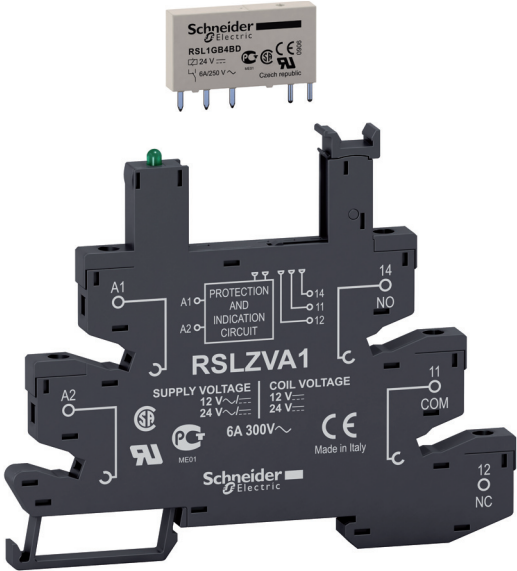


# Zelio® Relays

## RSL Slim Interface Plug-In Relays

Catalog  
8501CT0901

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 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.

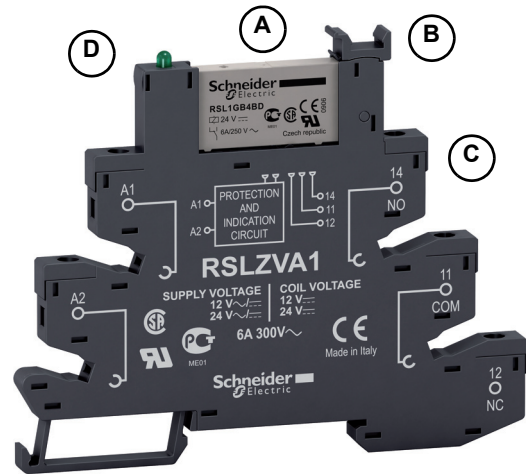
# RSL Slim Interface Plug-In Relays

## Anatomy of a Zelio RSL Relay

### Anatomy of a Zelio RSL Relay

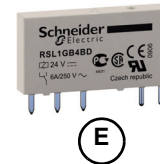
**Figure 1: Pre-assembled RSL Slim Interface Relay**

- 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



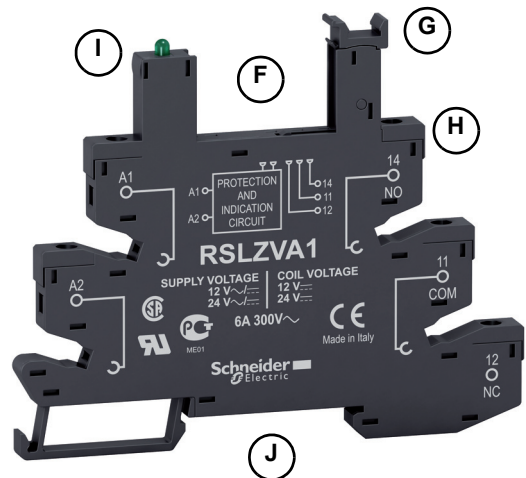
**Figure 2: RSL Slim Interface Relay**

- 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 (Uimp)		6 kV
Dielectric Strength (rms voltage)	Between coil and contact	4000 V
	Between contacts	1000 V

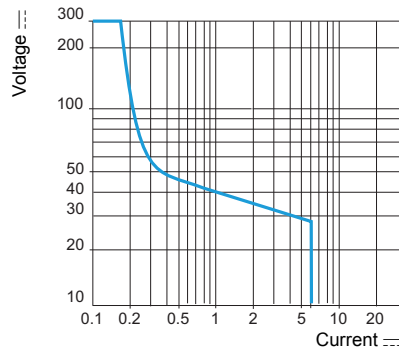
# RSL Slim Interface Plug-In Relays

## Characteristics

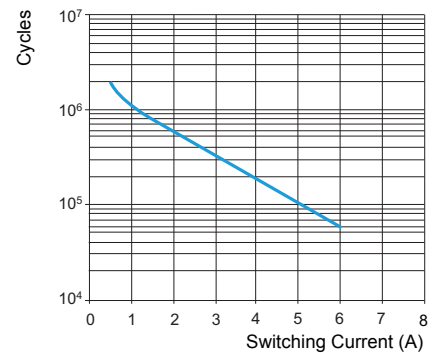
**Table 3: Contact Characteristics: RSL1AB\_\_ Relays**

Number and type of contacts			1 C/O standard
Contact materials			AgSnO <sub>2</sub>
Conventional thermal current (I <sub>th</sub> )	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
		N/O	A
	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
		---	W
	Minimum	mW	120
Maximum operating rate In operating cycles/hours	No-load		72000
	Under load		360
Mechanical durability In millions of operating cycles ■			≥10
Electrical durability In millions of operating cycles ■	Resistive load		See curves below
	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



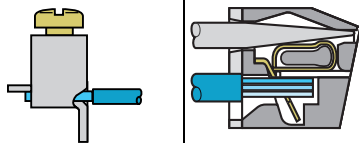
Electrical durability (typical)

**Table 4: Coil Characteristics: RSL1AB\_\_ Relays**

Average consumption		---	W	0.17
Drop-out voltage threshold		---		≥ 0.05 U <sub>c</sub>
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 <sub>c</sub>			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	

# RSL Slim Interface Plug-In Relays Characteristics

**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)		
<b>Electrical characteristics</b>					
Conventional thermal current (Ith)		A	6		
Maximum operating voltage		~V	300		
<b>Insulation characteristics</b>					
Between adjacent output contacts		Vrms	2500		
Between input and output contacts		Vrms	2500		
Between contacts and DIN rail		Vrms	2500		
<b>General characteristics</b>					
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**

Socket type		Operating voltage V	Tolerance	Control circuit voltage (relay) V
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	

# RSL Slim Interface Plug-In Relays

## Characteristics



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



RSL 1\_

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)



RSL ZVA\_ RSL ZRA\_

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)



RSL Z2



RSL Z3

**Table 10: Pre-assembled Slim Interface Relays**

RSL 1PV__ (screw connector)	RSL 1PR__ (spring terminals)
<p>Dimensions for RSL 1PV__ (screw connector):            Main body width: 78.6 mm            Main body height: 51.5 mm            Mounting tab height: 6.2 mm            Mounting tab width: 30.1 mm            Total height: 95 mm</p>	<p>Dimensions for RSL 1PR__ (spring terminals):            Main body width: 78.6 mm            Main body height: 51.5 mm            Mounting tab height: 6.2 mm            Mounting tab width: 35.3 mm            Total height: 101 mm</p>

**Table 11: Relays**

RSL 1__ with flat, reinforced PCB pins
<p>Dimensions and terminal layout for RSL 1__ with flat, reinforced PCB pins:            Max. width: 15 mm            Max. height: 28 mm            Pin 1: 1.9 mm            Pin 2: 5.04 mm            Pin 3: 5.04 mm            Pin 4: 11.34 mm            Pin 5: 3.78 mm            Pin width: 3.5 (±0.5) mm            Max. pin length: 5 mm (max.)            Terminal layout: 1 C/O contact (14, 11, 12, A1, A2)</p>

# RSL Slim Interface Plug-In Relays

## Characteristics

**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)



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