

Zelio® Relays

RSL Slim Interface Plug-In Relays

Catalog
8501CT0901
2009
Class 8501



CONTENTS

Description	Page
Introduction	3
Zelio RSL Relay Options	3
Anatomy of a Zelio RSL Relay	4
Characteristics	5

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 terminals
- Robust 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

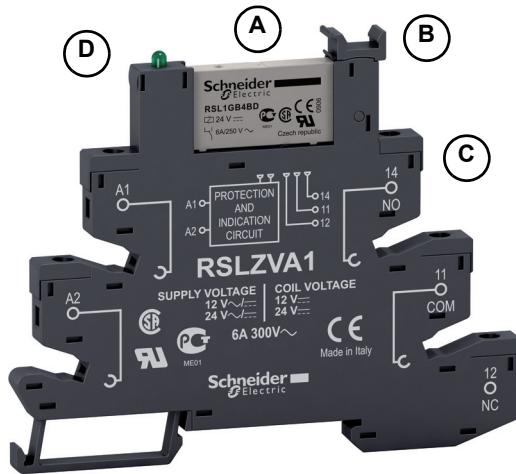


Figure 2: RSL Slim Interface Relay

- E. Five flat, reinforced PCB pins

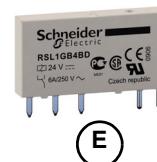
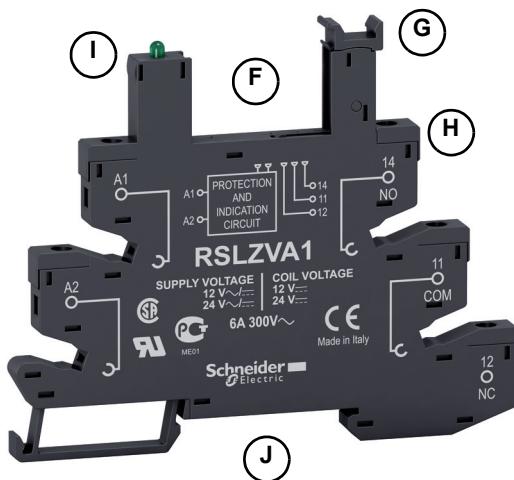


Figure 3: Socket for RSL Slim Interface Relay

- 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 (Ui _{imp})	6 kV
Dielectric Strength (rms voltage)	Between coil and contact
	Between contacts

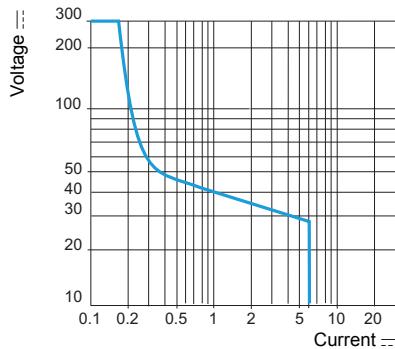
RSL Slim Interface Plug-In Relays

Characteristics

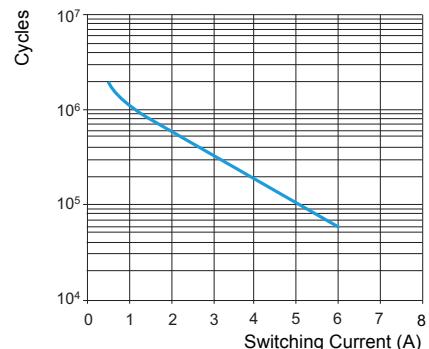
Table 3: Contact Characteristics: RSL1AB Relays

Number and type of contacts		1 C/O standard
Contact materials		AgSnO ₂
Conventional thermal current (I _{th})	For ambient temperature $\leq 131^{\circ}\text{F}$ (55°C)	A
		6
Rated operational current in utilization categories AC-1 and DC-1	Conforming to IEC N/C N/O	A
		6
Switching current Minimum	Conforming to UL	A
		6
Switching current Minimum	mA	100
Switching voltage	Rated	\sim V
	Maximum	V
	Minimum	V
Nominal load (resistive)	A / \sim V	6 / 250 V, at 50 mW
Switching capacity	Maximum	\sim VA
	\equiv	1500
	Minimum	W
		18–150 (depending on the voltage)
Maximum operating rate	mW	120
In operating cycles/hours	No-load	72000
	Under load	360
Mechanical durability		≥ 10
In millions of operating cycles■		
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 \equiv load



Electrical durability (typical)

Table 4: Coil Characteristics: RSL1AB Relays

Average consumption	\equiv	W	0.17
Drop-out voltage threshold	\equiv		$\geq 0.05 U_c$
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
Relay control voltage codes		JD	BD
DC supply	Average resistance at $23^{\circ}\text{C} \pm 10\%$	Ω	848
	Operating voltage limits	min. V	8.4
	max. V	16.8	33.6
		67.2	84

