

# Zelio™ Plug-In Relays

RUM universal range

Catalog  
2014

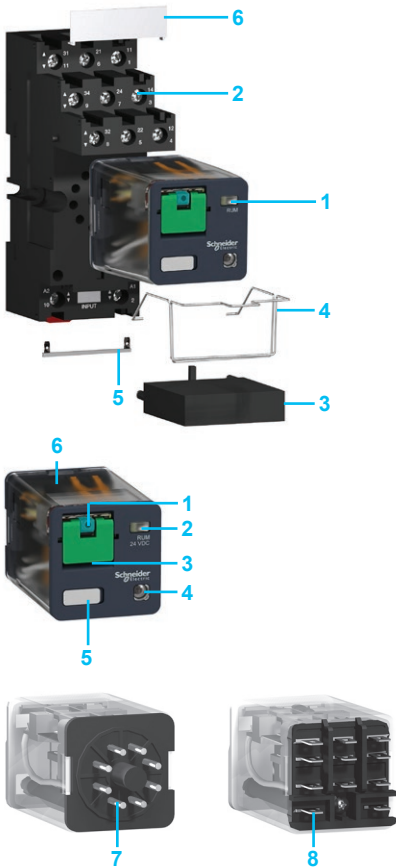




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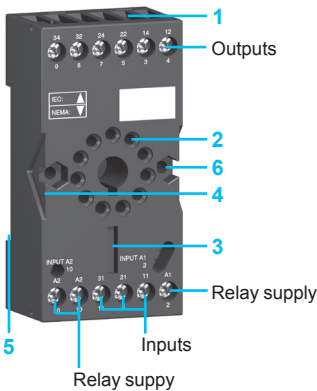
### Introduction of product range

The RUM universal relay product range includes:

- 1 10 A relays with 2 and 3 C/O contacts, and cylindrical or quick-connect (Faston type) pins. All of these relays have the same dimensions.
- 2 Sockets with mixed or separate contact terminals.
- 3 Protection modules (diode, RC circuit or varistor) or 1 timer module, common to all RUM sockets.
- 4 Metal maintaining clamp for all RUM sockets.
- 5 2-pole bus jumper that can be used on sockets with separate contact terminals in order to simplify cabling when creating an equipotential link between the coil terminals.
- 6 Clip-in legends for the sockets.

### Relay description

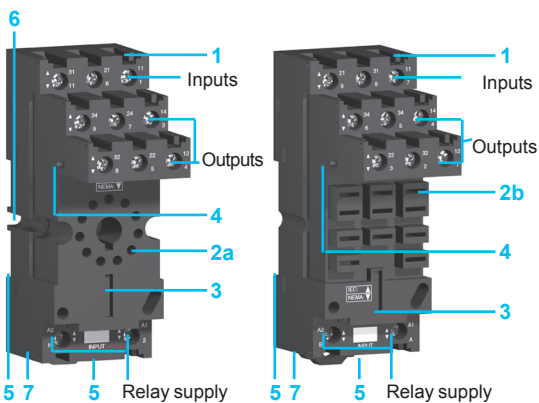
- 1 Spring return pushbutton for testing the contacts (green: Vdc coil; red: Vac coil).
- 2 Mechanical "relay status" indicator.
- 3 Removable lock-down door enables continuous engagement of the contacts for test or maintenance purposes. (1).
- 4 Optional bipolar LED indicating the relay status.
- 5 Removable ID tag for relay identification.
- 6 Finger grips for easy removal of the relay from a socket.
- 7 Eight or eleven cylindrical pins (RUM2C and RUM3C versions).
- 8 Eight or eleven quick-connect (Faston type) pins (RUM2F and RUM3F versions).



### Socket description

#### Sockets with mixed contact terminals (2)

- 1 Connection by screw connector.
- 2 Eight or eleven female contacts for the relay cylindrical pins.
- 3 Location for protection modules or timer module.
- 4 Locking component for metal hold-down clip.
- 5 Locating slot for mounting on DIN rail.
- 6 Two fixing holes for panel mounting.



