

RSL Slim Interface Plug-In Relays

2009

Class 8501



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Introduction

Zelio® RSL slim interface plug-in relays are both compact in size and modular in design. At only 0.24 in. (6 mm) wide, RSL relays save valuable space when mounted on a DIN rail at the back of an enclosure.

Zelio RSL Relay Options

Pre-assembled: A single unit composed of a standard relay mounted on a socket

- Standard features:
The socket includes a built-in protection circuit▲ and an LED indicator.
Wire connection options:
 - Screw connectors
 - Spring terminalsRobust solution:
Product range covers a wide variety of operating voltages (12–230 V).

Custom-assembled: Individual relays and sockets

Flexibility for custom applications:
The relay and the socket are available separately, to meet various application requirements.
Simple maintenance:
An RSL slim interface relay can be replaced without disconnecting the socket wiring.

▲ Provides protection against reverse polarity and surge voltages as specified in this catalog.

RSL Slim Interface Plug-In Relays

Anatomy of a Zelio RSL Relay

Anatomy of a Zelio RSL Relay

Figure 1: Pre-assembled RSL Slim Interface Relay

- A. 6 A relay with one C/O contact
- B. Retention lever for easy removal of the relay from its socket
- C. Sockets offer wire connection with either screw connectors or spring terminals
- D. Sockets have a built-in protection circuit and an LED indicator

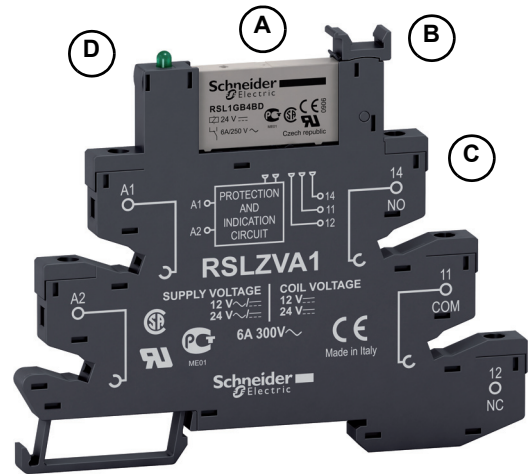


Figure 2: RSL Slim Interface Relay

- E. Five flat, reinforced PCB pins

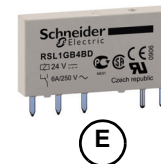
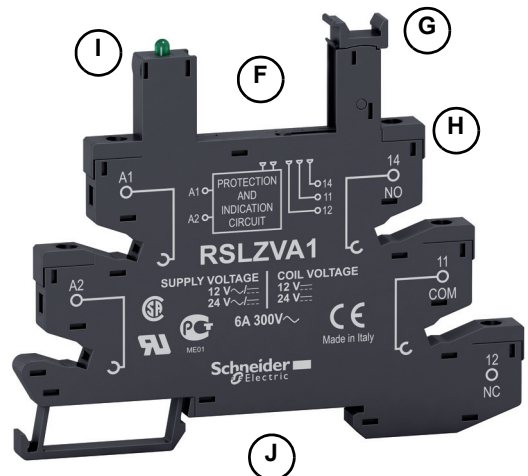


Figure 3: Socket for RSL Slim Interface Relay

- F. Five female contacts for the relay pins
- G. Retention lever that accepts optional ID tags
- H. Wire connection by screw connector or spring terminals
- I. Protection circuit and LED indicator (built into the socket)
- J. Locating slot for mounting on DIN rail



Characteristics

Table 1: General Characteristics

Conforming to Standards		IEC 61810-1, UL 508, CSA C22-2 No. 14
Product Certifications		UL E173076, UL E172326 CSA 240278, CSA 247510 GOST
Ambient Air Temperature (Around the device)	Storage	-40 to +185 °F (-40 to +85 °C)
	Operation	-40 to +131 °F (-40 to +55 °C)
Vibration Resistance (conforming to IEC/EN 60068-2-6)	In operation	10 gn
	Not operating	5 gn
Degree of Protection (Conforming to IEC/EN 60529)		IP 40 (Relays) IP 20 (Sockets)
Shock Resistance (Conforming to IEC/EN 60068-2-27)	Opening	10 gn
	Closing	5 gn
Protection Category		RT III (conforms to IEC 61810-1)
Mounting Position		Any

Table 2: Insulation Characteristics

Rated Insulation Voltage (Ui)		250 V (IEC)
Rated Impulse Withstand Voltage (Uimp)		6 kV
Dielectric Strength (rms voltage)	Between coil and contact	4000 V
	Between contacts	1000 V

