

# Product datasheet

Specifications



## compact smart relay Zelio Logic - 12 I/O - 24 V DC - clock - display

TSI code: 389537498 SR2B121BD

### Main

|                           |                     |
|---------------------------|---------------------|
| Range of product          | Zelio Logic         |
| Product or component type | Compact smart relay |

### Complementary

|                                |                                                                                                               |
|--------------------------------|---------------------------------------------------------------------------------------------------------------|
| Local display                  | With                                                                                                          |
| Number of control scheme lines | 0...240 with ladder programming<br>0...500 with FBD programming                                               |
| Cycle time                     | 6...90 ms                                                                                                     |
| Backup time                    | 10 years at 25 °C                                                                                             |
| Clock drift                    | 12 min/year at 0...55 °C<br>6 s/month at 25 °C                                                                |
| Checks                         | Program memory on each power up                                                                               |
| [Us] rated supply voltage      | 24 V DC                                                                                                       |
| Supply voltage limits          | 19.2...30 V                                                                                                   |
| Maximum supply current         | 100 mA (without extension)                                                                                    |
| Power dissipation in W         | 3 W without extension                                                                                         |
| Reverse polarity protection    | With                                                                                                          |
| Discrete input number          | 8 conforming to EN/IEC 61131-2 type 1                                                                         |
| Discrete input type            | Resistive                                                                                                     |
| Discrete input voltage         | 24 V DC                                                                                                       |
| Discrete input current         | 4 mA                                                                                                          |
| Counting frequency             | 1 kHz for discrete input                                                                                      |
| Voltage state 1 guaranteed     | >= 15 V for I1...IA and IH...IR discrete input circuit<br>>= 15 V for IB...IG used as discrete input circuit  |
| Voltage state 0 guaranteed     | <= 5 V for I1...IA and IH...IR discrete input circuit<br><= 5 V for IB...IG used as discrete input circuit    |
| Current state 1 guaranteed     | >= 1.2 mA (IB...IG used as discrete input circuit)<br>>= 2.2 mA (I1...IA and IH...IR discrete input circuit)  |
| Current state 0 guaranteed     | <= 0.5 mA (IB...IG used as discrete input circuit)<br><= 0.75 mA (I1...IA and IH...IR discrete input circuit) |
| Input compatibility            | 3-wire proximity sensors PNP for discrete input                                                               |
| Analogue input number          | 4                                                                                                             |

|                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Analogue input type</b>                    | Common mode                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Analogue input range</b>                   | 0...10 V<br>0...24 V                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Maximum permissible voltage</b>            | 30 V for analogue input circuit                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Analogue input resolution</b>              | 8 bits                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>LSB value</b>                              | 39 mV for analogue input circuit                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Conversion time</b>                        | Smart relay cycle time for analogue input circuit                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Conversion error</b>                       | +/- 5 % at 25 °C for analogue input circuit<br>+/- 6.2 % at 55 °C for analogue input circuit                                                                                                                                                                                                                                                                                                                                                   |
| <b>Repeat accuracy</b>                        | +/- 2 % at 55 °C for analogue input circuit                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Operating distance</b>                     | 10 m between stations, with screened cable (sensor not isolated) for analogue input circuit                                                                                                                                                                                                                                                                                                                                                    |
| <b>Input impedance</b>                        | 12 kOhm for IB...IG used as analogue input circuit<br>12 kOhm for IB...IG used as discrete input circuit<br>7.4 kOhm for I1...IA and IH...IR discrete input circuit                                                                                                                                                                                                                                                                            |
| <b>Number of outputs</b>                      | 4 relay                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Output voltage limits</b>                  | 24...250 V AC (relay output)<br>5...30 V DC (relay output)                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Contacts type and composition</b>          | NO for relay output                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Output thermal current</b>                 | 8 A for all 4 outputs for relay output                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Electrical durability</b>                  | AC-12: 500000 cycles at 230 V, 1.5 A for relay output conforming to EN/IEC 60947-5-1<br>AC-15: 500000 cycles at 230 V, 0.9 A for relay output conforming to EN/IEC 60947-5-1<br>DC-12: 500000 cycles at 24 V, 1.5 A for relay output conforming to EN/IEC 60947-5-1<br>DC-13: 500000 cycles at 24 V, 0.6 A for relay output conforming to EN/IEC 60947-5-1                                                                                     |
| <b>Switching capacity in mA</b>               | >= 10 mA at 12 V (relay output)                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Operating rate in Hz</b>                   | 0.1 Hz (at Ie) for relay output<br>10 Hz (no load) for relay output                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Mechanical durability</b>                  | 10000000 cycles for relay output                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>[Uimp] rated impulse withstand voltage</b> | 4 kV conforming to EN/IEC 60947-1 and EN/IEC 60664-1                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Clock</b>                                  | With                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Response time</b>                          | 10 ms (from state 0 to state 1) for relay output<br>5 ms (from state 1 to state 0) for relay output                                                                                                                                                                                                                                                                                                                                            |
| <b>Connections - terminals</b>                | Screw terminals, 1 x 0.2...1 x 2.5 mm <sup>2</sup> (AWG 25...AWG 14) semi-solid<br>Screw terminals, 1 x 0.2...1 x 2.5 mm <sup>2</sup> (AWG 25...AWG 14) solid<br>Screw terminals, 1 x 0.25...1 x 2.5 mm <sup>2</sup> (AWG 24...AWG 14) flexible with cable end<br>Screw terminals, 2 x 0.2...2 x 1.5 mm <sup>2</sup> (AWG 24...AWG 16) solid<br>Screw terminals, 2 x 0.25...2 x 0.75 mm <sup>2</sup> (AWG 24...AWG 18) flexible with cable end |
| <b>Tightening torque</b>                      | 0.5 N.m                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Overvoltage category</b>                   | III conforming to EN/IEC 60664-1                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Net weight</b>                             | 0.25 kg                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Environment</b>                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Immunity to microbreaks</b>                | 1 ms                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Product certifications</b>                 | GL<br>CSA<br>UL<br>GOST<br>C-Tick                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Standards</b>                              | EN/IEC 61000-4-12<br>EN/IEC 61000-4-4 level 3<br>EN/IEC 61000-4-5<br>EN/IEC 61000-4-11<br>EN/IEC 61000-4-2 level 3<br>EN/IEC 60068-2-6 Fc<br>EN/IEC 61000-4-6 level 3<br>EN/IEC 60068-2-27 Ea<br>EN/IEC 61000-4-3                                                                                                                                                                                                                              |
| <b>IP degree of protection</b>                | IP20 (terminal block) conforming to IEC 60529                                                                                                                                                                                                                                                                                                                                                                                                  |

