

Plug-in relays

Zelio Relay

Catalogue
January

06



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Application		Plug-in relays	
		Interface relays	Miniature relays
			
Number and type of contacts / conventional thermal current (Ith on N/O contact)		1 C/O / 16 A 1 C/O / 12 A 2 C/O / 8 A	2 C/O / 12 A 3 C/O / 10 A 4 C/O / 6 A 4 C/O / 3 A (low level)
Control circuit voltage	~	24...240 V	24...240 V
	==	6...110 V	12...220 V
Type of pins		Flat (Faston type)	Flat (Faston type)
Operational voltage		Up to ~ 400 V / == 300 V	Up to 250 V
Durability (operating cycles)	Electrical, resistive load	100 000	100 000
	Mechanical, no-load	30 000 000	10 000 000
Functions	LED	Yes (with protection modules)	Yes (depending on version)
	Test button and mechanical indicator	—	Yes
	Low level contacts	—	Yes
Type reference		RSB	RXM
Page		6	11 and 12
			
Conventional thermal current (Ith)		12 A (1)	10 A 12 A (2)
Contact terminal arrangements		Separate	Mixed Separate
Connection		Connector	Screw clamp terminals or connector Connector
Accessories	Protection modules	Yes	Yes
	Timer module	—	—
	Maintaining clamps	Yes	Yes
	Socket identification legend	Yes	Yes (except RXZ E2M114)
	Mounting adapters for rail	—	Yes
	Mounting adapters with fixing lugs	—	Yes
	Bus jumper, 2-pole (Ith = 5 A)	—	— Yes
Associated socket types		RSZ E1S●●M	RXZ E2M●●● RXZ E2S●●●
Pages		6	12 12

(1) When using relay RSB 1A160●● with socket RSZ E1S48M, terminals must be linked.
(2) Except for sockets RXZ E2S11●M: 10 A.

Universal relays



2 C/O / 10 A
3 C/O / 10 A
3 C/O / 3 A (low level)

2 C/O / 10 A
3 C/O / 10 A

24...230 V

12...220 V

12...110 V

Cylindrical

Flat (Faston type)

Up to 250 V

100 000

5 000 000

Yes (depending on version)

Yes

Yes

—

RUM

19



12 A

Mixed

Separate

Connector

Yes

Yes

Yes

Yes

—

—

—

Yes

RUZ C●M

RUZ SC●M

RUZ SF3M

20

20

Power relays



1 C/O / 15 A
2 C/O / 15 A
3 C/O / 15 A
4 C/O / 15 A

24...230 V

12...110 V

Flat (Faston type)

Up to 250 V

100 000

10 000 000

Yes (depending on version)

Yes

—

RPM

27



16 A

Mixed

Connector

Yes

Yes (for 3 and 4-pole)

Yes (on socket RPZ F1)

Yes

Yes

Yes

—

RPZ F●

28

Relays with clamp fixing



2 N/O / 30 A (3)
2 C/O / 30 A (3)

24...240 V

12...125 V

Flat (Faston type)

Up to 250 V

50 000

5 000 000

—

—

—

RPF

34

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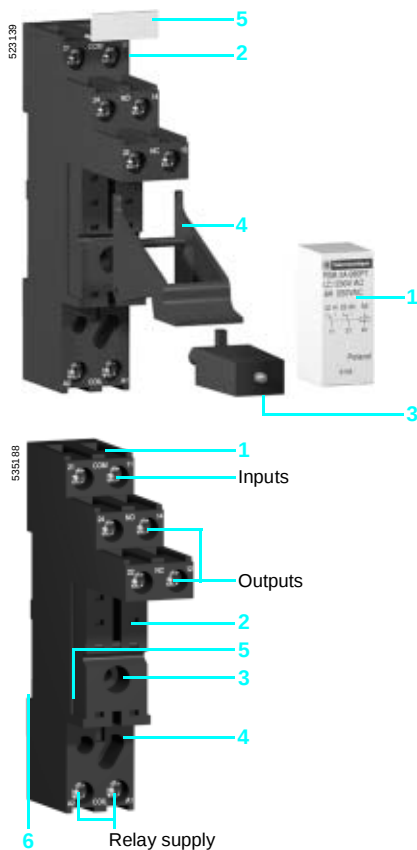
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(3) 30 A when mounted with 13 mm gap between two relays and 25 A when mounted side by side without a gap.



Presentation of the range

The RSB interface relay range comprises:

- 12 A relays with 1 C/O contact, 16 A relays with 1 C/O contact and 8 A relays with 2 C/O contacts.
- Sockets with separate contact terminals.
- Protection modules (diode, diode + LED, RC circuit or varistor + LED). All these modules are common to all sockets.
- A plastic maintaining clamp for all sockets.
- Clip-in legends for the sockets.

Socket description

Sockets with separate contact terminals (1)

- Connection by connector.
- Five or eight female contacts for the relay pins.
- A fixing hole for panel mounting.
- Location for protection modules.
- Locking components for plastic maintaining clamp.
- Locating slot for mounting on rail.

(1) The inputs and outputs are separate from the relay supply.

General characteristics

Conforming to standards			IEC/EN 61810-1, UL 508, CSA C22-2 n° 14
Product certifications			UL, CSA
Ambient air temperature around the device	Storage	°C	- 40...+ 85
	Operation	°C	--- - 40...+ 85, ~ - 40...+ 70
Vibration resistance	Conforming to IEC/EN 60068-2-6		> 10 gn (10...150 Hz)
Degree of protection	Conforming to IEC/EN 60529		IP 40
Shock resistance conforming to IEC/EN 60068-2-27	Opening		5 gn
	Closing		10 gn
Protection category			RT I
Mounting position			Any

Insulation characteristics

Rated insulation voltage (Ui)	Conforming to IEC/EN 60947	V	400
Rated impulse withstand voltage (Uimp)		kV	3.6 (1.2/50 µs)
Dielectric strength (rms voltage)	Between coil and contact	~ V	5000
	Between poles	~ V	2500
	Between contacts	~ V	1000

Contact characteristics

Relay type			RSB 1A120●●	RSB 1A160●●	RSB 2A080●●
Number and type of contacts			1 C/O	1 C/O	2 C/O
Contact materials			AgNi		
Conventional thermal current (Ith)	For ambient temperature ≤ 40°C	A	12	16	8
	Conforming to IEC	N/O	12	16	8
Rated operational current in utilisation categories AC-1 and DC-1		N/C	6	8	4
Maximum operating rate In operating cycles/hour	No-load		72 000		
	Under load		600		
Switching voltage	Maximum	V	~ 400, --- 300		
Switching capacity	Minimum	mA	5		
	Maximum	VA	3000	4000	2000

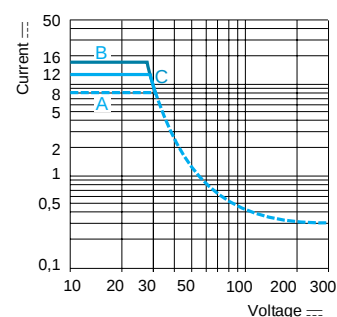
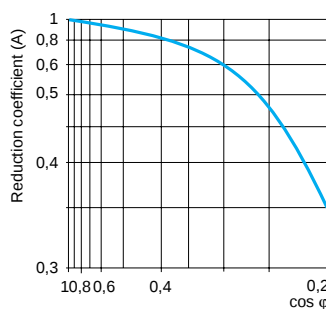
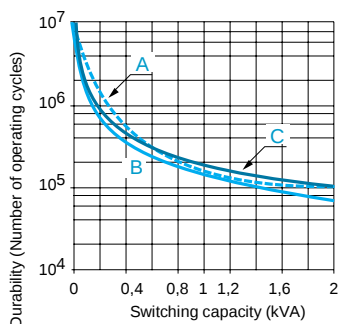
Contact characteristics (continued)					
Relay type			RSB 1A120●●	RSB 1A160●●	RSB 2A080●●
Mechanical durability	In millions of operating cycles		≥ 30		
Electrical durability	Resistive load		12 A - 250 V: ≥ 0.1	16 A - 250 V: ≥ 0.07	8 A - 250 V: ≥ 0.1
In millions of operating cycles/hour	Inductive load		See curves below		

Electrical durability of contacts

Resistive load ~

Reduction coefficient for inductive load ~
(depending on power factor cos φ)

Maximum switching capacity on resistive load ~



A RSB 2A080●● B RSB 1A160●● C RSB 1A120●●

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

Coil characteristics

Average consumption					≈ 0.45 W, ~ 0.75 VA									
Drop-out voltage threshold					≥ ≈ 0.1 Uc, ≥ ~ 0.15 Uc									
Operating time (response time)	Between coil energisation and making of the On-delay contact	~	ms	About 12										
		---	ms	About 9										
	Between coil de-energisation and making of the Off-delay contact	~	ms	About 10										
		---	ms	About 4										
Control circuit voltage Uc				V	6	12	24	48	60	110	120	220	230	240
Relay control voltage codes					RD	JD	BD	ED	ND	FD	—	—	—	—
DC	Average resistance at 20 °C ± 10%	Ω	90	360	1440	5700	7500	25 200	—	—	—	—	—	
	Operating voltage limits	Min.	V	4.8	9.6	19.2	38.4	48	88	—	—	—	—	
		Max.	V	6.6	13.2	26.4	52.8	66	121	—	—	—	—	
Relay control voltage codes					—	—	B7	E7	—	—	F7	M7	P7	U7
AC 50/60 Hz	Average resistance at 20 °C ± 15%	Ω	—	—	400	1550	—	—	10 200	35 500	38 500	42 500	—	
	Operating voltage limits	Min.	50 Hz	V	—	—	19.2	38.4	—	—	96	176	184	192
			60 Hz		—	—	20.4	40.8	—	—	102	187	195.5	204
		Max.	50/60 Hz	V	—	—	26.4	57.6	—	—	144	264	276	288

Socket characteristics

Socket type			RSZ E1S35M	RSZ E1S48M
Relay types used			RSB 1A120●●	RSB 2A080●● RSB 1A160●● ⁽¹⁾
Product certifications			UL, CSA	
Conventional thermal current (I _{th})		A	12	
Degree of protection	Conforming to IEC/EN 60529		IP 20	
Connection	Solid cable without cable end	mm ²	1 conductor: 0.5...2.5 mm ² (AWG 20...AWG 12) 2 conductors: 0.5...1.5 mm ² (AWG 20...AWG 14)	
	Flexible cable with cable end	mm ²	1 conductor: 0.2...2.5 mm ² (AWG 24...AWG 14) 2 conductors: 0.2...1.5 mm ² (AWG 24...AWG 16)	
Maximum tightening torque		Nm	0.6 (M3 screw)	
Contact terminal arrangement			Separate	

(1) When using the relay with socket RSZ E1S48M, terminals must be linked. See connection schemes on page 7.



