Product datasheet

Specification





modular smart relay Zelio Logic - 10 I O - 24 V DC - clock - display

SR3B102BD

Main

Range of product	Zelio Logic
product or component type	Modular smart relay

Complementary

Local display	display With	
Number or control scheme lines	0500 with FBD programming 0240 with ladder programming	
Cycle time	690 ms	
Backup time	10 years at 25 °C	
Clock drift	12 min/year at 055 °C 6 s/month at 25 °C	
Checks	Program memory on each power up	
[Us] rated supply voltage	24 V	
Supply voltage limits	19.230 V	
Maximum supply current	160 mA (with extensions) 50 mA (without extension)	
Power dissipation in W	4 W without extension 8 W with extensions	
Reverse polarity protection	With	
Discrete input number	6 conforming to 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 I1IA and IHIR discrete input circuit >= 15 V for IBIG used as discrete input circuit	
Voltage state 0 guaranteed	<= 5 V for I1IA and IHIR discrete input circuit <= 5 V for IBIG used as discrete input circuit	
Current state 1 guaranteed	>= 1.2 mA (IBIG used as discrete input circuit) >= 2.2 mA (I1IA and IHIR discrete input circuit)	
Current state 0 guaranteed	<= 0.5 mA (IBIG used as discrete input circuit) <= 0.75 mA (I1IA and IHIR discrete input circuit)	
Input compatibility	3-wire proximity sensors PNP for discrete input	
Analogue input number	4	
Analogue input type	Common mode	

Analogue input range	input range 010 V 024 V	
Temperature probe type	NTC 10k at 25 °C	
	NTC 1000k at 25 °C	
	KTY81 210/220/221/222/250	
	Pt 500	
Maximum permissible voltage	30 V for analogue input circuit	
Analogue input resolution	8 bits	
LSB value	39 mV for analogue input circuit	
Conversion time	Smart relay cycle time for analogue input circuit	
Conversion error	+/- 5 % at 25 °C for analogue input circuit +/- 6.2 % at 55 °C for analogue input circuit	
Repeat accuracy	+/- 2 % at 55 °C for analogue input circuit	
Operating distance	10 m between stations, with screened cable (sensor not isolated) for analogue input circuit	
Input impedance	12 kOhm for IBIG used as analogue input circuit	
	12 kOhm for IBIG used as discrete input circuit	
	7.4 kOhm for I1IA and IHIR discrete input circuit	
Number of outputs	4 transistor	
Output voltage	24 V transistor output	
Output voltage limits	19.230 V DC (transistor output)	
Load current	0.50.625 A transistor output	
[Ures] residual voltage	2 V at state 1 transistor output	
Overload protection	With overload protection for transistor output	
Short-circuit protection	With transistor output	
Overvoltage protection	With overvoltage protection for transistor output	
Clock	With	
Response time	<= 1 ms (from state 0 to state 1) for transistor output <= 1 ms (from state 1 to state 0) for transistor output	
Connections - terminals	Screw terminals, 1 x 0.21 x 2.5 mm² (AWG 25AWG 14) semi-solid	
	Screw terminals, 1 x 0.21 x 2.5 mm² (AWG 25AWG 14) solid	
	Screw terminals, 1 x 0.251 x 2.5 mm² (AWG 24AWG 14) flexible with cable end	
	Screw terminals, 2 x 0.22 x 1.5 mm² (AWG 24AWG 16) solid	
	Screw terminals, 2 x 0.252 x 0.75 mm² (AWG 24AWG 18) flexible with cable end	
Tightening torque	0.5 N.m	
Overvoltage category	III conforming to IEC 60664-1	
net weight	0.22 kg	
Environment		
Immunity to microbreaks	1 ms	

Immunity to microbreaks	1 ms	
Product certifications	GL	
	C-Tick	
	GOST	
	UL	
	CSA	

Standards	IEC 60068-2-27 Ea IEC 60068-2-6 Fc IEC 61000-4-6 level 3 IEC 61000-4-2 level 3 IEC 61000-4-12 IEC 61000-4-11 IEC 61000-4-3 IEC 61000-4-5	
IP degree of protection	IP20 (terminal block) conforming to IEC 60529 IP40 (front panel) conforming to IEC 60529	
Environmental characteristic	EMC directive conforming to IEC 61000-6-2 EMC directive conforming to IEC 61000-6-3 EMC directive conforming to IEC 61000-6-4 EMC directive conforming to IEC 61131-2 zone B Low voltage directive conforming to IEC 61131-2	
Disturbance radiated/conducted	Class B conforming to EN 55022-11 group 1	
Pollution degree	2 conforming to IEC 61131-2	
Ambient air temperature for operation	-2040 °C in non-ventilated enclosure conforming to IEC 60068-2-1 and IEC 60068-2-2 -2055 °C conforming to IEC 60068-2-1 and IEC 60068-2-2	
Ambient air temperature for storage	-4070 °C	
Operating altitude	2000 m	
Maximum altitude transport	3048 m	
Relative humidity	95 % without condensation or dripping water	

Packing Units

Unit Type of Package 1	PCE
Number of Units in Package 1	1
Package 1 Height	6.500 cm
Package 1 Width	10.000 cm
Package 1 Length	8.800 cm
Package 1 Weight	206.000 g
Unit Type of Package 2	S03
Number of Units in Package 2	30
Package 2 Height	30.000 cm
Package 2 Width	30.000 cm
Package 2 Length	40.000 cm
Package 2 Weight	6.830 kg