IP40 (front panel) conforming to IEC 60529

|                                                  |                                                                                                                                                                                                                                                         |
|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Environmental characteristic</b>              | EMC directive conforming to EN/IEC 61000-6-2<br>EMC directive conforming to EN/IEC 61000-6-3<br>EMC directive conforming to EN/IEC 61000-6-4<br>EMC directive conforming to EN/IEC 61131-2 zone B<br>Low voltage directive conforming to EN/IEC 61131-2 |
| <b>Disturbance radiated/<br/>conducted</b>       | Class B conforming to EN 55022-11 group 1                                                                                                                                                                                                               |
| <b>Pollution degree</b>                          | 2 conforming to EN/IEC 61131-2                                                                                                                                                                                                                          |
| <b>Ambient air temperature for<br/>operation</b> | -20...40 °C in non-ventilated enclosure conforming to IEC 60068-2-1 and IEC 60068-2-2<br>-20...55 °C conforming to IEC 60068-2-1 and IEC 60068-2-2                                                                                                      |
| <b>Ambient air temperature for<br/>storage</b>   | -40...70 °C                                                                                                                                                                                                                                             |
| <b>Operating altitude</b>                        | 2000 m                                                                                                                                                                                                                                                  |
| <b>Maximum altitude transport</b>                | 3048 m                                                                                                                                                                                                                                                  |
| <b>Relative humidity</b>                         | 95 % without condensation or dripping water                                                                                                                                                                                                             |

## Packing Units

|                                     |          |
|-------------------------------------|----------|
| <b>Unit Type of Package 1</b>       | PCE      |
| <b>Number of Units in Package 1</b> | 1        |
| <b>Package 1 Weight</b>             | 243 g    |
| <b>Package 1 Height</b>             | 6.8 cm   |
| <b>Package 1 width</b>              | 8.8 cm   |
| <b>Package 1 Length</b>             | 10 cm    |
| <b>Unit Type of Package 2</b>       | S03      |
| <b>Number of Units in Package 2</b> | 30       |
| <b>Package 2 Weight</b>             | 7.721 kg |
| <b>Package 2 Height</b>             | 30 cm    |
| <b>Package 2 width</b>              | 30 cm    |
| <b>Package 2 Length</b>             | 40 cm    |

## Offer Sustainability

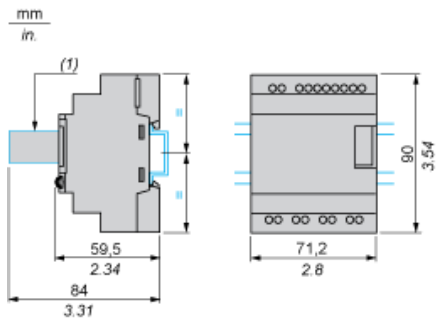
|                                   |                                                                                                                             |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| <b>Sustainable offer status</b>   | Green Premium product                                                                                                       |
| <b>REACH Regulation</b>           | <a href="#">REACH Declaration</a>                                                                                           |
| <b>EU RoHS Directive</b>          | Pro-active compliance (Product out of EU RoHS legal scope)<br><a href="#">EU RoHS Declaration</a>                           |
| <b>Mercury free</b>               | Yes                                                                                                                         |
| <b>RoHS exemption information</b> | <a href="#">Yes</a>                                                                                                         |
| <b>China RoHS Regulation</b>      | <a href="#">China RoHS declaration</a>                                                                                      |
| <b>Environmental Disclosure</b>   | <a href="#">Product Environmental Profile</a>                                                                               |
| <b>Circularity Profile</b>        | <a href="#">End of Life Information</a>                                                                                     |
| <b>WEEE</b>                       | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins |
| <b>PVC free</b>                   | Yes                                                                                                                         |