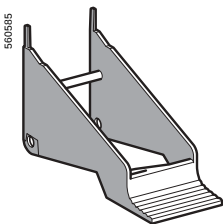
RSB 1A120JD + RZM 031FPD
+ RSZ E1S35M



RSB 1A160BD + RSZ E1S48M



RSB 2A080BD + RSZ E1S48M



RSZ R215

Relays for standard applications

Control circuit voltage V	Sold in lots of	Number and type of contacts - Thermal current (Ith)			Weight kg
		1 C/O -12 A Unit reference (1)	1 C/O -16 A Unit reference (1)	2 C/O -8 A Unit reference (1)	
--- 6	10	RSB 1A120RD	RSB 1A160RD	RSB 2A080RD	0.014
--- 12	10	RSB 1A120JD	RSB 1A160JD	RSB 2A080JD	0.014
--- 24	10	RSB 1A120BD	RSB 1A160BD	RSB 2A080BD	0.014
--- 48	10	RSB 1A120ED	RSB 1A160ED	RSB 2A080ED	0.014
--- 60	10	RSB 1A120ND	RSB 1A160ND	RSB 2A080ND	0.014
--- 110	10	RSB 1A120FD	RSB 1A160FD	RSB 2A080FD	0.014
~ 24	10	RSB 1A120B7	RSB 1A160B7	RSB 2A080B7	0.014
~ 48	10	RSB 1A120E7	RSB 1A160E7	RSB 2A080E7	0.014
~ 120	10	RSB 1A120F7	RSB 1A160F7	RSB 2A080F7	0.014
~ 220	10	RSB 1A120M7	RSB 1A160M7	RSB 2A080M7	0.014
~ 230	10	RSB 1A120P7	RSB 1A160P7	RSB 2A080P7	0.014
~ 240	10	RSB 1A120U7	RSB 1A160U7	RSB 2A080U7	0.014

Sockets - 12 A, ~ 300 V

Contact terminal arrangement	Connection	Relay type	Sold in lots of	Unit reference	Weight kg
Separate	Connector	RSB 1A120●●	10	RSZ E1S35M	0.060
		RSB 1A160●●(2)	10	RSZ E1S48M	0.050
		RSB 2A080●●			

Protection modules

Description	For use with	Voltage V	Sold in lots of	Unit reference	Weight kg
Diode	All sockets	--- 6...230	20	RZM 040W	0.003
RC circuit	All sockets	~ 24...60	10	RZM 041BN7	0.010
		~ 110...240	10	RZM 041FU7	0.010
Diode + green LED	All sockets	--- 6...24	10	RZM 031RB	0.004
		--- 24...60	10	RZM 031BN	0.004
		--- 110...230	10	RZM 031FPD	0.004
Varistor + green LED	All sockets	--- or ~ 6...24	10	RZM 021RB	0.005
		--- or ~ 24...60	10	RZM 021BN	0.005
		--- or ~ 110...230	10	RZM 021FP	0.005

Accessories

Description	For use with	Sold in lots of	Unit reference	Weight kg
Plastic maintaining clamp	All sockets	10	RSZ R215	0.002
Legend	All sockets	10	RSZ L300	0.001

(1) To order a relay complete with socket (sold in lots of 20): add suffix **S** to the references selected above.

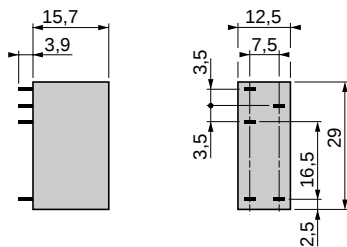
Example: **RSB 2A080RD + RSZ E1S48M** becomes **RSB 2A080RDS**.

(2) When using the relay with socket RSZ E1S48M, terminals must be linked. See connection schemes on page 7.

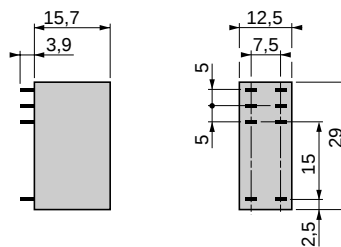
Dimensions

Interface relays

RSB 1A120●●

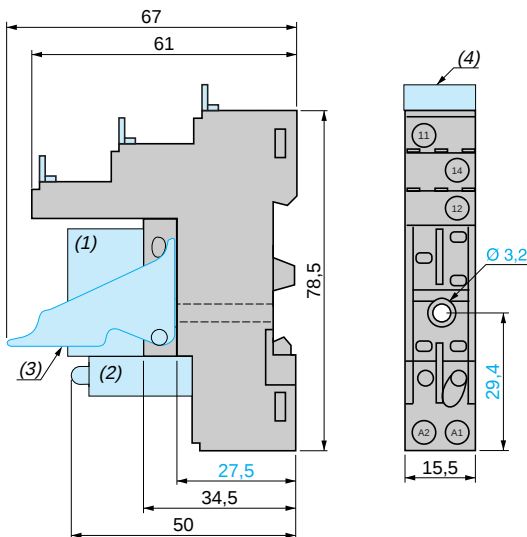


RSB 2A080●●, RSB 1A160●●

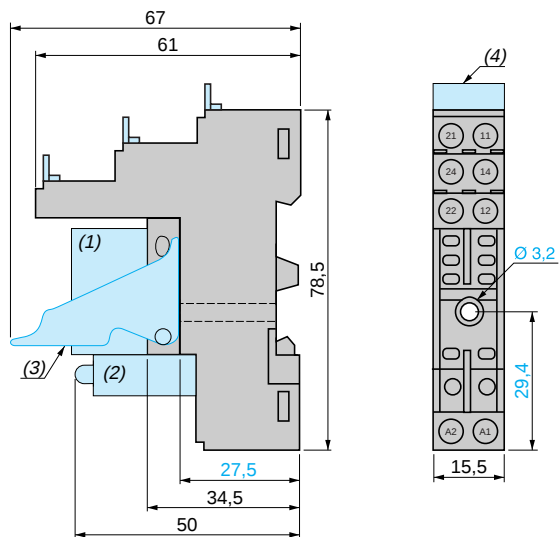


Sockets

RSZ E1S35M



RSZ E1S48M

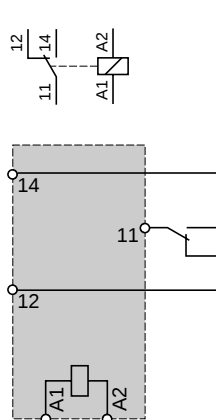


- (1) Relays
- (2) Add-on protection module
- (3) Maintaining clamp
- (4) Legend

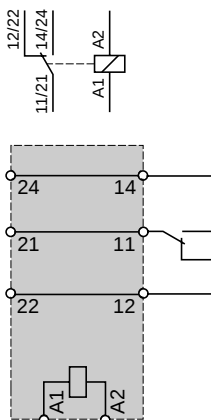
Schemes

Interface relays

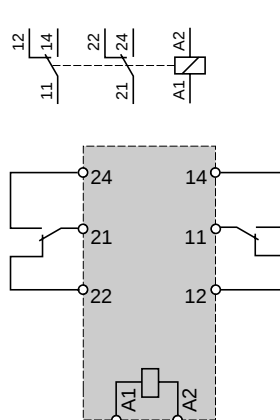
RSB 1A120●●



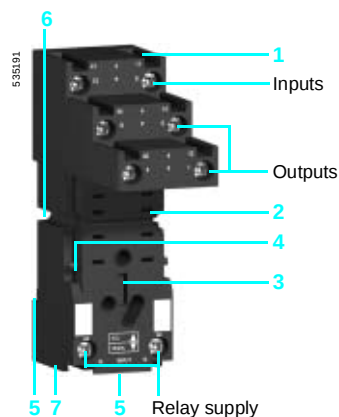
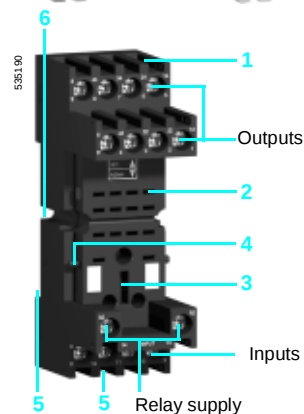
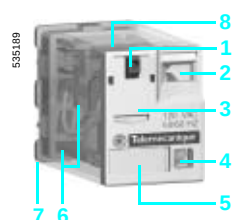
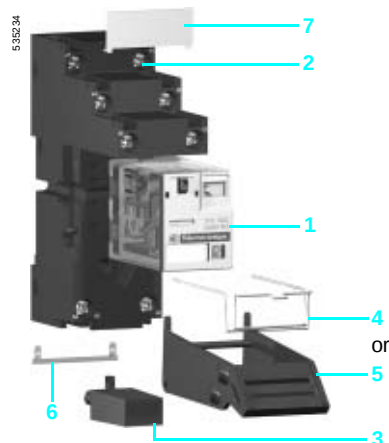
RSB 1A160●●



RSB 2A080●●



When using relay RSB 1A160●● with socket RSZ E1S48M: terminals 11 and 21, 14 and 24, 12 and 22 must be linked



Presentation of the range

The RXM miniature relay range comprises:

- 12 A relays with 2 C/O contacts, 10 A relays with 3 C/O contacts, 6 A relays with 4 C/O contacts and 3 A "low level" relays with 4 C/O contacts. All these relays have the same dimensions.
- Sockets with mixed or separate contact terminals.
- Protection modules (diode, RC circuit or varistor). All these modules are common to all sockets.
- A metal maintaining clamp for all sockets.
- A plastic maintaining clamp for all sockets.
- A 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.
- Clip-in legends for all the sockets except RXZ E2M114.

Relay description

- Spring return pushbutton for testing the contacts (green: $\overline{}$, red: $\sim$).
- Mechanical "relay status" indicator.
- Removable lock-down door enabling forced maintaining of the contacts for test or maintenance purposes. During operation, this lock-down door must always be in the closed position.
- LED (depending on version) indicating the relay status.
- Removable legend for relay identification.
- Four notches for rail mounting adapter or panel mounting adapter with fixing lugs.
- Eight, eleven or fourteen Faston type pins.
- Area by which the product can be easily gripped.
- Mounting adapter enabling direct mounting of the relay on a panel.
- Mounting adapter enabling direct mounting of the relay on a $\sqcap$ rail.

Socket description

Sockets with mixed contact terminals (1)

- Connection by screw clamp terminals or connector.
- Fourteen female contacts for the relay pins.
- Location for protection modules.
- Locking components for plastic and metal maintaining clamps.
- Locating slot for mounting on $\sqcap$ rail with fixing clip.
- Two or four fixing holes for panel mounting.

Sockets with separate contact terminals (2)

- Connection by connector.
- Eight, eleven or fourteen female contacts for the relay pins.
- Location for protection modules.
- Locking components for plastic and metal maintaining clamps.
- Locating slot for mounting on $\sqcap$ rail with fixing clip.
- Two fixing holes for panel mounting.
- Location for bus jumpers (see mounting on sockets on page 14).