#### Sockets with separate contact terminals (3)

- 1 Connection by screw connector.
- 2 a Eight or eleven female contacts for the relay cylindrical pins.
- b Eleven female contacts for the relay flat pins.
- 3 Location for protection modules or timer module.
- 4 Locking component for metal hold-down clip.
- 5 Locating slot for mounting on DIN rail with fixing clip.
- 6 Two fixing holes for panel mounting.
- 7 Location for bus jumpers (see dimensions for mounting on sockets on page 10).

(1) During operation, this lock-down door must always be in the closed position.

(2) The inputs are mixed with the relay's coil terminals, with the outputs being located on the opposite side of the socket.

(3) The inputs and outputs are separated from the relay coil terminals.



### General Specifications

<b>Conforming to standards</b>			IEC/EN 61810-1, UL 508, CSA C22-2 n° 14
<b>Product certifications</b>			cULus File E164862 CCN NLDX, NLDX7; cURus File E164862 CCN NLDX2, NLDX8; CSA; CE; GOST; RoHS compliant
<b>Ambient air temperature</b> around the device	Storage	°C (F)	- 40 to + 85 (-40 to +185)
	Operation	°C (F)	- 40 to + 55 (-40 to +131)
<b>Vibration resistance</b> conforming to IEC/EN 60068-2-6	In operation		3 gn (35 to 150 Hz) and ± 1 mm (10 to 35 Hz); 5 cycles
	Not operating		4 gn (35 to 150 Hz) and ± 1 mm (10 to 35 Hz); 5 cycles
<b>Degree of protection</b>	Conforming to IEC/EN 60529		IP 40 (housing only)
<b>Shock resistance</b> conforming to IEC/EN 60068-2-27	Opening		10 gn (11 ms)
	Closing		10 gn (11 ms)
<b>Protection category</b>			RT I
<b>Mounting position</b>			Any

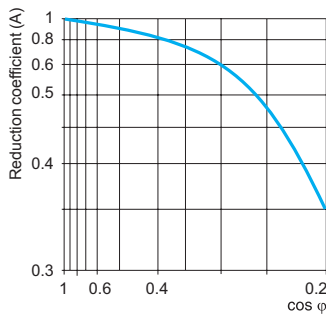
### Insulation Specifications

<b>Rated insulation voltage (Ui)</b>	Conforming to IEC/EN 60947	<b>V</b>	250 (IEC), 300 (UL, CSA)
<b>Rated impulse withstand voltage (Uimp)</b>		<b>kV</b>	4 (1.2/50 μs)
<b>Dielectric strength</b> (rms voltage)	Between coil and contact	<b>Vac</b>	2500
	Between poles	<b>Vac</b>	2000
	Between contacts	<b>Vac</b>	1500

### Contact Specifications

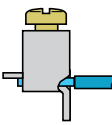
Relay type			RUMF2●●●	RUMF3●●●	RUMC2●●●	RUMC3A●●●
<b>Number and type of contacts</b>			2 C/O	3 C/O	2 C/O	3 C/O
<b>Contact materials</b>			AgNi			
<b>Conventional thermal current (Ith)</b>	For ambient temperature ≤ 55°C	<b>A</b>	10			
<b>Rated operational current</b>	Conforming to IEC in utilization categories AC-1 and DC-1	NO	<b>A</b>	10 at 250 Vac 10 at 28 Vdc		
		NC	<b>A</b>	5 at 250 Vac 5 at 28 vdc		
	Conforming to UL	Resistive	<b>A</b>	10 at 277 Vac (200k cycles) 10 at 30 Vdc (200k cycles)		
		Motor	<b>HP</b>	Motor: 1/3 at 120 Vac (6k cycles) Motor: 1 at 277 Vac (6k cycles)		
		Pilot Duty		B300 (6k cycles)		
<b>Minimum switching requirement</b>		<b>mA</b>	10 at 17 Vdc; MCTF ≥ 10 million			
<b>Maximum switching voltage</b>		<b>V</b>	250 V (IEC) / 300 V (UL, CSA)			
<b>Switching capacity</b>	Maximum	Vac	<b>VA</b>	2500 VA (IEC), 2770 VA (UL)		
		Vdc	<b>W</b>	280 W (IEC) / 300 W (UL)		
<b>Maximum operating rate</b> In operating cycles/hour	No-load		18000			
	Under load		1200			
<b>Utilization coefficient</b>			20%			
<b>Mechanical durability</b>	Cycles		5,000,000			
<b>Electrical durability</b> Operating cycles	Resistive load		100,000 (unless otherwise specified)			
	Inductive load		See curve below			

