

### Presentation

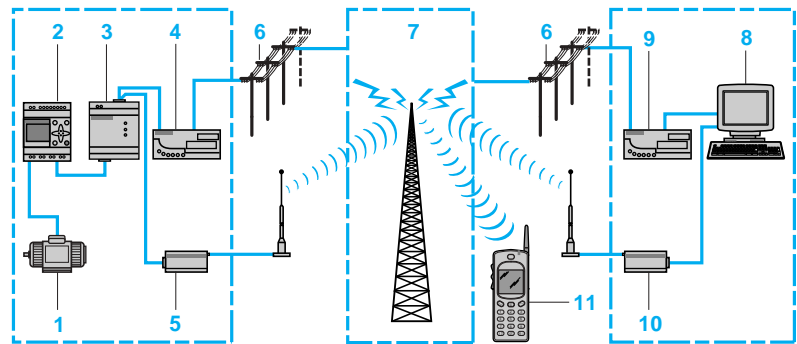
The communication products in the Zelio Logic range are designed mainly for monitoring or remote control of machines or installations which operate without personnel.

Examples:

- monitoring of lift pumps, stock premises (ventilation, food level, etc.), refrigeration units, car-washes,
- alert in the event of failure of industrial or domestic heating boilers,
- remote control of lighting: car parks, warehouses,
- remote control and monitoring of escalators in large stores, in the transport sector, etc.,
- refuse compactor full alarm.

The communication range comprises:

- a communication interface connected between a smart relay and a modem,
- analogue (PSTN) or GSM modems,
- "Zelio Soft Com" software. (1)



The system consists of:

- a machine or an installation to be monitored **1**: control is achieved by a smart relay from the "Zelio Logic" **2** SR1 range via its inputs and outputs. The smart relay is connected via a communication interface **3** to an analogue type modem **4**, or, when a telephone line is available nearby, to a GSM type modem **5**,
- the analogue or GSM telephone network **6** and **7** provided by different telecommunication operators,
- a remote monitoring or control station, consisting either of a PC **8** equipped with an analogue **9** or GSM modem **10**, or of a mobile telephone to the GSM standard **11**.

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

Various combinations are possible between the types of modem used on the machine or on the installation and the type of remote station (PC + modems or GSM telephone).

The type of architecture selected will therefore depend mainly on:

- whether or not an analogue telephone line is available,
- whether or not it is necessary to send SMS messages.

(1) These products are for use with smart relays from the "Zelio Logic" range.

### Presentation (continued)

#### Smart relay

The smart relay, as on an independent machine or installation, is used for control<sup>(1)</sup>. It contains the application program created using "Zelio Soft Com", "Zelio Soft" or "Zelio Soft PocketPC" software.

It is connected to communication interface SR1 COM01 by means of standard cable SR1 CBL01.

The smart relay may be selected from the models available in the Zelio Logic range:

- with or without display,
- with 12 or 20 I/O,
- with various supply voltages,

The smart relay version must be greater than or equal to V1.7.

#### Communication interface

The communication interface allows messages, telephone numbers and call conditions to be stored.

In addition, messages are dated and application program comments are stored.

The communication interface scales analogue values to the physical values (degrees, bar, Pascal, etc.) required by the user.

#### PSTN analogue modem

PSTN analogue modem SR1 MOD01 may be used, as may the majority of commercially available modems. However, if SMS messages are to be sent to a mobile phone, it is essential to check that this function is offered by the selected modem.

#### GSM modem

GSM modem SR1 MOD02 may be used, as may the majority of commercially available modems. A specific contract with the provider, which allows both voice and data transmission, is required.

#### "Zelio Soft Com" programming and operating software

This software, which is a development of "Zelio Soft" software, provides the following additional functions:

- configuration of alert conditions (program element to be monitored, number to call, message to transmit),
- receipt of alert messages,
- remote monitoring of the application,
- remote forcing of program element status (inputs, outputs, control relays, timing or counting values,...),
- transfer of programs to a remote smart relay via the SR1 COM01 interface,
- downloading of a program from a remote smart relay via the SR1 COM01 interface.

Application programs created using "Zelio Soft" can be re-used with "Zelio Soft Com".

"Zelio Soft Com" allows simultaneous programming of the smart relay and the interface, without having to modify the connections.

Supplied on CD-ROM (SR1 SFT03), it also includes software for configuring GSM modems as well as detailed on-line help allowing easy set-up of a communication solution.