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

(2) The inputs and outputs are separated from the relay supply terminals.

General characteristics

Conforming to standards		IEC/EN 61810-1 (iss. 2), UL 508, CSA C22-2 n° 14
Product certifications		UL, CSA pending
Ambient air temperature around the device	Storage	°C - 40... + 85
	Operation	°C - 40... + 55
Vibration resistance	Conforming to IEC/EN 60068-2-6	> 6 gn (10...50 Hz)
Degree of protection	Conforming to IEC/EN 60529	IP 40
Shock resistance	Opening	10 gn
conforming to IEC/EN 60068-2-27	Closing	5 gn
Protection category		RT I
Mounting position		Any

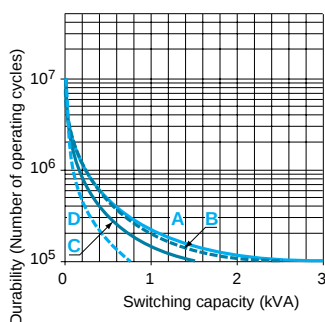
Insulation characteristics

Rated insulation voltage (Ui)	V	250 (IEC), 300 (UL, CSA)
Rated impulse withstand voltage (Uimp)	kV	3.6 (1.2/50 μs)
Dielectric strength (rms voltage)	Between coil and contact	~ V 2500
	Between poles	~ V 2500
	Between contacts	~ V 1500

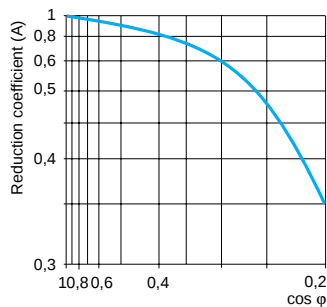
Contact characteristics

Relay type		RXM 2AB●●●	RXM 3AB●●●	RXM 4AB●●●	RXM 4GB●●●
Number and type of contacts		2 C/O	3 C/O	4 C/O	4 C/O
Contact materials		AgNi			AgAu
Conventional thermal current (Ith)	For ambient temperature ≤ 55 °C	A 12	10	6	3
Rated operational current in utilisation categories AC-1 and DC-1	Conforming to IEC	N/O 12	10	6	2
	Conforming to UL	N/C 6	5	3	1
		12	10	6	3
Maximum operating rate	No-load	18 000			
In operating cycles/hour	Under load	1200			
Switching voltage	Maximum	V ~/- 250			
Switching capacity	Minimum	mA 10 mA on 17 V			2 mA on 5 V
	Maximum	VA 3000	2500	1500	1500
Utilisation coefficient		20 %			
Mechanical durability	In millions of operating cycles	10			
Electrical durability	Resistive load	0.1			
In millions of operating cycles/hour	Inductive load	See curves below			

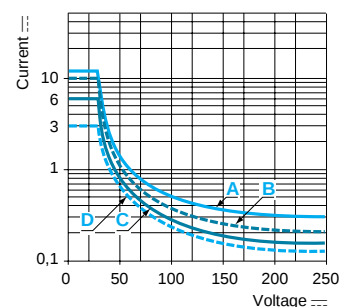
Electrical durability of contacts
Resistive load ~



Reduction coefficient for inductive load ~
(depending on power factor cos φ)



Maximum switching capacity on resistive load ~



A RXM 2AB●●● B RXM 3AB●●● C RXM 4AB●●● D RXM 4GB●●●

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

Coil characteristics												
Average consumption		~	VA	1.2								
		≡	W	0.9								
Drop-out voltage threshold		~		≥ 0.15 Uc								
		≡		≥ 0.1 Uc								
Operating time (response time)	Between coil energisation and making of the On-delay contact	~	ms	20								
		≡	ms	20								
	Between coil de-energisation and making of the Off-delay contact	~	ms	20								
		≡	ms	20								
Control circuit voltage Uc			V	12	24	48	110	120	125	220	230	240
Relay control voltage codes				JD	BD	ED	FD	–	GD	MD	–	–
DC	Average resistance at 20 °C ± 10%		Ω	160	650	2600	11 000	–	11 000	14 000	–	–
	Operating voltage limits	Min.	V	9.6	19.2	38.4	88	–	100	176	–	–
		Max.	V	13.2	26.4	52.8	121	–	138	242	–	–
Relay control voltage codes				–	B7	E7		F7	–	M7	P7	U7
AC	Average resistance at 20 °C ± 15%		Ω	–	180	770	–	4430	–	15 000	15 000	15 500
	Operating voltage limits	Min.	V	–	19.2	38.4	–	96	–	176	184	192
		Max.	V	–	26.4	52.8	–	132	–	242	253	264

Socket characteristics							
Socket type			RXZ E2S108M	RXZ E2S111M	RXZ E2S114M	RXZ E2M114	RXZ E2M114M
Relay types used			RXM 2●●●●●	RXM 3●●●●●	RXM 4●●●●●	RXM 2●●●●●(1) RXM 4●●●●●	RXM 2●●●●●(1) RXM 4●●●●●
Product certifications			UL, CSA (pending)				
Conventional thermal current (Ith)		A	12	10			
Degree of protection	Conforming to IEC/EN 60529		IP 20				
Connection	Solid cable without cable end	mm²	1 conductor: 0.5...2.5 mm² (AWG 20...AWG 12) 2 conductors: 0.5...1.5 mm² (AWG 20...AWG 14)				
	Flexible cable with cable end	mm²	1 conductor: 0.2...2.5 mm² (AWG 24...AWG 14) 2 conductors: 0.2...1.5 mm² (AWG 24...AWG 16)				
Maximum tightening torque		Nm	0.6 (M3 screw)				
Contact terminal arrangement			Separate				Mixed
Bus jumper Ith: 5 A			Yes				No

(1) When mounting relay RXM 2●●●●● on socket RXZ E2M●●●●, the thermal current must not exceed 10 A.

Substitution table					
		Old ranges		New range	
		RXN	RXL	RXM	
Miniature relays					
		RXN 21E1●●●	RXL 2A12B●●●	RXM 2AB●●●	
		–	RXL 3A10B●●●	RXM 3AB●●●	
		RXN 41G1●●●	RXL 4A06B●●●	RXM 4AB●●●	
		–	RXL 4G06B●●●	RXM 4GB●●●	
		RXN 41G1●●●TQ	RXL 2A12B●●●TQ	RXM 2AB●●●TQ	
		RXN 21E1●●●TQ	RXL 4A06B●●●TQ	RXM 4AB●●●TQ	
Sockets					
		RXZ E1M114	RXZ E1M114	RXZ E2M114	
		RXZ 7G	RXZ 7G	RXZ E2M114M	
		RXZ E1M114M	RXZ E1M114M	RXZ E2M114M	
		RXZ E1●1●●M	RXZ E1●1●●M	RXZ E2●1●●M	
Protection modules					
		RXM 040MD	RXM 040MD	RXM 040W	
		RZM 040W	RZM 040W	RXM 040W	
		RZM 031●●	RZM 031●●	RXM 040W (2)	
		RZM 041●●7	RZM 041●●7	RXM 041●●7	
		RZM 021●●	RZM 021●●	RXM 021●● (2)	
Accessories					
		RXZ 200	RXZ 200	RXZ 400	
		RXZ R235	RXZ R235	RXZ R335	
		RXZ L320	RXZ L320	RXZ L420	

(2)  Protection module without LED.

Zelio Relay - plug-in relays

RXM miniature relays

535189



RXM 2AB2F7

Miniature relays without LED (sold in lots of 10)

Control circuit voltage	Number and type of contacts - Thermal current (Ith)					
	2 C/O - 12 A		3 C/O - 10 A		4 C/O - 6 A	
	Unit reference	Weight	Unit reference	Weight	Unit reference	Weight
V		kg		kg		kg
12	RXM 2AB1JD	0.037	RXM 3AB1JD	0.038	RXM 4AB1JD	0.036
24	RXM 2AB1BD	0.037	RXM 3AB1BD	0.038	RXM 4AB1BD	0.036
48	RXM 2AB1ED	0.037	RXM 3AB1ED	0.038	RXM 4AB1ED	0.036
110	RXM 2AB1FD	0.037	RXM 3AB1FD	0.038	RXM 4AB1FD	0.036
220	—	—	—	—	RXM 4AB1MD	0.036
~ 24	RXM 2AB1B7	0.037	RXM 3AB1B7	0.038	RXM 4AB1B7	0.036
~ 48	RXM 2AB1E7	0.037	RXM 3AB1E7	0.038	RXM 4AB1E7	0.036
~ 120	RXM 2AB1F7	0.037	RXM 3AB1F7	0.038	RXM 4AB1F7	0.036
~ 230	RXM 2AB1P7	0.037	RXM 3AB1P7	0.038	RXM 4AB1P7	0.036
~ 240	—	—	—	—	RXM 4AB1U7	0.036

Miniature relays with LED (sold in lots of 10)

12	RXM 2AB2JD	0.037	RXM 3AB2JD	0.038	RXM 4AB2JD	0.036
24	RXM 2AB2BD	0.037	RXM 3AB2BD	0.038	RXM 4AB2BD	0.036
48	RXM 2AB2ED	0.037	RXM 3AB2ED	0.038	RXM 4AB2ED	0.036
110	RXM 2AB2FD	0.037	RXM 3AB2FD	0.038	RXM 4AB2FD	0.036
125	—	—	—	—	RXM 4AB2GD	0.036
~ 24	RXM 2AB2B7	0.037	RXM 3AB2B7	0.038	RXM 4AB2B7	0.036
~ 48	RXM 2AB2E7	0.037	RXM 3AB2E7	0.038	RXM 4AB2E7	0.036
~ 120	RXM 2AB2F7	0.037	RXM 3AB2F7	0.038	RXM 4AB2F7	0.036
~ 230	RXM 2AB2P7	0.037	RXM 3AB2P7	0.038	RXM 4AB2P7	0.036

535189



RXM 4GB2F7

Miniature relays with low level contacts, without LED (sold in lots of 10)

Control circuit voltage	Number and type of contacts Thermal current (Ith)	
	4 C/O - 3 A	
	Unit reference	Weight
V		kg
12	RXM 4GB1JD	0.036
24	RXM 4GB1BD	0.036
48	RXM 4GB1ED	0.036
110	RXM 4GB1FD	0.036
~ 24	RXM 4GB1B7	0.036
~ 48	RXM 4GB1E7	0.036
~ 120	RXM 4GB1F7	0.036
~ 230	RXM 4GB1P7	0.036

Miniature relays with low level contacts, with LED (sold in lots of 10)