**Electrical durability of contacts** Resistive load Vac  
Reduction coefficient for inductive load Vac  
(depending on power factor cos φ)



**RUMF●●●●, RUMC2●●●, RUMC3A●●●**

Durability (inductive load) = durability (resistive load) x reduction coefficient.

Coil Specifications											
Average consumption		<b>VA</b>	3								
		<b>W</b>	1.4								
Drop-out voltage threshold			≥ 0.15 U <sub>c</sub> (at minimum operating temperature)								
			≥ 0.1 U <sub>c</sub> (at minimum operating temperature)								
Response time	Operate time	<b>ms</b>	20 max (at 100% coil voltage)								
	Release time	<b>ms</b>	20 max								
Control circuit voltage U <sub>c</sub>		<b>V</b>	<b>12</b>	<b>24</b>	<b>48</b>	<b>60</b>	<b>110</b>	<b>120</b>	<b>125</b>	<b>220</b>	<b>230</b>
Relay control voltage codes			<b>JD</b>	<b>BD</b>	<b>ED</b>	<b>ND</b>	<b>FD</b>	–	<b>GD</b>	<b>MD</b>	–
d.c. supply	Average resistance at 20 °C ± 10%	<b>Ω</b>	120	470	1800	2790	7300	–	7300	37,000	–
	Operating voltage limits	Min.	<b>V</b>	9.6	19.2	38.4	48	88	–	100	176
Max.		<b>V</b>	13.2	26.4	52.8	66	121	–	137.5	242	–
Relay control voltage codes			–	<b>B7</b>	<b>E7</b>	–	–	<b>F7</b>	–	–	<b>P7</b>
a.c. supply	Average resistance at 20 °C ± 15%	<b>Ω</b>	–	72	290	–	–	1700	–	–	6800
	Operating voltage limits	Min.	<b>V</b>	–	19.2	38.4	–	–	96	–	184
Max.		<b>V</b>	–	26.4	52.8	–	–	132	–	253	
Socket Specifications											
Socket type			<b>RUZC2M</b>	<b>RUZC3M</b>	<b>RUZSC2M</b>	<b>RUZSC3M</b>	<b>RUZSF3M</b>				
Relay types used			<b>RUMC2●●●●●</b>	<b>RUMC3●●●●●</b>	<b>RUMC2●●●●●</b>	<b>RUMC3●●●●●</b>	<b>RUMF●●●●●</b>				
Contact terminal arrangement			Mixed			Separate					
Wire connection method			Connector								
Product certifications			UL, CSA								
Conforming to standards			IEC 61984, CE								
Electrical Specifications											
Conventional thermal current (I <sub>th</sub> )		<b>A</b>	10				12				
Maximum operating voltage		<b>V</b>	250 (IEC)								
Insulation Specifications											
Between adjacent output contacts		<b>V<sub>rms</sub></b>	2500								
Between input and output contacts		<b>V<sub>rms</sub></b>	2500								
Between contacts and DIN rail		<b>V<sub>rms</sub></b>	2500								
General Specifications											
Ambient air temperature around the device	Storage	<b>°C (F)</b>	- 40 to + 85 (-40 to +185)								
	Operation	<b>°C (F)</b>	- 40 to + 55 (-40 to +131)								
Degree of protection			Conforming to IEC/EN 60529 IP 20								
Cabling	Solid cable without cable end	1 conductor 2 conductors	0.5 to 2.5 mm <sup>2</sup> - AWG 20 to AWG 14 0.5 to 1.5 mm <sup>2</sup> - AWG 20 to AWG 16								
	Flexible cable with cable end	1 conductor 2 conductors	0.25 to 2.5 mm <sup>2</sup> - AWG 22 to AWG 14 0.25 to 1 mm <sup>2</sup> - AWG 22 to AWG 17								
Maximum tightening torque / Screw size		<b>Nm</b>	1 / M3.3 screw								
Mounting			On 35 mm DIN rail / on panel								
Fixing on DIN rail			By red plastic clip								
Terminal referencing			IEC, NEMA								
Bus jumper (I <sub>th</sub> : 5 A)			No				Yes				
Compatibility with the metal maintaining clamp			Yes								
Timer module			Yes								
Protection module			All RUW24●●●								
Clip-in legends			No				Yes				
Wire connection method		Screw connector									