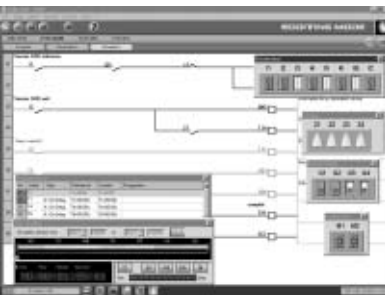
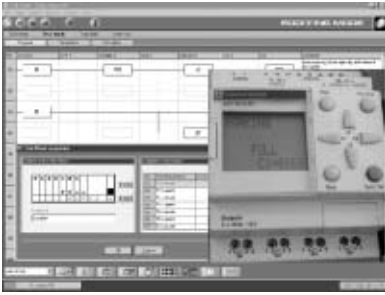
<sup>(1)</sup> Zelio Logic smart relays, see pages 14100/2 to 14100/15.

### Description

Zelio Logic communication interface SR1 COM01 comprises:



- 1 Retractable fixing lugs,
- 2 A 12/24 V supply terminal block,
- 3 A SUB-D type connector for connection of the modem,
- 4 Three diagnostic LEDs,
- 5 A SUB-D type connector for connection of the smart relay,
- 6 A selector switch for configuring the interface (automatic mode, PSTN mode, GSM mode, serial mode).



### Operating modes

The communication interface provides different operating modes, according to the specific characteristics of the machine or installation to be monitored.

#### Alert mode

This mode makes it possible to alert an operator when one of the program elements changes status. A message is then sent to the remote monitoring station:

- specific "Zelio Soft Com" page on the remote PC,
- mini "SMS" message on a mobile phone.

One or other or both of these solutions may be selected simultaneously.

The installation or machine to be monitored initiates the call.

The telephone line is only used while the alert message is being transmitted and remains free for other uses (conversation, internet, ...).

Each element of the application program (inputs, outputs, control relays, function blocks, Z keys, clock) may have the following associated with it:

- a 150 character text, which may contain one or more function block values (counting values, analogue input voltage, ...) if required,
- analogue input voltages can be scaled,
- from 1 to 5 mobile telephone numbers,
- from 1 to 5 fixed telephone numbers (PC + modem).

#### Remote control mode

This mode allows the status or the value of a program element to be modified from the remote station.

The remote station, PC or GSM telephone, initiates the call. After the call has been picked up by the machine or the installation, it is possible to force the status of each of the application program parameters in the smart relay: inputs, outputs, control relays, function blocks.

- on a PC type remote station, the "monitoring" mode screen is used.
- on a GSM mobile phone, each parameter status can be changed by a text message.

#### Monitoring mode (only with PC type remote station)

This mode allows remote display of all the program elements.

The operator initiates the call. This mode is identical to the monitoring mode offered by "Zelio Soft" V1.5. The physical link between the product and the smart relay (cable SR1 CBL01) is then replaced by the telephone network.

It is therefore possible to:

- display the status of the scheme elements,
- display and modify the values of function blocks (presets and current values).

#### Transfer mode (only with PC type remote station)

This mode makes it possible to:

- transfer a program created on the PC station to the machine or installation,
- transfer a program installed on the machine or installation (together with its comments) to the PC station.

Identical to the transfer function between PC and smart relays via cable SR1 CBL01 supplied with "Zelio Soft" software, this mode allows remote downloading or modification of programs. It also allows the "alert" mode numbers and conditions to be modified from the remote station.

### Functions available depending on the selected architecture

Modem used on the machine or installation	Remote station	
	GSM telephone	PC + modem (1)
Analogue modem		
Analogue modem with SMS function		
GSM modem		

(1) Analogue or GSM modem

- Incompatible
- Alert, remote control
- Alert, remote control, monitoring, program transfer

### Installation set-up

3 steps are involved in setting up the installation or the machine:

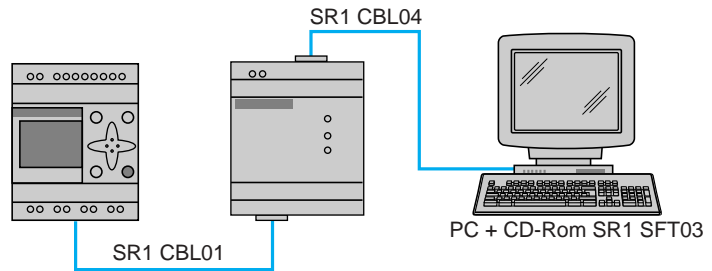
#### Modem configuration, only necessary for GSM

The modem is connected directly by its serial cable to the serial port of the PC. The "SIM Config" utility supplied on CD-ROM SR1 SFT03 is launched, and allows the user to:

- enter the PIN code,
- deactivate the request for PIN code,
- test communication by sending an SMS message to a GSM telephone,
- adjust the parameters for transmission to "Zelio Soft Com" software or to a PC.