12	RXM 4GB2JD	0.036
24	RXM 4GB2BD	0.036
48	RXM 4GB2ED	0.036
110	RXM 4GB2FD	0.036
~ 24	RXM 4GB2B7	0.036
~ 48	RXM 4GB2E7	0.036
~ 120	RXM 4GB2F7	0.036
~ 230	RXM 4GB2P7	0.036
~ 240	RXM 4GB2U7	0.036

535235



RXZ E2M114M
+
Relay RXM 4AB2P7TQ

Miniature relays without LED (sold in lots of 100)

Control circuit voltage	Number and type of contacts - Thermal current (Ith)		4 C/O - 6 A	
	Unit reference	Weight	Unit reference	Weight
V		kg		kg
— 12	—	—	RXM 4AB1JDTQ	0.036
— 24	RXM 2AB1BDTQ	0.037	RXM 4AB1BDTQ	0.036
— 48	—	—	RXM 4AB1EDTQ	0.036
— 110	—	—	RXM 4AB1FDTQ	0.036
— 220	—	—	RXM 4AB1MDTQ	0.036
~ 24	RXM 2AB1B7TQ	0.037	RXM 4AB1B7TQ	0.036
~ 48	—	—	RXM 4AB1E7TQ	0.036
~ 120	RXM 2AB1F7TQ	0.037	RXM 4AB1F7TQ	0.036
~ 230	RXM 2AB1P7TQ	0.037	RXM 4AB1P7TQ	0.036

Miniature relays with LED (sold in lots of 100)

— 24	—	—	RXM 4AB2BDTQ	0.036
~ 24	RXM 2AB2B7TQ	0.037	RXM 4AB2B7TQ	0.036
~ 230	RXM 2AB2P7TQ	0.037	RXM 4AB2P7TQ	0.036

Sockets

Contact terminal arrangement	Connection	Relay type	Sold in lots of	Unit reference	Weight kg
Mixed	Screw clamp terminals	RXM 2●●●●(3) RXM 4●●●●	10	RXZ E2M114 (1)	0.048
	Connector	RXM 2●●●●(3) RXM 4●●●●	10	RXZ E2M114M (1)	0.056
Separate	Connector	RXM 2●●●●	10	RXZ E2S108M (2)	0.058
		RXM 3●●●●	10	RXZ E2S111M (1)	0.066
		RXM 4●●●●	10	RXZ E2S114M (1)	0.070

Protection modules

Description	Voltage	For use with	Sold in lots of	Unit reference	Weight kg
	V				kg
Diode	— 6...250	All sockets	20	RXM 040W	0.003
RC circuit	~ 24...60	All sockets	20	RXM 041BN7	0.010
	~ 110...240	All sockets	20	RXM 041FU7	0.010
Varistor	~ 6...24	All sockets	20	RXM 021RB	0.030
	~ 24...60	All sockets	20	RXM 021BN	0.030
	~ 110...240	All sockets	20	RXM 021FP	0.030

Timing relays

Description	For use with	Unit reference	Weight kg
2 or 4 timed C/O contacts (function A)	Sockets RXZ E●●●●●	RE XL2●● (4)	—
		RE XL4●● (4)	—

Accessories

Description	For use with	Sold in lots of	Unit reference	Weight kg
Metal maintaining clamp	All sockets	10	RXZ 400	0.001
Plastic maintaining clamp	All sockets	10	RXZ R335	0.005
Bus jumper, 2-pole (Ith: 5 A)	All sockets with separate contacts	10	RXZ S2	0.005
Mounting adapter for U-rails (5)	All relays	10	RXZ E2DA	0.004
Mounting adapter with fixing lugs for panel	All relays	10	RXZ E2FA	0.002
Clip-in legends	All relays (sheet of 108 legends)	10	RXZ L520	0.080
	All sockets except RXZ E2M114	10	RXZ L420	0.001

(1) Thermal current Ith: 10 A

(2) Thermal current Ith: 12 A

(3) When mounting relay RXM 2●●●●● on socket RXZ E2M●●●●, the thermal current must not exceed 10 A.

(4) Please consult the "Zelio Time timing relays" catalogue.

(5) Test button becomes inaccessible.

535211



RXZ E2S114M
+
Relay RXM 4AB2F7

535212



RXM 041●●7

535195



RE XL4●●

535215



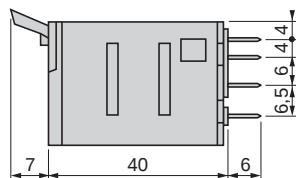
RXZ 400

Dimensions

Miniature relays

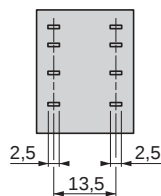
RXM ●●●●●

Common view

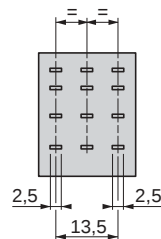


RXM 2

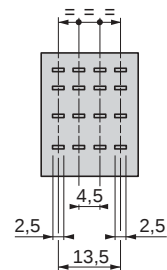
Pin side view



RXM 3

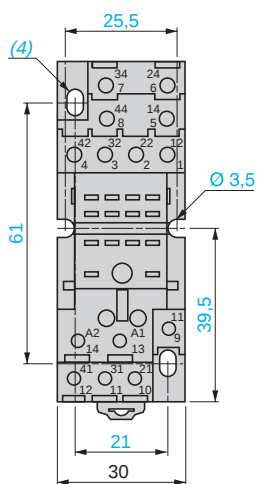
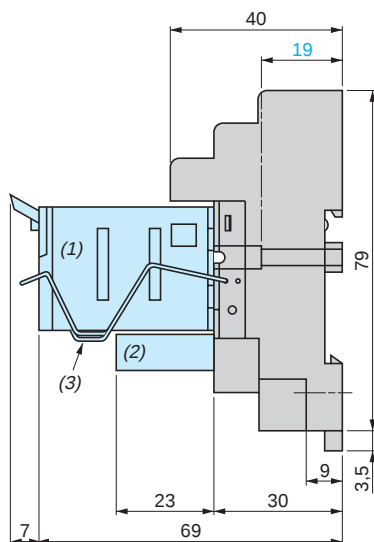


RXM 4

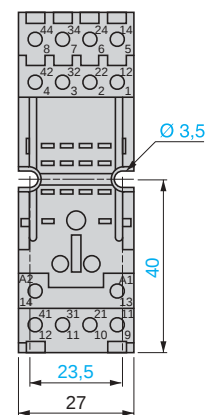
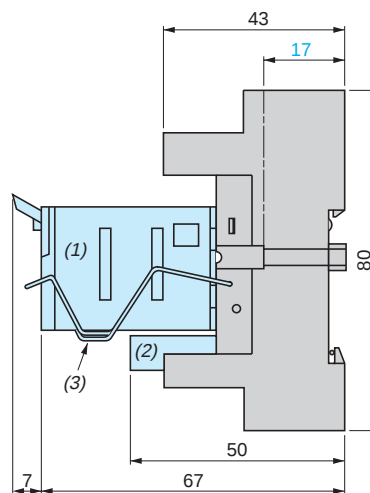


Sockets

RXZ E2M114



RXZ E2M114M

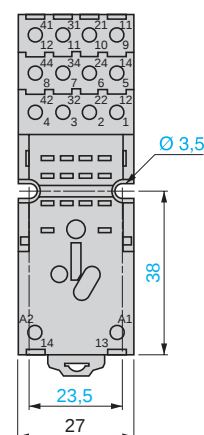
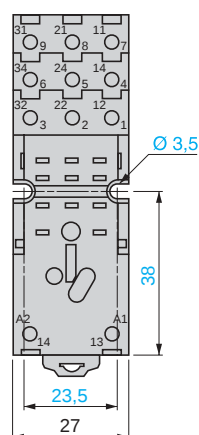
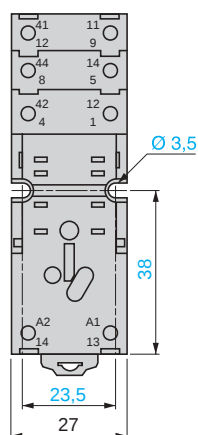
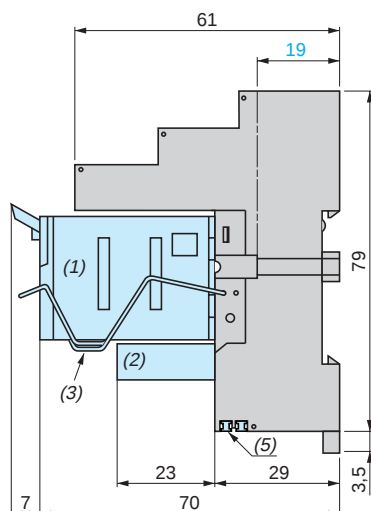


Common side view

RXZ E2S108M

RXZ E2S111M

RXZ E2S114M



(1) Relays

(2) Add-on protection module

(3) Maintaining clamp

(4) 2 elongated holes Ø 3.5 x 6.5

(5) 2 bus jumpers

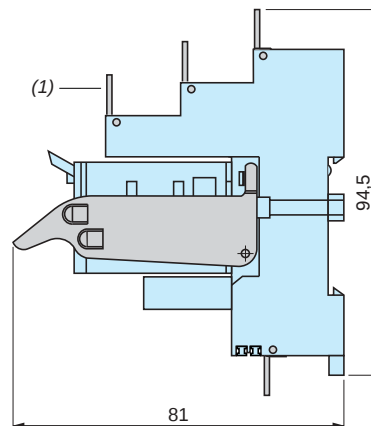
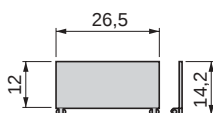
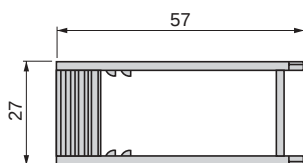
Dimensions (continued)

Plastic clamp and clip-in legends

RXZ R335

RXZ L420

Mounting on all sockets (1)



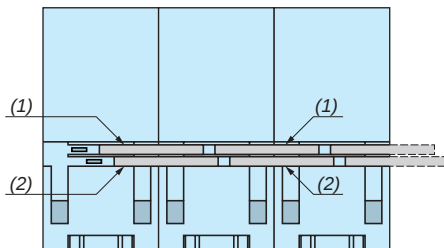
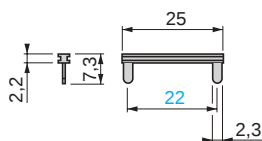
(1) Clip-in legends for all sockets except RXZ E2M114.