RUMC21BD



RUMF21F7



RUMC32BD



RUMF32F7



RUMF33P7

References						
Pins	Control circuit voltage	Number and type of contacts - Thermal current (Ith)				
		2 C/O - 10 A		3 C/O - 10 A		
		Unit reference	Weight	Unit reference	Weight	
			kg/lb		kg/lb	
<b>Universal relays with lockable test button only (sold in lots of 10)</b>						
Cylindrical	12 Vdc	RUMC21JD	0.086/0.190	RUMC31JD	0.086/0.190	
	24 Vdc	RUMC21BD	0.086/0.190	RUMC31BD	0.086/0.190	
	48 Vdc	RUMC21ED	0.086/0.190	RUMC31ED	0.086/0.190	
	60 Vdc	–	–	RUMC31ND	0.086/0.190	
	110 Vdc	RUMC21FD	0.086/0.190	RUMC31FD	0.086/0.190	
	125 Vdc	–	–	RUMC31GD	0.086/0.190	
	220 Vdc	–	–	RUMC31MD	0.086/0.190	
	24 Vac	RUMC21B7	0.086/0.190	RUMC31B7	0.086/0.190	
	48 Vac	RUMC21E7	0.086/0.190	RUMC31E7	0.086/0.190	
	120 Vac	RUMC21F7	0.086/0.190	RUMC31F7	0.086/0.190	
	230 Vac	RUMC21P7	0.086/0.190	RUMC31P7	0.086/0.190	
	Flat (Faston type)	12 Vdc	RUMF21JD	0.086/0.190	RUMF31JD	0.086/0.190
		24 Vdc	RUMF21BD	0.086/0.190	RUMF31BD	0.086/0.190
48 Vdc		RUMF21ED	0.086/0.190	RUMF31ED	0.086/0.190	
110 Vdc		RUMF21FD	0.086/0.190	RUMF31FD	0.086/0.190	
24 Vac		RUMF21B7	0.086/0.190	RUMF31B7	0.086/0.190	
48 Vac		RUMF21E7	0.086/0.190	RUMF31E7	0.086/0.190	
120 Vac		RUMF21F7	0.086/0.190	RUMF31F7	0.086/0.190	
230 Vac		RUMF21P7	0.086/0.190	RUMF31P7	0.086/0.190	
<b>Universal relays with lockable test button and LED (sold in lots of 10)</b>						
Cylindrical		12 Vdc	RUMC22JD	0.086/0.190	RUMC32JD	0.086/0.190
		24 Vdc	RUMC22BD	0.086/0.190	RUMC32BD	0.086/0.190
		48 Vdc	RUMC22ED	0.086/0.190	RUMC32ED	0.086/0.190
		60 Vdc	–	–	RUMC32ND	0.086/0.190
	110 Vdc	RUMC22FD	0.086/0.190	RUMC32FD	0.086/0.190	
	125 Vdc	–	–	RUMC32GD	0.086/0.190	
	24 Vac	RUMC22B7	0.086/0.190	RUMC32B7	0.086/0.190	
	48 Vac	RUMC22E7	0.086/0.190	RUMC32E7	0.086/0.190	
	120 Vac	RUMC22F7	0.086/0.190	RUMC32F7	0.086/0.190	
	230 Vac	RUMC22P7	0.086/0.190	RUMC32P7	0.086/0.190	
	Flat (Faston type)	12 Vdc	RUMF22JD	0.086/0.190	RUMF32JD	0.086/0.190
		24 Vdc	RUMF22BD	0.086/0.190	RUMF32BD	0.086/0.190
		48 Vdc	RUMF22ED	0.086/0.190	RUMF32ED	0.086/0.190
110 Vdc		RUMF22FD	0.086/0.190	RUMF32FD	0.086/0.190	
24 Vac		RUMF22B7	0.086/0.190	RUMF32B7	0.086/0.190	
48 Vac		RUMF22E7	0.086/0.190	RUMF32E7	0.086/0.190	
120 Vac		RUMF22F7	0.086/0.190	RUMF32F7	0.086/0.190	
230 Vac		RUMF22P7	0.086/0.190	RUMF32P7	0.086/0.190	
<b>Universal relays with LED only (sold in lots of 10)</b>						
Cylindrical pins		12 Vdc	RUMC23JD	0.086/0.190	RUMC33JD	0.086/0.190
		24 Vdc	RUMC23BD	0.086/0.190	RUMC33BD	0.086/0.190
		48 Vdc	RUMC23ED	0.086/0.190	RUMC33ED	0.086/0.190
		60 Vdc	–	–	RUMC33ND	0.086/0.190
	110 Vdc	RUMC23FD	0.086/0.190	RUMC33FD	0.086/0.190	
	125 Vdc	–	–	RUMC33GD	0.086/0.190	
	24 Vac	RUMC23B7	0.086/0.190	RUMC33B7	0.086/0.190	
	48 Vac	RUMC23E7	0.086/0.190	RUMC33E7	0.086/0.190	
	120 Vac	RUMC23F7	0.086/0.190	RUMC33F7	0.086/0.190	
	230 Vac	RUMC23P7	0.086/0.190	RUMC33P7	0.086/0.190	
	Quick-connect pins	12 Vdc	RUMF23JD	0.086/0.190	RUMF33JD	0.086/0.190
		24 Vdc	RUMF23BD	0.086/0.190	RUMF33BD	0.086/0.190
		48 Vdc	RUMF23ED	0.086/0.190	RUMF33ED	0.086/0.190
110 Vdc		RUMF23FD	0.086/0.190	RUMF33FD	0.086/0.190	
24 Vac		RUMF23B7	0.086/0.190	RUMF33B7	0.086/0.190	
48 Vac		RUMF23E7	0.086/0.190	RUMF33E7	0.086/0.190	
120 Vac		RUMF23F7	0.086/0.190	RUMF33F7	0.086/0.190	
230 Vac		RUMF23P7	0.086/0.190	RUMF33P7	0.086/0.190	