#### Smart relay and interface programming

The smart relay is connected to the interface by cable SR1 CBL01, the interface is connected to the PC by an SR1 CBL04 cable.

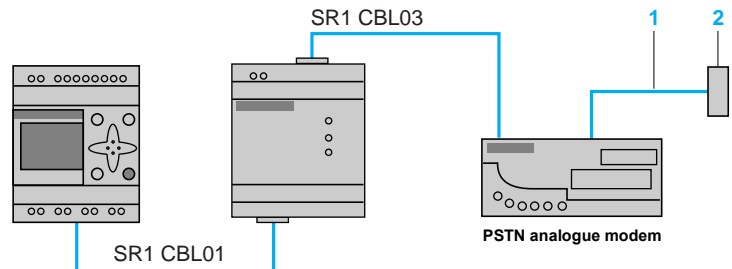


After having powered up the smart relay and the interface, the application program can be transferred in order to simultaneously:

- load the control system program into the smart relay,
  - load the alert conditions, messages and telephone numbers into the interface.
- This operation can also be carried out remotely using "transfer" mode, after having made the following operating connections.

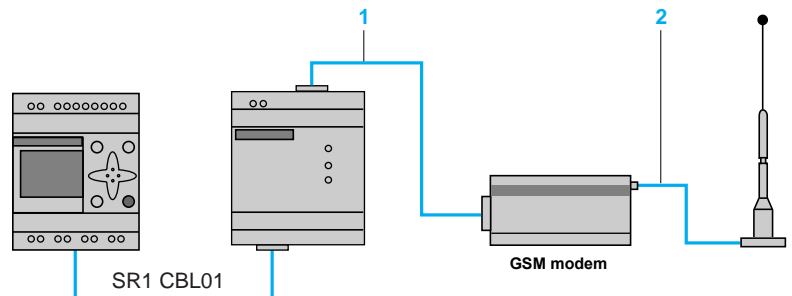
### Connections for operation

#### PSTN analogue modem



- 1 Cable supplied with the modem.
- 2 PSTN telephone socket: RJ12.

#### GSM modem



- 1 Cable supplied with kit **SR1 KIT02**.
- 2 Cable supplied complete with antenna, with kit **SR1 KIT02**.

**Note :** subscribe to a GSM contract that allows both voice and data transmission.

### Environmental characteristics

<b>Approvals</b>	Environment category C		UL, CSA, Tick
<b>Degree of protection</b>			IP 20
<b>Ambient air temperature</b>	Operation	°C	- 20...+ 55 conforming to IEC/EN 60068-2-1 and 60068-2-2
	Storage	°C	- 25...+ 70 conforming to IEC/EN 61131-2
<b>Maximum relative humidity</b>			95 % without condensation or dripping water
<b>Maximum operating altitude</b>		m	2000
<b>Mechanical resistance</b>	Vibration resistance		Conforming to IEC/EN 60068-2-6 test Fc ± 1 mm (2 to 13.2 Hz), ± 0.15 mm (13.2 to 57.6 Hz) 2 gn (57.6 to 150 Hz)
	Shock resistance		Conforming to IEC/EN 60068-2-27 test Ea
<b>Immunity to electrostatic discharge</b>			Conforming to IEC/EN 61000-4-2 level 3, 8 kV air, 6 kV at the contacts
<b>Resistance to HF interference</b>	Immunity to radiated electromagnetic fields		Conforming to IEC/EN 61000-4-3 level 3, 10 V per metre
	Immunity to fast transients in bursts		Conforming to IEC/EN 61000-4-4 level 3
	Immunity to shock waves		Conforming to IEC/EN 61000-4-5, on common mode supply 2 kV, serial mode supply 1 kV
	Immunity to damped oscillation wave		Conforming to IEC/EN 61000-4-12, on 1 kV supply, 30 seconds, 4 periods
	Conducted disturbance induced by the radiated fields		IEC/EN 61000-4-6, 10 kHz to 80 MHz level 3: 10 V
<b>Connection to screw terminals</b> (tightened using 3.5 mm diam. screwdriver)	Flexible cable with cable end	mm <sup>2</sup>	1 conductor: 0.14...1.5, AWG26...AWG16 cable 2 conductors: 0.14...0.75, AWG26...AWG18 cable
	Semi-solid cable	mm <sup>2</sup>	1 conductor: 0.14...2.5, AWG26...AWG14 cable
	Solid cable	mm <sup>2</sup>	1 conductor: 0.14...2.5, AWG26...AWG14 cable 2 conductors: 0.14...1.5, AWG26...AWG16 cable
	Tightening torque	N.m	0.6