Bus jumper

RXZ S2

Mounting on sockets with separate contacts
(view from below)

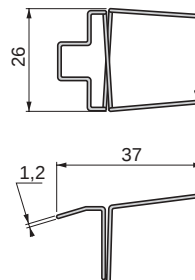
Example of bus jumper mounting on sockets



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

Metal clamp

RXZ 400

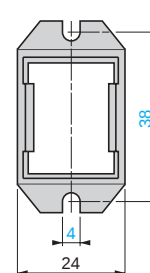
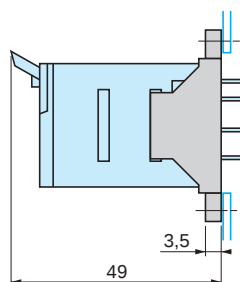
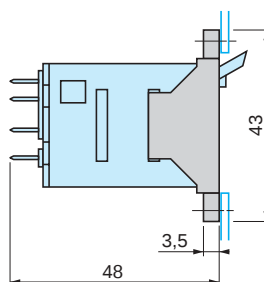
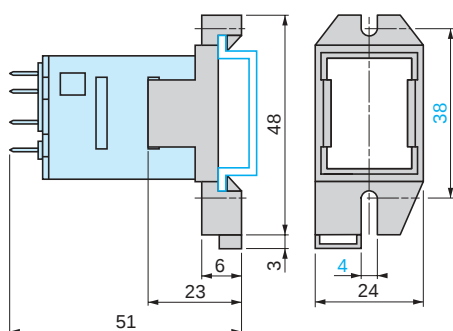


Mounting adapter for rail (1)

RXZ E2DA

Mounting adapter for panel

RXZ E2FA

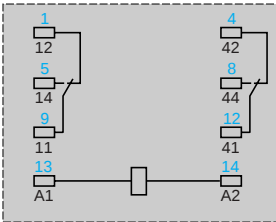
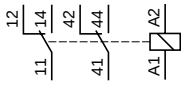


(1) Test button becomes inaccessible

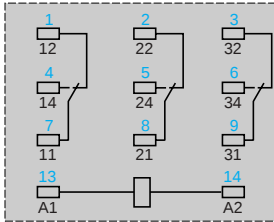
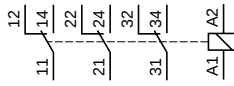
Schemes

Miniature relays

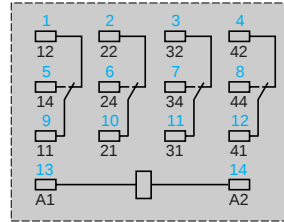
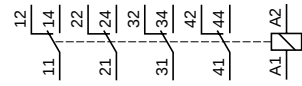
RXM 2●●●●●



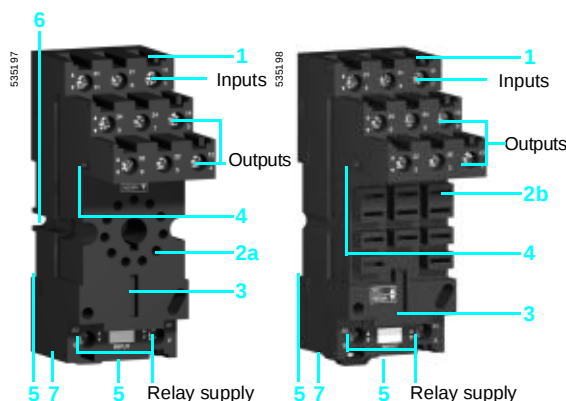
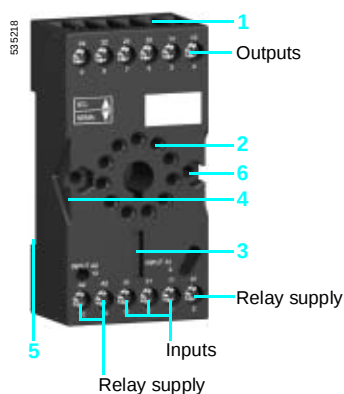
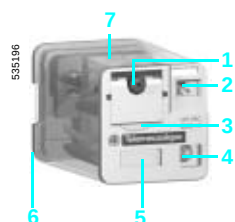
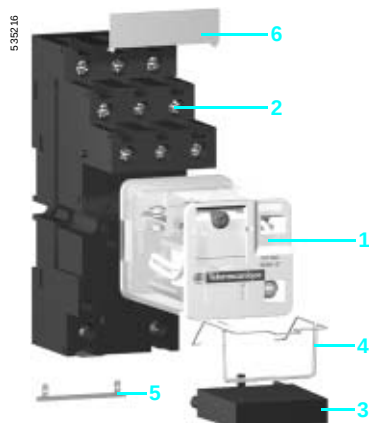
RXM 3●●●●●



RXM 4●●●●●



Symbols shown in blue correspond to Nema marking.



Presentation of the range

The RUM universal relay range comprises:

- 10 A relays with 2 and 3 C/O contacts, with cylindrical or flat (Faston type) pins, and 3 A "low level" relays with 3 C/O contacts, with cylindrical pins. All these relays have the same dimensions.
- Sockets with mixed or separate contact terminals.
- Protection modules (diode, RC circuit or varistor) or 1 timer module. All these modules are common to all sockets.
- A metal maintaining clamp for all sockets.
- A 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.
- Clip-in legends for the sockets.

Relay description

- Spring return pushbutton for testing the contacts (green: $\equiv$, red: $\sim$).
- Mechanical "relay status" indicator.
- Removable lock-down door enabling forced maintaining of the contacts for test or maintenance purposes. During operation, this lock-down door must always be in the closed position.
- LED (depending on version) indicating the relay status.
- Removable legend for relay identification.
- Eight or eleven cylindrical or flat (Faston type) pins.
- Area by which the product can be easily gripped.

Socket description

Sockets with mixed contact terminals (1)

- Connection by connector.
- Eight or eleven female contacts for the relay cylindrical pins.
- Location for protection modules or the timer module.
- Locking component for metal maintaining clamp.
- Locating slot for rail mounting.
- Two fixing holes for panel mounting.

Sockets with separate contact terminals (2)

- Connection by connector.
- a Eight or eleven female contacts for the relay cylindrical pins.
b Eleven female contacts for the relay flat pins.
- Location for protection modules or the timer module.
- Locking component for metal maintaining clamp.
- Locating slot for mounting on rail with fixing clip.
- Two fixing holes for panel mounting.
- Location for bus jumpers (see mounting on sockets on page 22).

(1) The inputs are mixed with the relay's supply terminals, with the outputs being located on the opposite side of the socket.
(2) The inputs and outputs are separated from the relay supply terminals.

General characteristics

Conforming to standards			IEC/EN 61810-1 (iss. 2), UL 508, CSA C22-2 n° 14
Product certifications			UL, CSA (pending)
Ambient air temperature around the device	Storage	°C	- 40... + 85
	Operation	°C	- 40... + 55
Vibration resistance	Conforming to IEC/EN 60068-2-6		4 gn (10...50 Hz)
Degree of protection	Conforming to IEC/EN 60529		IP 40
Shock resistance conforming to IEC/EN 60068-2-27	Opening		10 gn
	Closing		5 gn
Protection category			RT I
Mounting position			Any

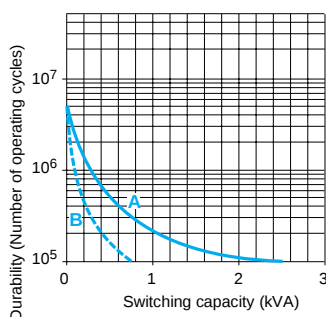
Insulation characteristics

Rated insulation voltage (Ui)	Conforming to IEC/EN 60947	V	250 (IEC), 300 (UL, CSA)
Rated impulse withstand voltage (Ump)		kV	3.6 (1.2/50 μs)
Dielectric strength (rms voltage)	Between coil and contact	~ V	2500
	Between poles	~ V	2500
	Between contacts	~ V	1500

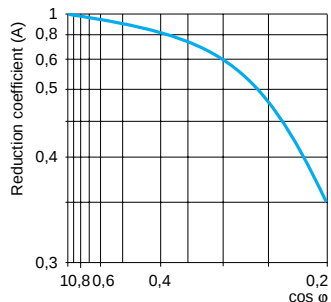
Contact characteristics

Relay type			RUM F2●●●	RUM F3●●●	RUM C2●●●	RUM C3A●●	RUM C3G●●
Number and type of contacts			2 C/O	3 C/O	2 C/O	3 C/O	3 C/O
Contact materials			AgNi				AgAu
Conventional thermal current (Ith)	For ambient temperature ≤ 55°C	A	10				3
Rated operational current in utilisation categories AC-1 and DC-1	Conforming to IEC	N/O	A	10			2
		N/C	A	5			1
	Conforming to UL	A	10				3
Maximum operating rate In operating cycles/hour	No-load		36 000				
	Under load		3600				
Switching voltage	Maximum	V	~/--- 250				
Switching capacity	Minimum	mA	10 mA on 17 V				3 mA on 5 V
	Maximum	VA	2500				750
Utilisation coefficient			20 %				
Mechanical durability	In millions of operating cycles		5				
Electrical durability In millions of operating cycles/hour	Resistive load		0.1				
	Inductive load		See curves below				

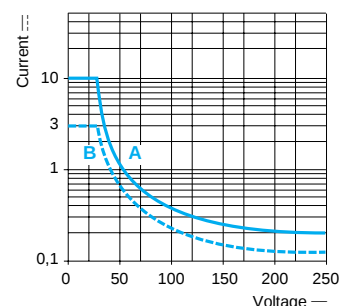
Electrical durability of contacts
Resistive load ~



Reduction coefficient for inductive load ~
(depending on power factor cos φ)



Maximum switching capacity on resistive load ---



A RUM F●●●●●, RUM C2●●●, RUM C3A●●● **B** RUM C3G●●●

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

Coil characteristics												
Average consumption		~	VA	2...3								
		---	W	1.4								
Drop-out voltage threshold		~		≥ 0.15 Uc								
		---		≥ 0.1 Uc								
Operating time (response time)	Between coil energisation and making of the On-delay contact	~	ms	20								
		---	ms	20								
	Between coil de-energisation and making of the Off-delay contact	~	ms	20								
		---	ms	20								
Control circuit voltage Uc			V	12	24	48	60	110	120	125	220	230
Relay control voltage codes				JD	BD	ED	ND	FD	–	GD	MD	–
DC	Average resistance at 20 °C ± 10%		Ω	120	470	1800	2790	10 000	–	10 000	3700	–
	Operating voltage limits	Min.	V	9.6	19.2	38.4	48	88	–	100	176	–
		Max.	V	13.2	26.4	52.8	66	121	–	137.5	242	–
Relay control voltage codes				–	B7	E7	–	–	F7	–	–	P7
AC	Average resistance at 20 °C ± 15%		Ω	–	72	290	–	–	1700	–	–	7200
	Operating voltage limits	Min.	V	–	19.2	38.4	–	–	96	–	–	184
		Max.	V	–	26.4	52.8	–	–	132	–	–	253
Socket characteristics												
Socket type				RUZ C2M		RUZ C3M		RUZ SC2M		RUZ SC3M		RUZ SF3M
Relay types used				RUM C2●●●●●		RUM C3●●●●●		RUM C2●●●●●		RUM C3●●●●●		RUM F●●●●●
Product certifications				UL, CSA (pending)								
Conventional thermal current (Ith)			A	12								
Degree of protection		Conforming to IEC/EN 60529		IP 20								
Connection	Solid cable without cable end		mm²	1 conductor: 0.5...2.5 mm² (AWG 20...AWG 12) 2 conductors: 0.5...1.5 mm² (AWG 20...AWG 14)								
	Flexible cable with cable end		mm²	1 conductor: 0.2...2.5 mm² (AWG 24...AWG 14) 2 conductors: 0.2...1.5 mm² (AWG 24...AWG 16)								
Maximum tightening torque			Nm	0.6 (M3 screw)								
Contact terminal arrangement				Mixed				Separate				
Bus jumper				No				Yes				
Ith: 5 A												