## Contractual warranty

|                 |           |
|-----------------|-----------|
| <b>Warranty</b> | 18 months |
|-----------------|-----------|

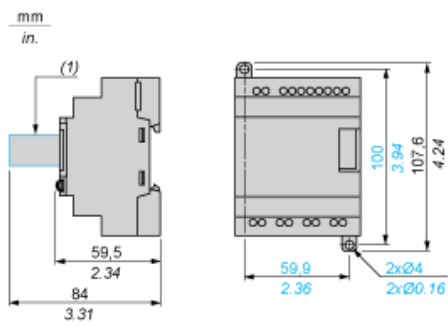
**Compact and Modular Smart Relays**

**Mounting on 35 mm/1.38 in. DIN Rail**



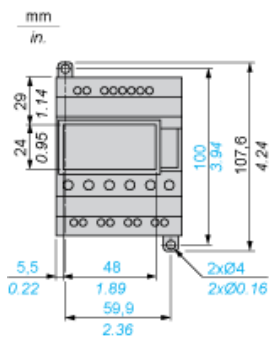
(1) With SR2USB01 or SR2BTC01

**Screw Fixing (Retractable Lugs)**



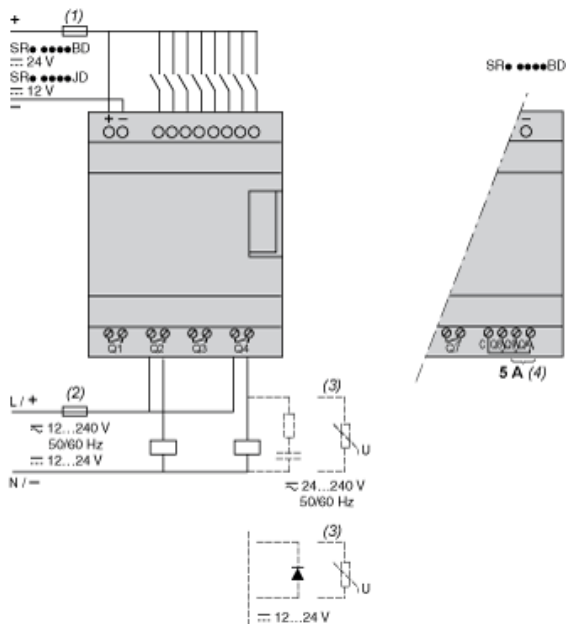
(1) With SR2USB01 or SR2BTC01

**Position of Display**



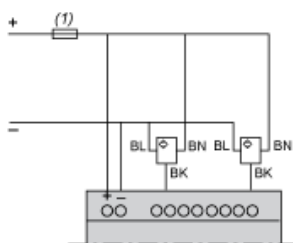
**Compact and Modular Smart Relays**

**Connection of Smart Relays on DC Supply**



- (1) 1 A quick-blow fuse or circuit-breaker.
- (2) Fuse or circuit-breaker.
- (3) Inductive load.
- (4) Q9 and QA: 5 A (max. current in terminal C: 10 A).

**Discrete Input Used for 3-Wire Sensors**



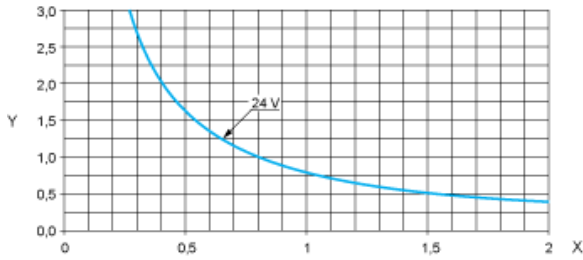
- (1) 1 A quick-blow fuse or circuit-breaker.

**Compact and Modular Smart Relays**

**Electrical Durability of Relay Outputs**

(in millions of operating cycles, conforming to IEC/EN 60947-5-1)

DC-12 (1)

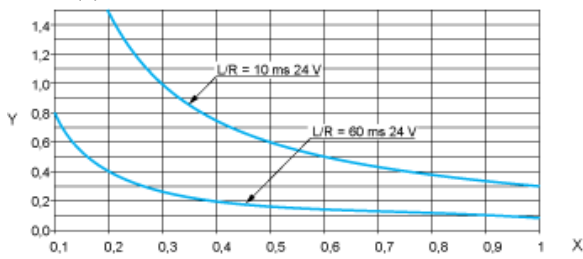


**X:** Current (A)

**Y:** Millions of operating cycles

**(1)** DC-12: control of resistive loads and of solid state loads isolated by opto-coupler,  $L/R \leq 1$  ms.

DC-13 (1)



**X:** Current (A)

**Y:** Millions of operating cycles

**(1)** DC-13: switching electromagnets,  $L/R \leq 2 \times (U_e \times I_e)$  in ms,  $U_e$ : rated operational voltage,  $I_e$ : rated operational current (with a protection diode)