### Supply characteristics

<b>Rated voltage</b>	—	V	12...24
<b>Voltage limits</b>	—	V	10...28.8
<b>Maximum ripple</b>	~		5 %
<b>Rated current</b>	— 12 V	mA	92
	— 24 V	mA	95
	Current peak on energisation	mA	800
<b>Power dissipated</b>		W	2.3
<b>Micro-breaks</b>	Permissible duration		1 ms, repeated 20 times
<b>Protection</b>	Integrated		Against reversed polarity
	To be provided externally		1 A fuse or circuit breaker

### Characteristics of "Com-Z" link with the smart relay

<b>Type of connector</b>	Interface side		SUB-D 9-way male
<b>Type of link</b>			RS 232 serial, specific Zelio communication protocol
<b>Compatibility</b>			Only with Zelio Logic SR1 smart relays version ≥ V1.7 + cable SR1 CBL01
<b>Isolation of "Com-Z" connector</b>	From the smart relay		By means of cable SR1 CBL01
	From the "Com-M" connector		None
	From the +/- supply terminals		None

### Characteristics of "Com-M" link with the modem

<b>Type of connector</b>	Interface side		SUB-D 9-way male
<b>Type of link</b>			RS 232 serial
<b>Compatibility</b>	PSTN analogue modem		AT commands
	GSM modem		AT commands
<b>Isolation of "Com-M" connector</b>	From the modem		None
	From the "Com-Z" connector		None
	From the +/- supply terminals		None

### Processing characteristics

<b>Data saved by the interface</b>	Messages and call initiation conditions		1 message per scheme element (inputs, outputs, control relays, function blocks...)
	Telephone numbers		1 to 5 numbers for a remote PC + 1 to 5 GSM telephone numbers per message
	Program comments		All comments entered during programming (PC)
	Date and time for date-stamping of messages		Remote setting of clock Automatic adjustment of clock for daylight saving changes (USA, UK, EUR, set dates) Synchronisation of smart relay date and time
<b>Duration of data backup</b> (including date and time)			10 years

# Zelio Logic smart relay

## Communication interface

510189



SR1 COM01

### Communication interface

Description	Supply voltage	Reference	Weight kg
Communication interface	≡ 12/24 V	SR1 COM01 ▲	0.140

### Modems

Description	Supply voltage	Reference	Weight kg
<b>PSTN modem</b> Type WESTERMO TD-33 / V.90, supplied with a telephone cable (length 3 m)	≡ 12/36 V	SR1 MOD01	0.231

<b>GSM modem</b> Type WAVECOM WMOD2B dual band 900/1800 Mhz, supplied with a power cable (length 1.5 m) and lugs for plate mounting	≡ 24 V	SR1 MOD02	0.127
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<b>Accessory kit for GSM modem</b> comprising: a modem cable (length 0.5 m), an antenna with cable (length 3 m) and accessories for mounting on $\bar{L}$ rail	–	SR1 KIT02	0.180
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### Software

Description	Application Compatibility	Medium	Reference	Weight kg
<b>Programming software (1)</b>	PC Windows 95/98, NT4, 2000, ME	CD-ROM	SR1 SFT03	0.105

### Connection accessories

Description	Application	Length m	Reference	Weight kg
<b>Connection cables</b>	Between smart relay and communication interface	1.8	SR1 CBL01	0.061
	Between communication interface and modem SR1 MOD01 (2)	1.8	SR1 CBL03	0.108
	Between communication interface and PC (3)	1.8	SR1 CBL04	0.108

(1) Includes "Zelio Soft Com" programming software and "SIM Config" GSM modem configuration software. This software can also be used to program all smart relays in the SR1 range, even if they are used without a communication interface.