Zelio Relay - plug-in relays

RUM universal relays

References

Relays for standard applications, without LED (sold in lots of 10)

Pins	Control circuit voltage	Number and type of contacts - Thermal current (Ith)		3 C/O -10 A	
		2 C/O -10 A Unit reference	Weight	Unit reference	Weight
	V		kg		kg
Cylindrical	12	RUM C2AB1JD	0.084	RUM C3AB1JD	0.088
	24	RUM C2AB1BD	0.084	RUM C3AB1BD	0.088
	48	RUM C2AB1ED	0.084	RUM C3AB1ED	0.088
	60	—	—	RUM C3AB1ND	0.088
	110	RUM C2AB1FD	0.084	RUM C3AB1FD	0.088
	125	—	—	RUM C3AB1GD	0.088
	220	—	—	RUM C3AB1MD	0.088
	24	RUM C2AB1B7	0.084	RUM C3AB1B7	0.088
	48	RUM C2AB1E7	0.084	RUM C3AB1E7	0.088
	120	RUM C2AB1F7	0.084	RUM C3AB1F7	0.088
	230	RUM C2AB1P7	0.084	RUM C3AB1P7	0.088
	12	RUM F2AB1JD	0.080	RUM F3AB1JD	0.084
	24	RUM F2AB1BD	0.080	RUM F3AB1BD	0.084
Flat (Faston type)	48	RUM F2AB1ED	0.080	RUM F3AB1ED	0.084
	110	RUM F2AB1FD	0.080	RUM F3AB1FD	0.084
	24	RUM F2AB1B7	0.080	RUM F3AB1B7	0.084
	48	RUM F2AB1E7	0.080	RUM F3AB1E7	0.084
	120	RUM F2AB1F7	0.080	RUM F3AB1F7	0.084
	230	RUM F2AB1P7	0.080	RUM F3AB1P7	0.084

Relays for standard applications, with LED (sold in lots of 10)

Cylindrical	12	RUM C2AB2JD	0.084	RUM C3AB2JD	0.088
	24	RUM C2AB2BD	0.084	RUM C3AB2BD	0.088
	48	RUM C2AB2ED	0.084	RUM C3AB2ED	0.088
	60	—	—	RUM C3AB2ND	0.088
	110	RUM C2AB2FD	0.084	RUM C3AB2FD	0.088
	125	—	—	RUM C3AB2GD	0.088
	24	RUM C2AB2B7	0.084	RUM C3AB2B7	0.088
	48	RUM C2AB2E7	0.084	RUM C3AB2E7	0.088
	120	RUM C2AB2F7	0.084	RUM C3AB2F7	0.088
	230	RUM C2AB2P7	0.084	RUM C3AB2P7	0.088
Flat (Faston type)	12	RUM F2AB2JD	0.084	RUM F3AB2JD	0.086
	24	RUM F2AB2BD	0.084	RUM F3AB2BD	0.086
	48	RUM F2AB2ED	0.084	RUM F3AB2ED	0.086
	110	RUM F2AB2FD	0.084	RUM F3AB2FD	0.086
	24	RUM F2AB2B7	0.084	RUM F3AB2B7	0.086
	48	RUM F2AB2E7	0.084	RUM F3AB2E7	0.086
	120	RUM F2AB2F7	0.084	RUM F3AB2F7	0.086
	230	RUM F2AB2P7	0.084	RUM F3AB2P7	0.086

Relays with low level contacts, with LED (sold in lots of 10)

Pins	Control circuit voltage	Number and type of contacts Thermal current (Ith)	
		3 C/O - 3 A Unit reference	Weight
	V		kg
Cylindrical	24	RUM C3GB2BD	0.086
	48	RUM C3GB2ED	0.086
	24	RUM C3GB2B7	0.086
	48	RUM C3GB2E7	0.086
	120	RUM C3GB2F7	0.086
	230	RUM C3GB2P7	0.086

535199



RUM AB2B7

535200



RUM AB2F7



RUZ C3M + relay RUM C3●●●●●



RUW 241P7



RUW 101MW



RUZ C200



RUZ S2

References (continued)

Sockets

Contact terminal arrangement	Connection	Relay type	Sold in lots of	Unit reference	Weight kg
Mixed	Connector	RUM C2●●●●●	10	RUZ C2M	0.054
		RUM C3●●●●●	10	RUZ C3M	0.054
Separate	Connector	RUM C2●●●●●	10	RUZ SC2M	0.095
		RUM C3●●●●●	10	RUZ SC3M	0.100
		RUM F2●●●●●	10	RUZ SF3M	0.095
		RUM F3●●●●●			

Protection modules

Description	For use with	Voltage	Sold in lots of	Unit reference	Weight kg
		V			kg
Diode	All sockets	— 6...250	10	RUW 240BD	0.004
RC circuit	All sockets	~ 110...240	10	RUW 241P7	0.004
Varistor	All sockets	~ / — 24	10	RUW 242B7	0.004
		~ / — 240	10	RUW 242P7	0.004

Timer module

Description	For use with	Voltage	Sold in lots of	Unit reference	Weight kg
		V			kg
Multifunction	All sockets	~ / — 24...240	10	RUW 101MW	0.020

Timing relays

Description	For use with	Reference	Weight kg
2 timed C/O contacts (single-function or multifunction)	On sockets RUZ C●M	RE 48A ●● (1)	—

Accessories

Description	For use with	Sold in lots of	Unit reference	Weight kg
Metal maintaining clamp	All sockets	10	RUZ C200	0.001
Bus jumper, 2-pole (Ith : 5 A)	All sockets with separate contacts	10	RUZ S2	0.005
Clip-in legends	All relays (sheet of 108 legends)	10	RZX L520	0.080
	All sockets with separate contacts	10	RUZ L420	0.001

(1) Please consult the "Zelio Time timing relays" catalogue.

Substitution table

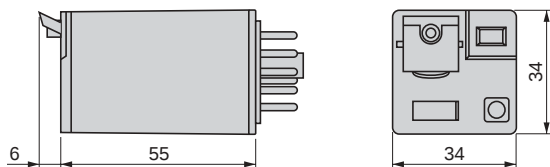
Old range	New range
RUN	RUM
Universal relays	
RUN 21C2●●●	RUM F2AB●●●
RUN 31C2●●●	RUM F3AB●●●
RUN 21A2●●●	RUM C2AB●●●
RUN 31A2●●●	RUM C3AB●●●
RUN 33A22●●	RUM C3GB2●●
Sockets	
RUZ ●A	RUZ C3M
RUZ ●D	RUZ C2M
RUZ 1C	RUZ SF3M
Protection modules	
RUW 030BD	RUW 240BD (2)
RUW 04●●●	RUW 24●●● (2)
Accessories	
RUZ 2●0	RUZ C200

(2) Protection module without DEL.