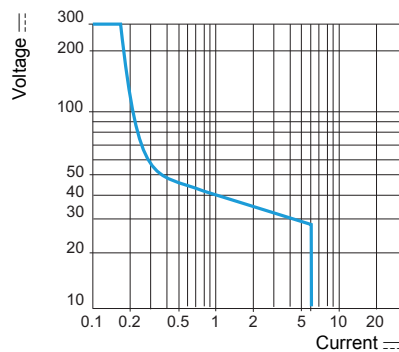
RSL Slim Interface Plug-In Relays

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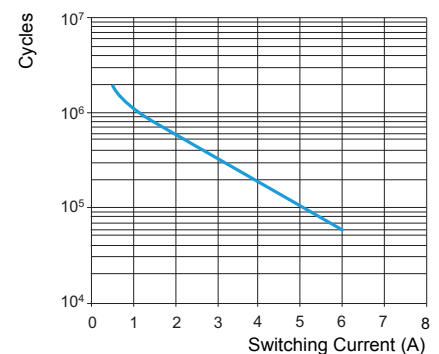
Table 3: Contact Characteristics: RSL1AB__ Relays

Number and type of contacts				1 C/O standard
Contact materials				AgSnO ₂
Conventional thermal current (I _{th})	For ambient temperature ≤ 131 °F (55 °C)		A	6
Rated operational current in utilization categories AC-1 and DC-1	Conforming to IEC	N/C	A	6
		N/O	A	6
	Conforming to UL		A	6
Switching current Minimum			mA	100
Switching voltage	Rated		~V	250
	Maximum		V	~400, --- 300
	Minimum		V	12
Nominal load (resistive)			A / ~V	6 / 250 V, at 50 mW
Switching capacity	Maximum	~	VA	1500
		---	W	18–150 (depending on the voltage)
	Minimum		mW	120
Maximum operating rate	No-load			72000
In operating cycles/hours	Under load			360
Mechanical durability In millions of operating cycles ■				≥10
Electrical durability	Resistive load			See curves below
In millions of operating cycles ■	Inductive load			0.05 (N/O contact: ~250 V, 3 A, AC-15)

■ Actual cycle life may vary depending upon application factors.



Maximum switching capacity on --- load



Electrical durability (typical)

Table 4: Coil Characteristics: RSL1AB__ Relays

Average consumption		---	W	0.17
Drop-out voltage threshold		---		≥ 0.05 U _c
Operating time (response time)	Between coil energization and making of the NO contact	---	ms	12 max.
	Between coil de-energization and making of the NC contact	---	ms	5 max.
Control circuit voltage U _c			V	12 24 48 60
Relay control voltage codes				JD BD ED ND
DC supply	Average resistance at 23 °C ± 10%		Ω	848 3390 10600 20500
	Operating voltage limits	min.	V	8.4 16.8 33.6 42
		max.	V	16.8 33.6 67.2 84

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Table 5: Socket Characteristics

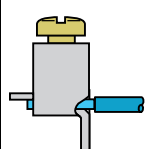
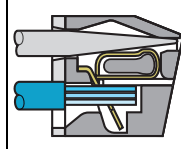
Socket type				RSL ZV__	RSL ZR__
Relay types used				RSL 1__	RSL 1__
Conforming to standards				IEC 61984, UL 508, CSA C22-2 No. 14	
Product certifications				UL E172326, CSA 247510, GOST	
Contact terminal arrangement				Separate	Separate
Wire connection method				Screw connector	Spring terminals
Width			in. (mm)	0.2441 (6.2)	0.2441 (6.2)
Electrical characteristics					
Conventional thermal current (Ith)			A	6	
Maximum operating voltage			~V	300	
Insulation characteristics					
Between adjacent output contacts			Vrms	2500	
Between input and output contacts			Vrms	2500	
Between contacts and DIN rail			Vrms	2500	
General characteristics					
Ambient air temperature around the device		Operation		°F (°C)	-40 to +158 (-40 to +70) -40 to +131 (-40 to +55) for U > 80 V
		Storage		°F (°C)	-40 to +185 (-40 to +85)
Degree of protection		Conforming to IEC/EN 60529			IP 20
Connection	Solid wire without cable end	1 conductor	AWG (mm²)	24–14 (0.2–2.5)	24–16 (0.2–1.5)
	Flexible wire with cable end	1 conductor	AWG (mm²)	24–14 (0.2–2.5)	24–16 (0.2–1.5)
Screw size			mm	M 2.5	
Maximum tightening torque				4.4 lb-in (0.5 N•m)	
Recommended insertion force					2.2–9.0 lb (10–40 N)
Mounting				On 1.38 in. (35 mm) DIN rail	
Mounting on DIN rail				By plastic compression spring	
Terminal reference				IEC	
LED indicator				Yes (built-in)	
Protection circuit				Yes (built-in)	
Wire connection method				Screw connector	Spring terminal
					