RZSC3M +  
Relay RUMC3...

RUW241P7



RUW101MW



RUZC200



RUZS2

## References (continued)

## Sockets

Contact terminal arrangement	Connection	Relay type	Sold in lots of	Unit reference	Weight kg/lb
Mixed	Screw connector	RUMC2...	10	RUZC2M	0.054/0.119
		RUMC3...	10	RUZC3M	0.054/0.119
Separate	Screw connector	RUMC2...	10	RUZSC2M	0.095/0.209
		RUMC3...	10	RUZSC3M	0.100/0.220
		RUMF2...	10	RUZSF3M	0.095/0.209
		RUMF3...			

## Protection modules

Description	For use with	Voltage	Sold in lots of	Unit reference	Weight kg/lb
Diode	All RUM sockets	6 to 250 Vdc	10	RUW240BD	0.004/0.009
RC circuit	All RUM sockets	110 to 240 Vac	10	RUW241P7	0.004/0.009
Varistor	All RUM sockets	24 Vac/Vdc	10	RUW242B7	0.004/0.009
		240 Vac/Vdc	10	RUW242P7	0.004/0.009

## Timer module

Description	For use with	Voltage	Reference	Weight kg/lb
Multifunction	All RUM sockets	24 to 240 Vac/Vdc	RUW101MW	0.020/0.044