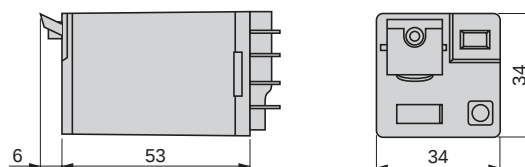
Dimensions

Universal relays

RUM C●●

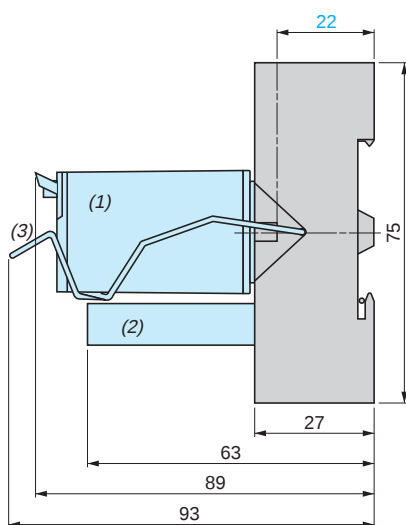


RUM F●●

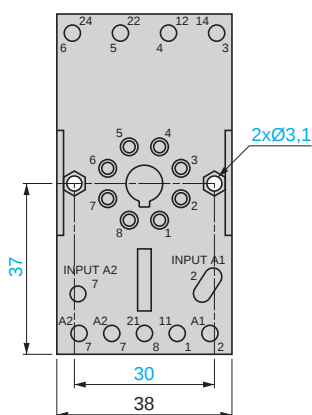


Sockets

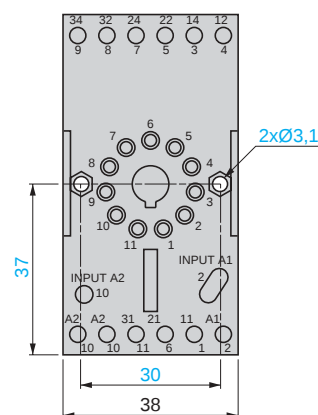
Common side view



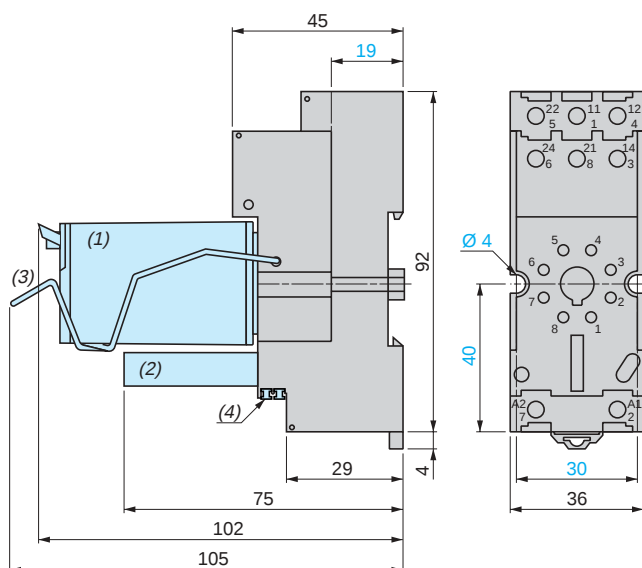
RUZ C2M



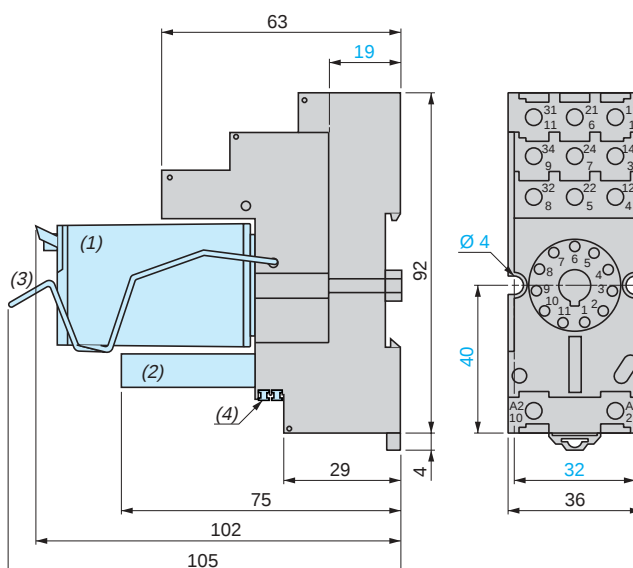
RUZ C3M



RUZ SC2M



RUZ SC3M

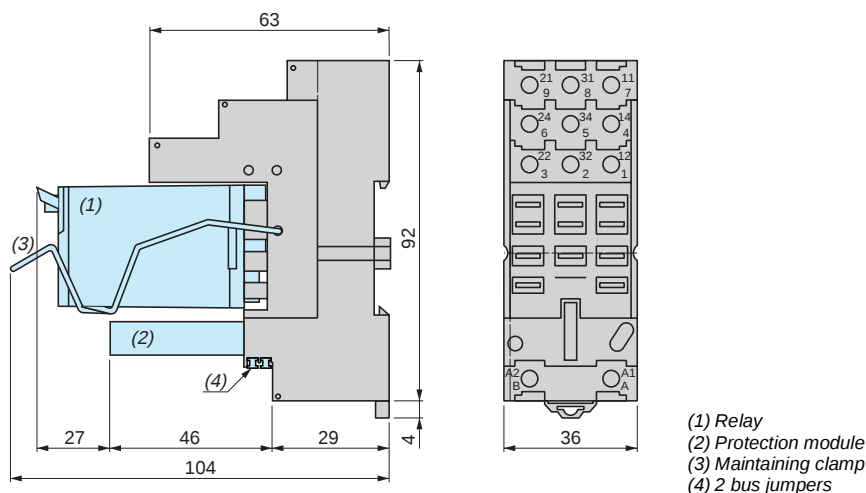


- (1) Relay
- (2) Protection module
- (3) Maintaining clamp
- (4) 2 bus jumpers

Dimensions (continued)

Sockets (continued)

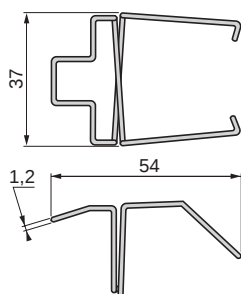
RUZ SF3M



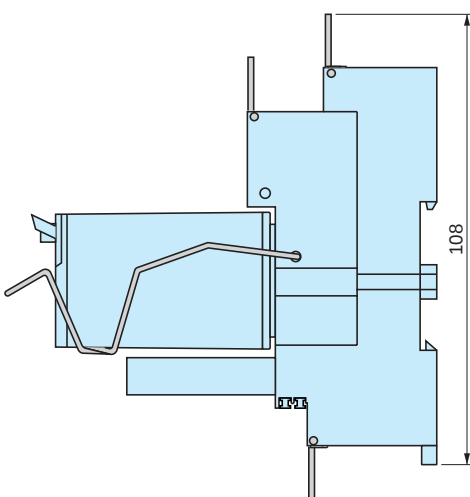
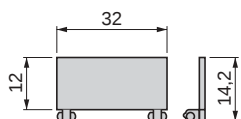
Metal maintaining clamps and plastic legends

RUZ C200

Mounting

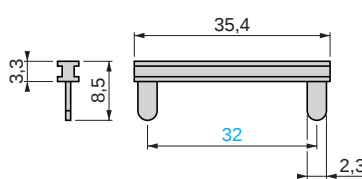


RUZ L420



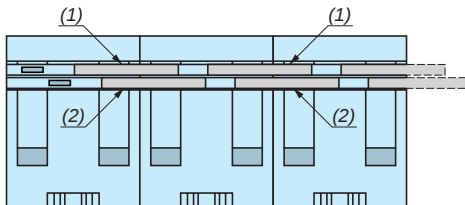
Bus jumper

RUZ S2



Mounting on sockets with separate contacts
(view from below)

Example of bus jumper mounting on sockets

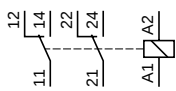


(1) 2 bus jumpers (polarity A2)
(2) 2 bus jumpers (polarity A1)

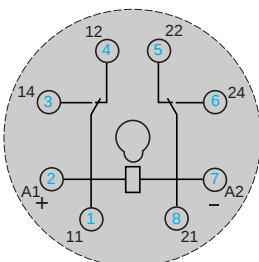
Schemes

Universal relays

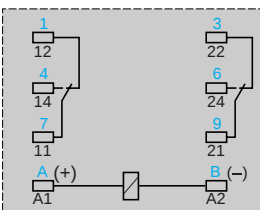
RUM ●2AB●●●



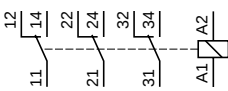
RUM C2AB●●●



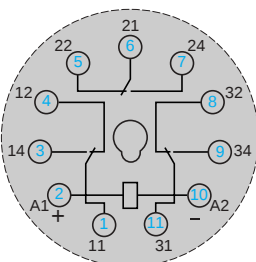
RUM F2AB●●●



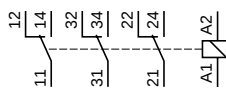
RUM C3●●●●●



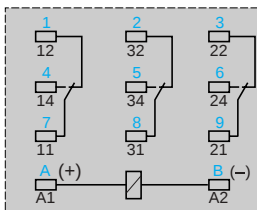
RUM C3●●●●●



RUM F3AB●●●



RUM F3AB●●●



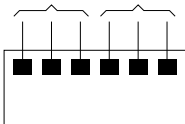
Symbols shown in blue correspond to Nema marking.

Multifunction timer module RUW 101MW

Programming

Timing range selection

Function selection
Timing range selection



0.1...1 s



0.1...10 s



0.1...1 min



1...10 min



0.1...1 h



1...10 h



0.1...1 day



1...10 days

Function selection

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

Power off

Contact open

U: voltage

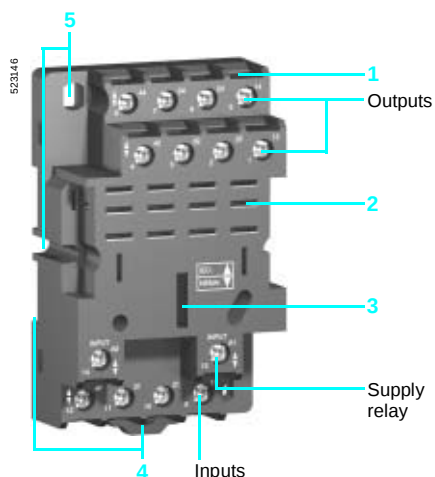
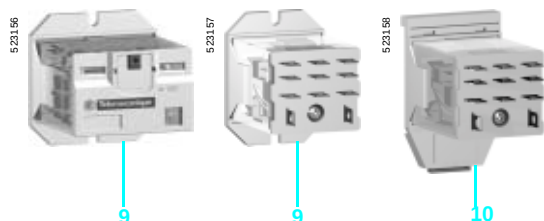
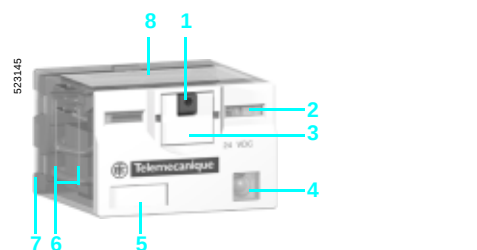
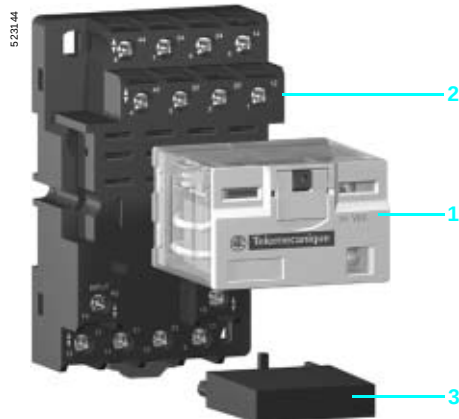
S: external control

Power on

Contact closed

R: relay RUM ●●●

t: adjustable time delay



Presentation of the range

The RPM power relay range comprises:

- 1 15 A relays with 1, 2, 3 and 4 C/O contacts.
- 2 Sockets with mixed contact terminals.
- 3 Protection modules (diode, RC circuit or varistor) or 1 timer module. All these modules are common to all the sockets except for the timer module, which can only be used on the 3-pole or 4-pole sockets.

A metal maintaining clamp for 1 contact relays.

Relay description

- 1 Spring return pushbutton for testing the contacts (green: $\equiv$, red: $\sim$).
- 2 Mechanical "relay status" indicator.
- 3 Removable lock-down door enabling forced maintaining of the contacts for test or maintenance purposes. During operation, this lock-down door must always be in the closed position.
- 4 LED (depending on version) indicating the relay status.
- 5 Removable legend for relay identification.
- 6 Four notches for rail mounting adapter or panel mounting adapter with fixing lugs.
- 7 Five, eight, eleven or fourteen Faston type pins.
- 8 Area by which the product can be easily gripped.
- 9 Mounting adapter enabling direct mounting of the relay on a panel.
- 10 Mounting adapter enabling direct mounting of the relay on a $\sqcap$ rail.

Socket description

Sockets with mixed contact terminals (1)

- 1 Connection by screw clamp terminals.
- 2 Five, eight, eleven or fourteen female contacts for the relay pins.
- 3 Location for protection modules or the timer module.
- 4 Locating slot for mounting on $\sqcap$ rail with fixing clip.
- 5 Two or four fixing holes for panel mounting.