Table 5: Socket Characteristics

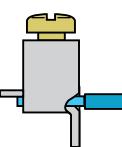
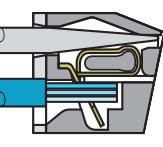
Socket type	RSL ZV__	RSL ZR__			
Relay types used	RSL 1____	RSL 1____			
Conforming to standards	IEC 61984, UL 508, CSA C22-2 No. 14				
Product certifications	UL E172326, CSA 247510, GOST				
Contact terminal arrangement	Separate	Separate			
Wire connection method	Screw connector	Spring terminals			
Width	in. (mm)	0.2441 (6.2) 0.2441 (6.2)			
Electrical characteristics					
Conventional thermal current (I _{th})	A	6			
Maximum operating voltage	~V	300			
Insulation characteristics					
Between adjacent output contacts	V _{rms}	2500			
Between input and output contacts	V _{rms}	2500			
Between contacts and DIN rail	V _{rms}	2500			
General characteristics					
Ambient air temperature around the device	Operation	°F (°C)	-40 to +158 (-40 to +70)		
	Storage	°F (°C)	-40 to +131 (-40 to +55) for U > 80 V		
Degree of protection	Conforming to IEC/EN 60529		IP 20		
Connection	Solid wire without cable end	1 conductor	AWG (mm ²)	24-14 (0.2-2.5)	24-16 (0.2-1.5)
	Flexible wire with cable end	1 conductor	AWG (mm ²)	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
		.../~ 230	+ 15% to - 20%	... 60

RSL Slim Interface Plug-In Relays

Characteristics



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 (I_{th}) 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 (I_{th}) 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)

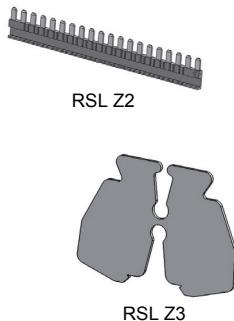


Operating voltage V	For use with relays	Socket type			
		Screw connector		Spring terminal	
		Unit reference	Weight ounces (kg)	Unit reference	Weight ounces (kg)
—/— 12 and —/— 24	RSL 1AB4JD RSL 1AB4BD	RSL ZVA1	0.882 (0.025)	RSL ZRA1	0.811 (0.023)
—/— 48 and —/— 60	RSL 1AB4ED RSL 1AB4ND	RSL ZVA2	0.882 (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 Slim Interface Plug-In Relays

Characteristics

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)

Table 10: Pre-assembled Slim Interface Relays

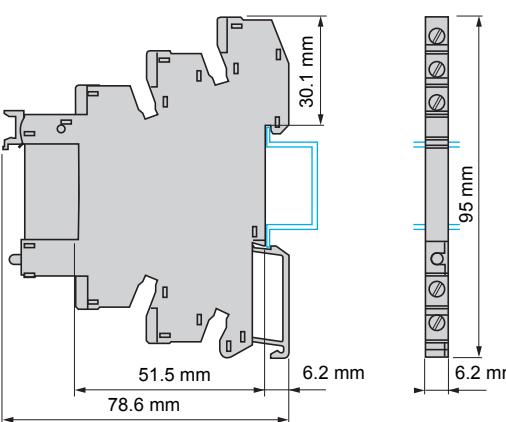
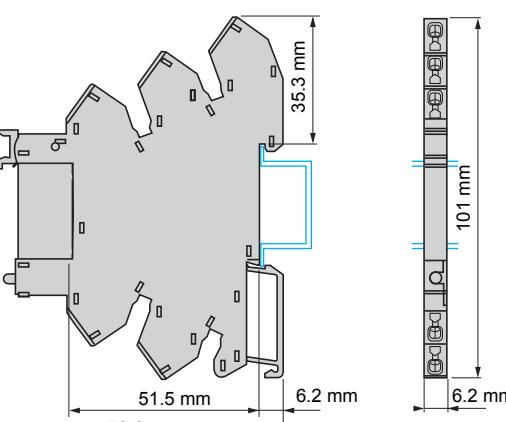
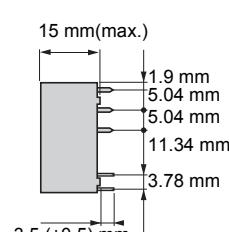
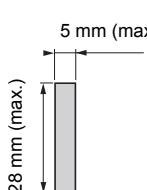
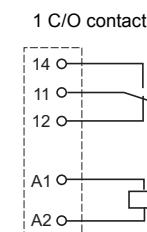
RSL 1PV__ (screw connector)	RSL 1PR__ (spring terminals)
	

Table 11: Relays

RSL 1__ with flat, reinforced PCB pins

		
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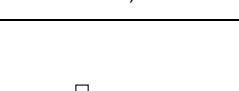
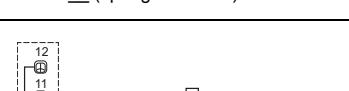
RSL Slim Interface Plug-In Relays

Characteristics

Table 12: Sockets

The image contains two technical drawings of electronic modules. The left drawing, labeled 'RSL ZV__ (screw connector)', shows a front view of a grey module with a white PCB. Dimensions are: total width 78.6 mm, height 30.1 mm, and a gap of 6.2 mm between the PCB and the right edge. The right drawing, labeled 'RSL ZR__ (spring terminals)', shows a front view and a side view of a similar grey module. The side view shows a height of 35.3 mm and a gap of 6.2 mm. Both drawings include a vertical dimension line of 95 mm for the side view of the RSL ZR module.

Table 13: Socket Connections

RSL ZV__ (screw connector)	RSL ZR__ (spring terminals)	Example of RSL Z2 bus jumper mounting on sockets (side view)
 <p>Protection circuit</p>	 <p>Protection circuit</p>	 <p>Bus jumper polarity A1</p> <p>Bus jumper polarity A2</p>

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