## Accessories

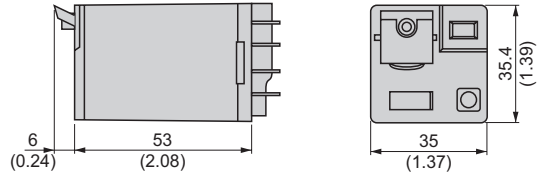
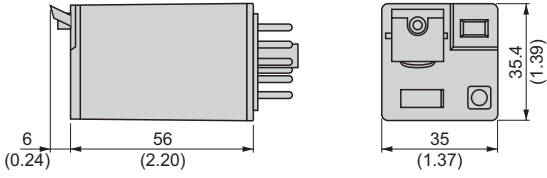
Description	For use with	Sold in lots of	Unit reference	Weight kg/lb
Metal maintaining clamp	All RUM sockets	10	RUZC200	0.001/0.002
Bus jumper 2-pole (Ith : 5 A)	All RUM sockets with separate contacts	10	RUZS2	0.005/0.011
Clip-in ID tags	All relays (sheet of 108 legends)	10	RXZL520	0.080/0.190
	All RUM sockets with separate contacts	10	RUZL420	0.001/0.002

**Dimensions: mm (in.)**

**Universal relays**

**RUMC●●**

**RUMF●●**

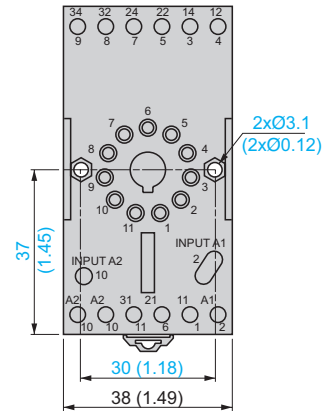
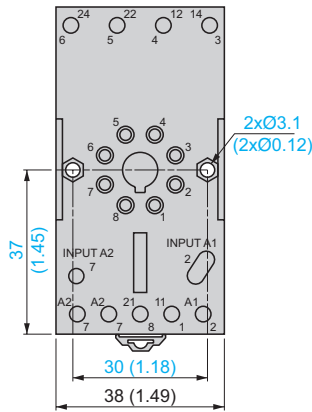
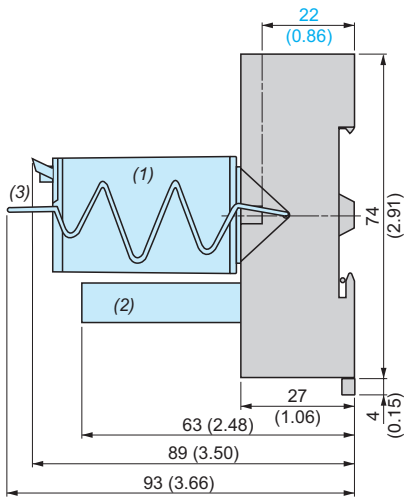