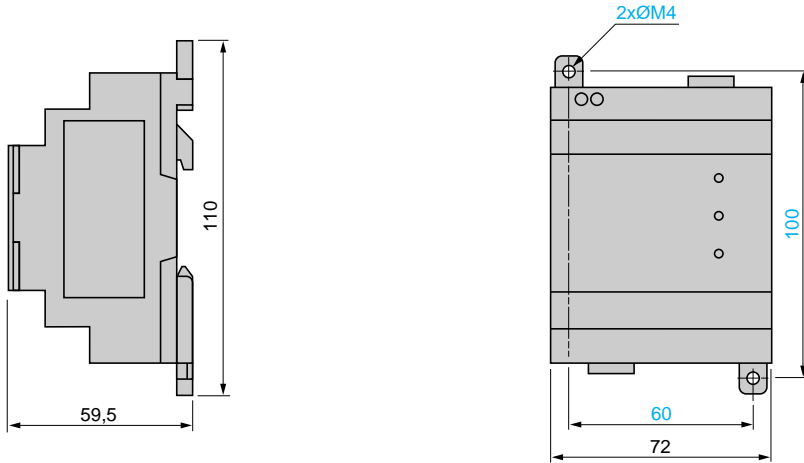
(2) Or between modem and PC.

(3) For programming the smart relay and the interface locally, without a modem.

▲ Available 1<sup>st</sup> quarter of 2003.

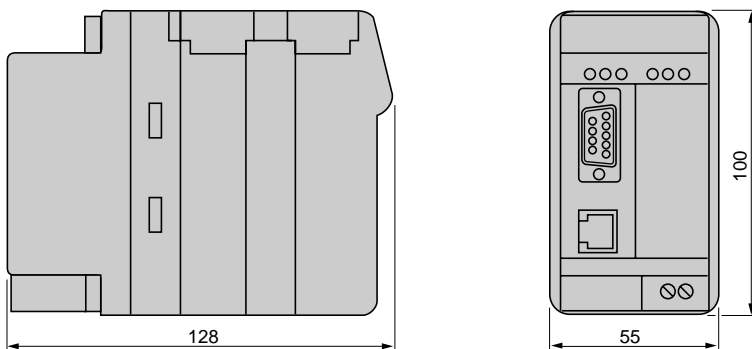
### Communication interface

SR1 COM01

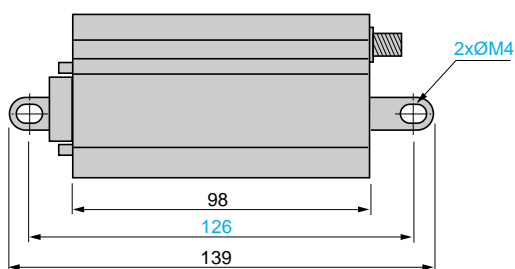


### Modems

SR1 MOD01 (PSTN Modem)

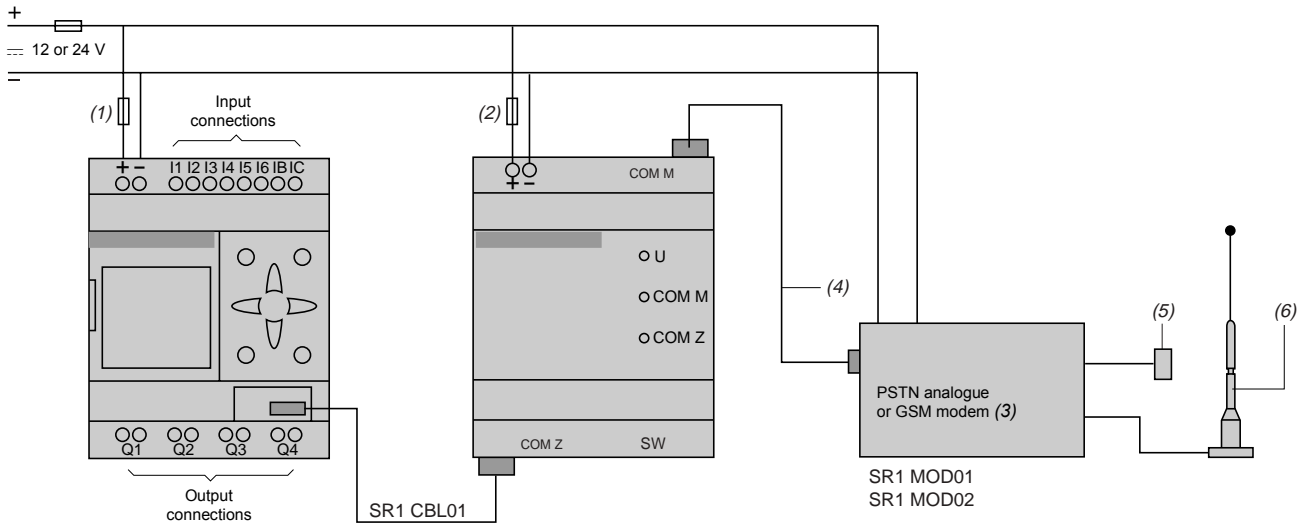


SR1 MOD01 (GSM Modem)