Table 6: Socket Operating Voltage

		Operating voltage V	Tolerance	Control circuit voltage (relay) V
Socket type	RSLZVA1, RSLZRA1	---/~ 12	+ 20% to - 5%	--- 12
		---/~ 24	+ 20% to - 10%	--- 24
	RSLZVA2, RSLZRA2	---/~ 48	+ 20% to - 10%	--- 48
		---/~ 60	+ 20% to - 10%	--- 60
	RSLZVA3, RSLZRA3	---/~ 110	+ 15% to - 20%	--- 60
	RSLZVA4, RSLZRA4	---/~ 230	+ 15% to - 20%	--- 60

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RSL 1PV_ RSL 1PR_

Table 7: Pre-assembled Slim Interface Relays

Relays mounted on socket equipped with LED and protection circuit (sold in lots of 10)

1 C/O contact: Thermal current (Ith) 6A

Operating voltage V	Control circuit voltage V	Socket type			
		Screw connector		Spring terminal	
		Unit reference	Weight ounces (kg)	Unit reference	Weight ounces (kg)
~ 12	~ 12	RSL 1PVJU	1.093 (0.031)	RSL 1PRJU	1.023 (0.029)
~ 24	~ 24	RSL 1PVBU	1.093 (0.031)	RSL 1PRBU	1.023 (0.029)
~ 48	~ 48	RSL 1PVEU	1.093 (0.031)	RSL 1PREU	1.023 (0.029)
~ 110	~ 60	RSL 1PVFU	1.093 (0.031)	RSL 1PRFU	1.023 (0.029)
~ 230	~ 60	RSL 1PVPU	1.093 (0.031)	RSL 1PRPU	1.023 (0.029)

Table 8: Slim Interface Relays for Custom Assembly: Relay + Socket

Relays with flat, reinforced PCB pins (sold in lots of 10)

1 C/O contact: Thermal current (Ith) 6A

Control circuit voltage V	Standard	
	Unit reference	Weight ounces (kg)
~ 12	RSL 1AB4JD	0.212 (0.006)
~ 24	RSL 1AB4BD	0.212 (0.006)
~ 48	RSL 1AB4ED	0.212 (0.006)
~ 60	RSL 1AB4ND	0.212 (0.006)

Sockets equipped with LED and protection circuit (Sold in lots of 10)

		Socket type			
		Screw connector		Spring terminal	
Operating voltage V	For use with relays	Unit reference	Weight ounces (kg)	Unit reference	Weight ounces (kg)
~ 12 and ~ 24	RSL 1AB4JD RSL 1AB4BD	RSL ZVA1	0.882 (0.025)	RSL ZRA1	0.811 (0.023)
~ 48 and ~ 60	RSL 1AB4ED RSL 1AB4ND	RSL ZVA2	0.882 (0.025)	RSL ZRA2	0.811 (0.023)
~ 110	RSL 1AB4ND	RSL ZVA3	0.882 (0.025)	RSL ZRA3	0.811 (0.023)
~ 230	RSL 1AB4ND	RSL ZVA4	0.882 (0.025)	RSL ZRA4	0.811 (0.023)



RSL 1_



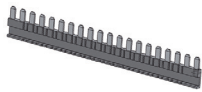
RSL ZVA_ RSL ZRA_

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Table 9: Socket Accessories

Description	Compatibility	Reference	Weight ounces (kg)
ID tags (2 sheets of 64 tags)	With all sockets	RSL Z5	0.035 (0.001)
Bus jumper (10 x 20-pole jumper)	With all sockets	RSL Z2	0.106 (0.003)
Butterfly isolators (10 isolators)	With all sockets	RSL Z3	0.035 (0.001)



RSL Z2



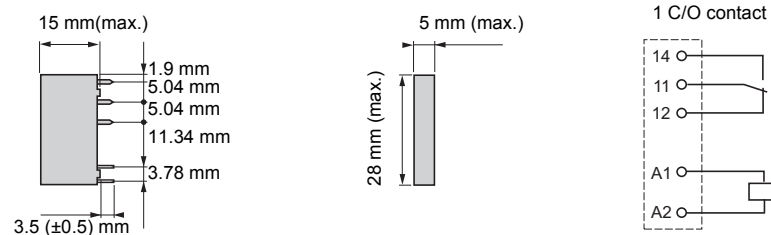
RSL Z3

Table 10: Pre-assembled Slim Interface Relays

RSL 1PV__ (screw connector)	RSL 1PR__ (spring terminals)

Table 11: Relays

RSL 1____ with flat, reinforced PCB pins



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Table 12: Sockets

RSL ZV__ (screw connector)	RSL ZR__ (spring terminals)

Table 13: Socket Connections

RSL ZV__ (screw connector)	RSL ZR__ (spring terminals)	Example of RSL Z2 bus jumper mounting on sockets (side view)

Schneider Electric

8001 Highway 64 East
Knightdale, NC 27545 USA
1-888-Square D
1-888-778-2733
www.schneider-electric.us

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