**Sockets**

**Common side view**

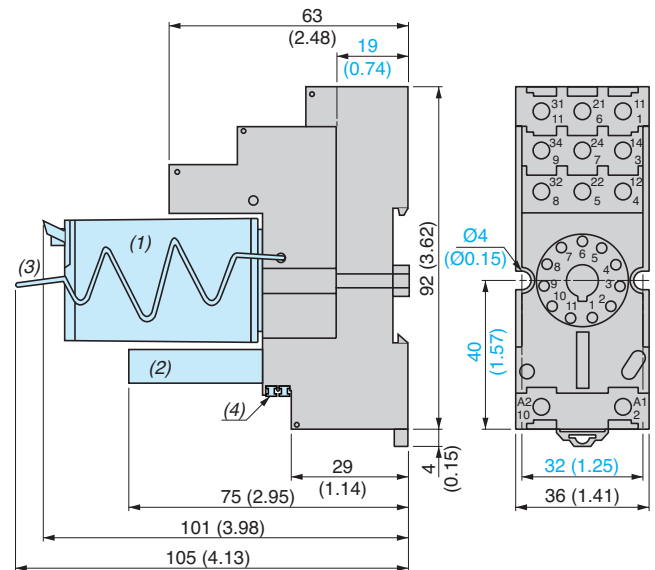
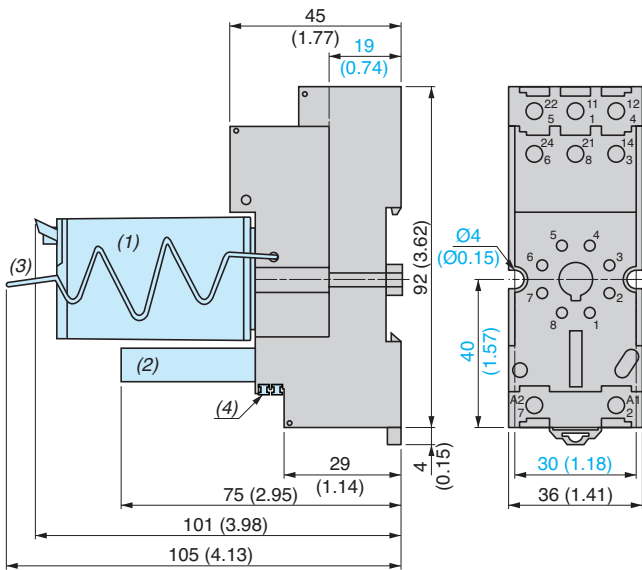
**RUZC2M**

**RUZC3M**



**RUZSC2M**

**RUZSC3M**

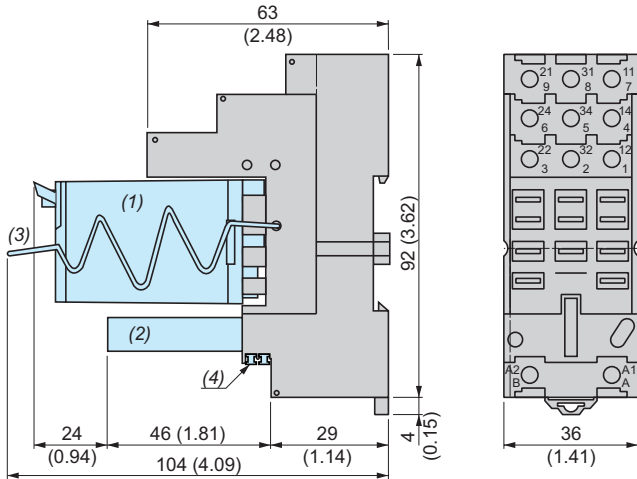


- (1) Relays
- (2) Protection or timer module
- (3) Maintaining clamp
- (4) 2 bus jumpers

**Dimensions: mm (in.) (continued)**

**Sockets (continued)**

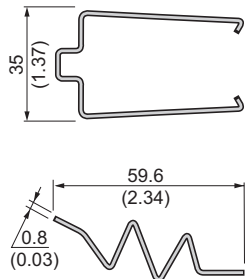
**RUZSF3M**



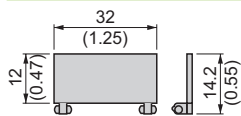
- (1) Relays
- (2) Protection or module
- (3) Maintaining clamp
- (4) 2 bus jumpers

