Four products are available:

- a cost effective converter which will convert a 0...10 V signal to a 4...20mA signal or vice versa.
- a Universal voltage/current converter allowing the most common signals. They have:
  - for inputs, a voltage/current range:
    - 0...10 V, ± 10 V, 0...20 mA, 4...20 mA.
  - for outputs, a switchable voltage/current range:
    - 0...10 V, ± 10 V, 0...20 mA, 4...20 mA.
- two Universal voltage/current converters which allow conversion of electrical power signals, both a.c. and d.c.

They have the following, depending on the model:

- **for voltage inputs**, a range of 0 to 500 V (~ or ⎓)
- for outputs, a switchable voltage/current range:
  - 0...10 V, 0...20 mA, 4...20 mA.
- **for current inputs**, a range of 0 to 15 A (~ or ⎓)
- for outputs, a voltage/current range:
  - 0...10 V, 0...20 mA, 4...20 mA.

RMCL55BD

Description

Zelio Analog converters have the following on their front panel, depending on the model:

1 Two terminals for ⎓ 24 V supply connection
2 A 'Power ON' LED
3 Three input selector switches (depending on model)
4 An output selector switch (depending on model)
5 A sealable protective cover
6 A screw terminal block for inputs
7 A screw terminal block for outputs

Analogue interfaces - Zelio Analog

Converters for thermocouples and Pt100 probes

Voltage/current converters

RMTJ40BD

RMTK90BD

RMPT70BD

RMPT13BD

Converters for J and K type thermocouples

Supply voltage ⎓ 24 V ± 20 %, non isolated

Type	Temperature range °C	Temperature range °F	Switchable output signal	Reference	Weight kg / lb
Type J	0…150	32…302	0…10 V, 0…20 mA, 4…20 mA	**RMTJ40BD**	0.120 / *0.264*
	0…300	32…572	0…10 V, 0…20 mA, 4…20 mA	**RMTJ60BD**	0.120 / *0.264*
	0…600	32…1112	0…10 V, 0…20 mA, 4…20 mA	**RMTJ80BD**	0.120 / *0.264*
Type K	0…600	32…1112	0…10 V, 0…20 mA, 4…20 mA	**RMTK80BD**	0.120 / *0.264*
	0…1200	32…2192	0…10 V, 0…20 mA, 4…20 mA	**RMTK90BD**	0.120 / *0.264*

Universal converters for Pt100 probes

Supply voltage ⎓ 24 V ± 20 %, non isolated

Type	Temperature range °C	Temperature range °F	Switchable output signal	Reference	Weight kg / lb
Pt100 2-wire, 3-wire and 4-wire	- 40…40	- 40…104	0…10 V, 0…20 mA, 4…20 mA	**RMPT10BD**	0.120 / *0.264*
	- 100…100	- 148…212	0…10 V, 0…20 mA, 4…20 mA	**RMPT20BD**	0.120 / *0.264*
	0…100	32…212	0…10 V, 0…20 mA, 4…20 mA	**RMPT30BD**	0.120 / *0.264*
	0…250	32…482	0…10 V, 0…20 mA, 4…20 mA	**RMPT50BD**	0.120 / *0.264*
	0…500	32…932	0…10 V, 0…20 mA, 4…20 mA	**RMPT70BD**	0.120 / *0.264*

Optimum converters for Pt100 probes *(1)*

Supply voltage ⎓ 24 V ± 20 %, non isolated

Type	Temperature range °C	Temperature range °F	Output signal	Reference	Weight kg / lb
Pt100 2-wire, 3-wire and 4-wire	- 40…40	- 40…104	0…10 V or 4…20 mA	**RMPT13BD**	0.120 / *0.264*
	- 100…100	- 148…212	0…10 V or 4…20 mA	**RMPT23BD**	0.120 / *0.264*
	0…100	32…212	0…10 V or 4…20 mA	**RMPT33BD**	0.120 / *0.264*
	0…250	32…482	0…10 V or 4…20 mA	**RMPT53BD**	0.120 / *0.264*
	0…500	32…932	0…10 V or 4…20 mA	**RMPT73BD**	0.120 / *0.264*

(1) Converters dedicated to Zelio Logic smart relays.

Analogue interfaces - Zelio Analog

Converters for thermocouples and Pt100 probes

Voltage/current converter

RMCN22BD

RMCL55BD

RMCA61BD

Universal voltage/current converters

Supply voltage ⎓ 24 V ± 20 %, non isolated

Input signal	Output signal	Reference	Weight kg *lb*
0…10 V or 4…20 mA	0…10 V or 4…20 mA	**RMCN22BD**	0.120 *0.264*

Supply voltage ⎓ 24 V ± 20 %, isolated

Input signal	Output signal	Reference	Weight kg *lb*
0…10 V, ± 10 V, 0…20 mA, 4…20 mA	Switchable: 0…10 V, ± 10 V, 0…20 mA, 4…20 mA	**RMCL55BD**	0.120 *0.264*
0…50 V, 0…300 V, 0…500 V ⎓ or ∿ 50/60 Hz	Switchable: 0…10 V, 0...20 mA, 4…20 mA	**RMCV60BD**	0.150 *0.330*
0…1.5 A, 0…5 A, 0…15 A ⎓ or ∿ 50/60 Hz	0…10 V or 0...20 mA or 4…20 mA	**RMCA61BD**	0.150 *0.330*

Connection accessories

Description	Type	Sold in lots of	Unit reference	Weight kg *lb*
Terminal blocks for connection of protective earth conductor	Screw	100	**AB1TP435U**	0.025 *0.055*
	Spring	100	**AB1RRNTP435U2**	0.010 *0.055*

Smart relays - Zelio Logic
Product reference index

The Next Generation

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