Contractual warranty

Warranty 18 months



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Transparency RoHS/REACh

Well-being performance

	Mercury Free	
②	Rohs Exemption Information	Yes
	Pvc Free	

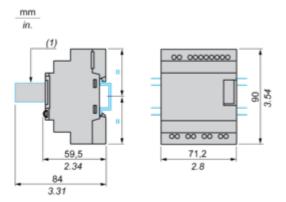
Certifications & Standards

Reach Regulation	REACh Declaration	
Eu Rohs Directive	Pro-active compliance (Product out of EU RoHS legal scope)	
China Rohs Regulation	China RoHS declaration	
Environmental Disclosure	Product Environmental Profile	
Weee	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins	
Circularity Profile	End of Life Information	

Dimensions Drawings

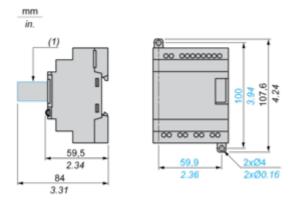
Compact and Modular Smart Relays

Mounting on 35 mm/1.38 in. DIN Rail



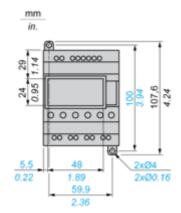
(1) With SR2USB01 or SR2BTC01

Screw Fixing (Retractable Lugs)



(1) With SR2USB01 or SR2BTC01

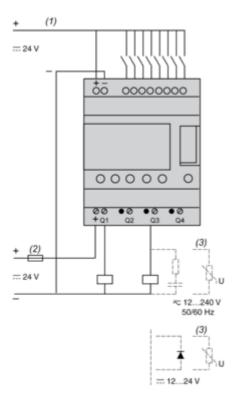
Position of Display



Connections and Schema

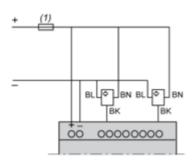
Compact and Modular Smart Relays

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).

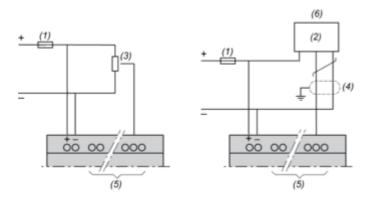
Discrete Input Used for 3-Wire Sensors



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

Connection of Smart Relays on DC Supply

Analog Inputs



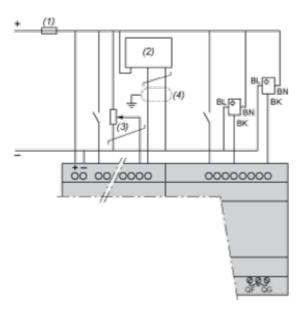
- (1) 1 A quick-blow fuse or circuit-breaker.
- (2) Ca: Analog sensor / Ta: Analog transmitter.
- (3) Recommended values: 2.2 k Ω / 0.5 W (10 k Ω max.)
- (4) Screened cables, maximum length 10 m / 32.80 feet.
- (5) Analog inputs according to Zelio Logic smart relay type (see table below)

(6) 0-10 Vdc ANALOG

Smart Relays	Analog Inputs
SR2•12••D	IBIE
SR2A201BD	IB and IC
SR2D201BD	IB and IC
SR2B20••D	IBIG
SR2E201BD	IBIG
SR3B10•BD	IBIE
SR3B26••D	IBIG

Connection of Smart Relays on DC Supply, with Discrete I/O Extension Modules

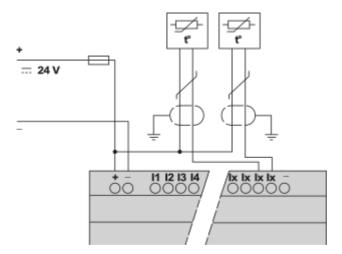
SR3B···JD + SR3XT···JD, SR3B···BD + SR3XT···BD



- (1) 1 A quick-blow fuse or circuit-breaker.
- (2) Ca: Analog sensor / Ta: Analog transmitter.
- (3) Recommended values: $2.2 \text{ k}\Omega$ / 0.5 W (10 k Ω max.)
- (4) Screened cables, maximum length 10 m / 32.80 feet.

NOTE: QF and QG: 5 A for SR3XT141..

Connection of Thermistor Input on DC Supply



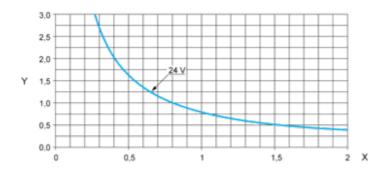
NOTE: Ix = IB...IG

Performance Curves

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)

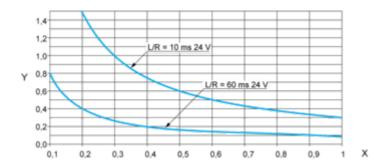


X: Current (A)

Y: Millions of operating cycles

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

DC-13 (1)



X: Current (A)

Y: Millions of operating cycles

(1) DC-13: switching electromagnets, $L/R \le 2 \times (Ue \times Ie)$ in ms, Ue: rated operational voltage, Ie: rated operational current (with a protection diode on the load, DC-12 curves must be used with a coefficient of 0.9 applied to the number in millions of operating cycles).