**Metal maintaining clamps and plastic legends**

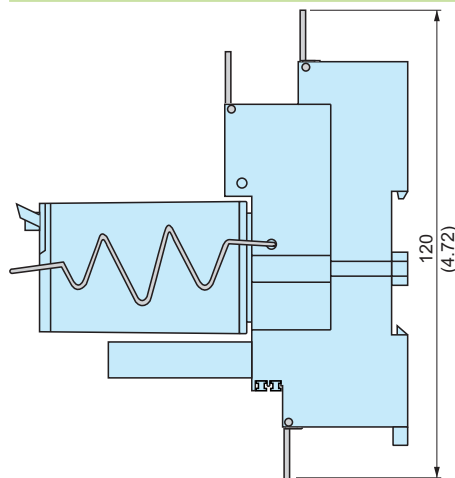
**RUZC200**



**RUZL420**

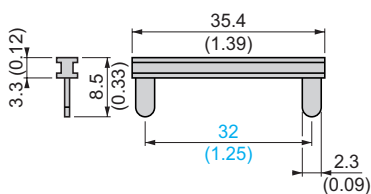


**Mounting**



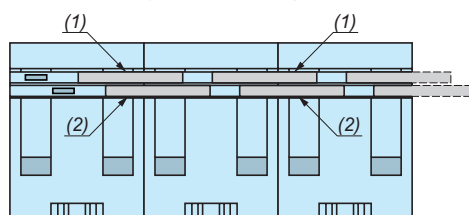
**Bus jumper**

**RUZS2**



**Mounting on sockets with separate contacts (view from below)**

**Example of bus jumper mounting on sockets**



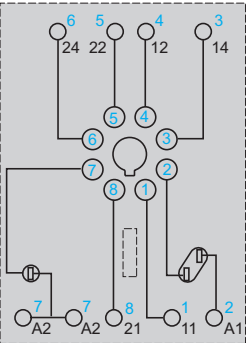
- (1) 2 bus jumpers (polarity A2)
- (2) 2 bus jumpers (polarity A1)



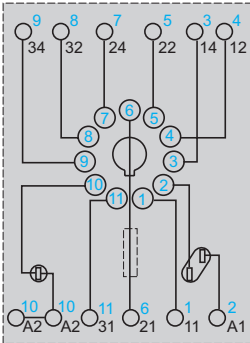
### Wiring diagrams (continued)

#### Sockets

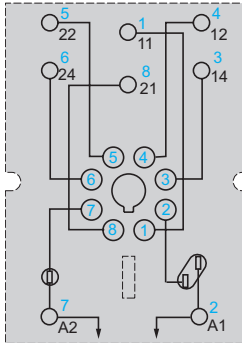
##### RUZ C2M



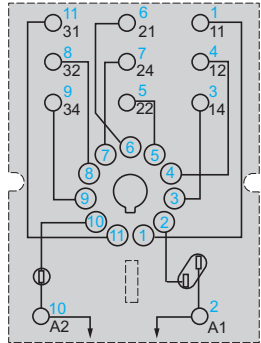
##### RUZ C3M



##### RUZ SC2M

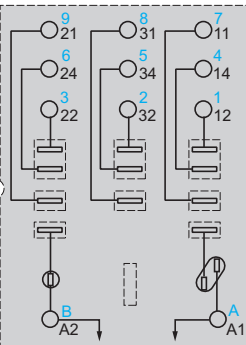


##### RUZ SC3M



Symbols shown in blue correspond to NEMA marking.

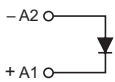
##### RUZ SF3M



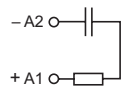
Symbols shown in blue correspond to NEMA marking.

#### Protection modules

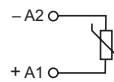
##### RUW 240BD



##### RUW 241P7



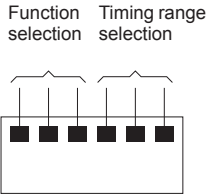
##### RUW 242●●





### Multifunction timer module RUW 101MW

#### Programming      Timing range selection



#### Function selection

Selection	Function	Control	Function diagram	Control scheme
	<b>On-delay Timer</b> E	Series control		
	<b>Monostable with maintained control</b> Wu	Series control		
	<b>Flashing relay, starting On-delay phase</b> Bi	Series control		
	<b>Flashing relay, starting Off-delay phase</b> Bp	Series control		
	<b>Off-delay timer</b> R	Control by external contact (S)		
	<b>Monostable with pulse control</b> Ws	Control by external contact (S)		
	<b>Monostable, starting on de-energization</b> Wa	Control by external contact (S)		
	<b>On-delay Timer</b> Es	Control by external contact (S)		

Power off     
  Contact closed     
 U : voltage      R : relay RUM ●●●     
 S : external control      t : adjustable time delay







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