### Connection schemes for connecting communication interface SR1 COM01 to the smart relay and the modem

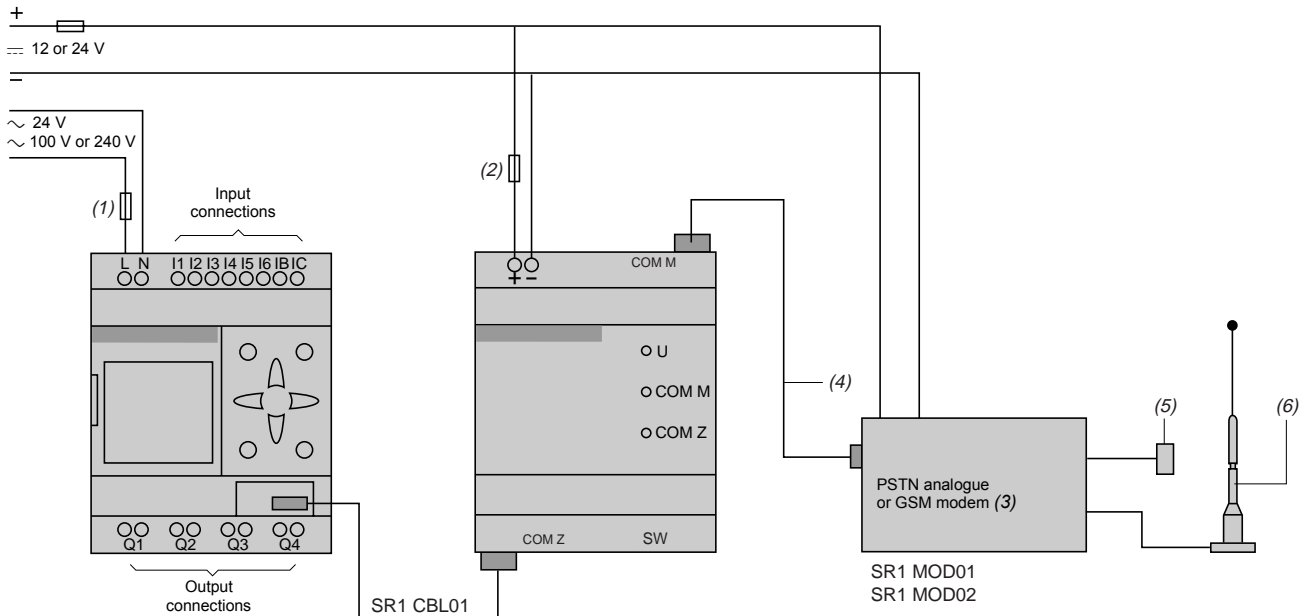
SR1 B121JD, SR1 B121BD, SR1 B122BD, SR1 E121BD and SR1 B201BD



- (1) 1 A quick-blow fuse.
- (2) 1 A fuse.
- (3) For GSM modem SR1 MOD02, use only a  $\sim$  24 V supply.
- (4) GSM modem supplied complete with cable. For PSTN modem, order cable SR1 CBL03 separately.
- (5) Connection cable to the telephone network (for analogue modem).
- (6) Accessory kit (antenna) for GSM modem.

**Note :** to connect communication interface SR1 COM01 to a PC, use cable SR1 CBL04.

SR1 B101B, SR1 B201B, SR1 B101FU, SR1 E101FU and SR1 B201FU



- (1) 1 A quick-blow fuse.
- (2) 1 A fuse.
- (3) For GSM modem SR1 MOD02, use only a  $\sim$  24 V supply.
- (4) GSM modem supplied complete with cable. For PSTN modem, order cable SR1 CBL03 separately.
- (5) Connection cable to the telephone network (for analogue modem).
- (6) Accessory kit (antenna) for GSM modem.

**Note :** to connect communication interface SR1 COM01 to a PC, use cable SR1 CBL04.