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

General characteristics

Conforming to standards			IEC/EN 61810-1 (iss. 2), UL 508, CSA C22-2 n° 14
Product certifications			UL, CSA (pending)
Ambient air temperature around the device	Storage	°C	- 40... + 85
	Operation	°C	- 40... + 55
Vibration resistance	Conforming to IEC/EN 60068-2-6		6 gn (10...50 Hz)
Degree of protection	Conforming to IEC/EN 60529		IP 40
Shock resistance conforming to IEC/EN 60068-2-27	Opening		10 gn
	Closing		10 gn
Protection category			RT I
Mounting position			Any

Insulation characteristics

Rated insulation voltage (Ui)	Conforming to IEC/EN 60947	V	250 (IEC), 300 (UL, CSA)
Rated impulse withstand voltage (Uimp)		kV	3.6 (1.2/50 µs)
Dielectric strength (rms voltage)	Between coil and contact	~ V	2500
	Between poles	~ V	2500
	Between contacts	~ V	1500

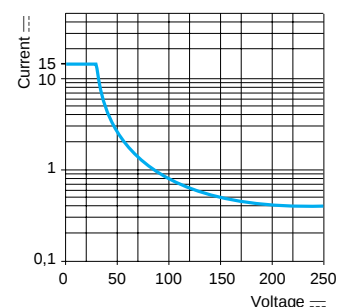
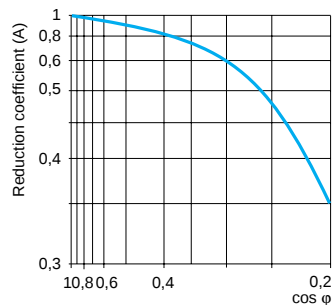
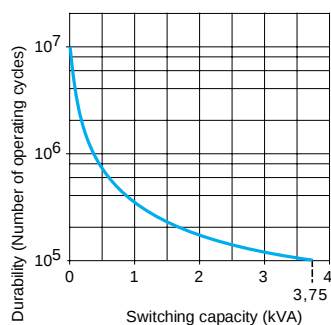
Contact characteristics

Relay type				RPM 1●●●	RPM 2●●●	RPM 3●●●	RPM 4●●●		
Number and type of contacts					1 C/O	2 C/O	3 C/O	4 C/O	
Contact materials					AgNi				
Conventional thermal current (Ith)	For ambient temperature ≤ 55 °C			A	15				
	Rated operational current in utilisation categories AC-1 and DC-1	Conforming to IEC		N/O	A	15			
		N/C	A	7.5					
Conforming to UL			A	15					
Maximum operating rate In operating cycles/hour	No-load				18 000				
	Under load				1200				
Switching voltage	Maximum			V	~/--- 250				
Switching capacity	Minimum			mA	100 mA on --- 5 V				
	Maximum			VA	3750				
Utilisation coefficient					20 %				
Mechanical durability				In millions of operating cycles		10			
Electrical durability In millions of operating cycles/hour	Resistive load				0.1			0.06	
	Inductive load				See curves below				

Electrical durability of contacts
Resistive load ~

Reduction coefficient for inductive load ~
(depending on power factor cos φ)

Maximum switching capacity on resistive load ~



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

Coil characteristics												
Relay type				RPM 1●●●		RPM 2●●●		RPM 3●●●		RPM 4●●●		
Average consumption		~	VA	0.9		1.2		1.5		1.5		
		---	W	0.7		0.9		1.7		2		
Drop-out voltage threshold		~		≥ 0.15 Uc								
		---		≥ 0.1 Uc								
Operating time (response time)	Between coil energisation and making of the On-delay contact	~	ms	20		25		25		20		
		---	ms	20		25		25		20		
	Between coil de-energisation and making of the Off-delay contact	~	ms	20								
		---	ms	20								
Control circuit voltage Uc			V	12	24	48	110	120	230			
Relay control voltage codes				JD	BD	ED	FD	—	—			
DC	Average resistance at 20 °C ± 10%	RPM 1●●●	Ω	180	750	2600	13 100	—	—			
		RPM 2●●●	Ω	160	650	2600	11 000	—	—			
		RPM 3●●●	Ω	100	400	2600	8600	—	—			
		RPM 4●●●	Ω	96	388	1550	7340	—	—			
	Operating voltage limits	Min.	V	9.6	19.2	38.4	88	—	—			
		Max.	V	13.2	26.4	52.8	121	—	—			
	Relay control voltage codes				—	B7	E7	—	F7	P7		
	AC	Average resistance at 20 °C ± 15%	RPM 1●●●	Ω	—	160	720	—	4430	15 720		
RPM 2●●●			Ω	—	180	770	—	4430	15 000			
RPM 3●●●			Ω	—	103	770	—	2770	12 000			
RPM 4●●●			Ω	—	84.3	338	—	2220	9120			
Operating voltage limits		Min.	V	—	19.2	38.4	—	96	184			
		Max.	V	—	26.4	52.8	—	132	253			
Socket characteristics												
Socket type				RPZ F1		RPZ F2		RPZ F3		RPZ F4		
Relay types used				RPM 1●●●		RPM 2●●●		RPM 3●●●		RPM 4●●●		
Protection module types used				RXM 02●●● RXM 04●●●		RXM 02●●● RXM 04●●●		RUW 24●●●		RUW 24●●●		
Product certifications				UL, CSA (pending)								
Conventional thermal current (Ith)			A	16								
Degree of protection		Conforming to IEC/EN 60529		IP 20								
Connection	Solid cable without cable end		mm²	1 conductor: 0.5...2.5 mm² (AWG 20...AWG 12) 2 conductors: 0.5...1.5 mm² (AWG 20...AWG 14)								
	Flexible cable with cable end		mm²	1 conductor: 0.2...2.5 mm² (AWG 24...AWG 14) 2 conductors: 0.2...1.5 mm² (AWG 24...AWG 16)								
Maximum tightening torque			Nm	0.8 (M3.5 screw)								
Contact terminal arrangement				Mixed								

Zelio Relay - plug-in relays

RPM power relays

Power relays without LED (sold in lots of 10)

Control circuit voltage	Number and type of contacts - Thermal current (Ith)							
	1 C/O - 15 A		2 C/O - 15 A		3 C/O - 15 A		4 C/O - 15 A	
	Unit reference	Weight	Unit reference	Weight	Unit reference	Weight	Unit reference	Weight
V		kg		kg		kg		kg
--- 12	RPM 11JD	0.024	RPM 21JD	0.036	RPM 31JD	0.054	RPM 41JD	0.068
--- 24	RPM 11BD	0.024	RPM 21BD	0.036	RPM 31BD	0.054	RPM 41BD	0.068
--- 48	RPM 11ED	0.024	RPM 21ED	0.036	RPM 31ED	0.054	RPM 41ED	0.068
--- 110	RPM 11FD	0.024	RPM 21FD	0.036	RPM 31FD	0.054	RPM 41FD	0.068
~ 24	RPM 11B7	0.024	RPM 21B7	0.036	RPM 31B7	0.054	RPM 41B7	0.068
~ 48	RPM 11E7	0.024	RPM 21E7	0.036	RPM 31E7	0.054	RPM 41E7	0.068
~ 120	RPM 11F7	0.024	RPM 21F7	0.036	RPM 31F7	0.054	RPM 41F7	0.068
~ 230	RPM 11P7	0.024	RPM 21P7	0.036	RPM 31P7	0.054	RPM 41P7	0.068

Power relays with LED (sold in lots of 10)

--- 12	RPM 12JD	0.024	RPM 22JD	0.036	RPM 32JD	0.054	RPM 42JD	0.068
--- 24	RPM 12BD	0.024	RPM 22BD	0.036	RPM 32BD	0.054	RPM 42BD	0.068
--- 48	RPM 12ED	0.024	RPM 22ED	0.036	RPM 32ED	0.054	RPM 42ED	0.068
--- 110	RPM 12FD	0.024	RPM 22FD	0.036	RPM 32FD	0.054	RPM 42FD	0.068
~ 24	RPM 12B7	0.024	RPM 22B7	0.036	RPM 32B7	0.054	RPM 42B7	0.068
~ 48	RPM 12E7	0.024	RPM 22E7	0.036	RPM 32E7	0.054	RPM 42E7	0.068
~ 120	RPM 12F7	0.024	RPM 22F7	0.036	RPM 32F7	0.054	RPM 42F7	0.068
~ 230	RPM 12P7	0.024	RPM 22P7	0.036	RPM 32P7	0.054	RPM 42P7	0.068

535205



RPM 32F7

531505



RPM 22F7



RPZ F2 + relay RPM 22F7



RXM 41



RPZ 1DA



RPZ 3FA

Sockets

Contact terminal arrangement	Connection	Relay type	Sold in lots of	Unit reference	Weight kg
Mixed	Screw clamp terminals	RPM 1	10	RPZ F1	0.042
		RPM 2	10	RPZ F2	0.054
		RPM 3	10	RPZ F3	0.072
		RPM 4	10	RPZ F4	0.094

Protection modules

Description	Voltage	Socket type	Sold in lots of	Unit reference	Weight kg
	V				
Diode	6...250	RPZ F1	20	RXM 040W	0.003
		RPZ F2			
		RPZ F3	20	RUW 240BD	0.004
		RPZ F4			
RC circuit	24...60	RPZ F1	20	RXM 041BN7	0.010
		RPZ F2			
	110...240	RPZ F1	20	RXM 041FU7	0.010
		RPZ F2			
Varistor	6...0.24	RPZ F1	20	RXM 021RB	0.030
		RPZ F2			
	24...60	RPZ F1	20	RXM 021BN	0.030
		RPZ F2			
	110...240	RPZ F1	20	RXM 021FP	0.030
		RPZ F2			
	24	RPZ F3	20	RUW 242B7	0.004
		RPZ F4			
	240	RPZ F3	20	RUW 242P7	0.004
		RPZ F4			

Timer module (1)

Description	Voltage	Socket type	Sold in lots of	Unit reference	Weight kg
	V				
Multifunction	24...240	RPZ F3 RPZ F4	10	RUW 101MW	0.020

Accessories

Description	For use with	Sold in lots of	Unit reference	Weight kg
Metal maintaining clamp (for single-pole relays)	RPZ F1	20	RPZ R235	0.001
Mounting adapters for rail (2)	RPM 1	20	RPZ 1DA	0.004
	RPM 2	20	RXZ E2DA	0.004
	RPM 3	20	RPZ 3DA	0.004
	RPM 4	20	RPZ 4DA	0.006
Mounting adapters with fixing lugs for panel	RPM 1	20	RPZ 1FA	0.002
	RPM 2	20	RXZ E2FA	0.002
	RPM 3	20	RPZ 3FA	0.003
	RPM 4	20	RPZ 4FA	0.004
Clip-in legends (sheet of 108 legends)	All relays	10	RXZ L520	0.080

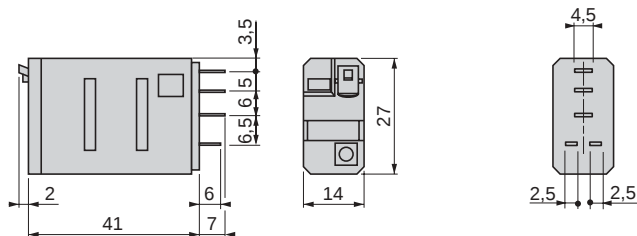
(1) See timer module description (selection of functions and time delays) on page 23

(2) Test button becomes inaccessible

Dimensions

Power relays

RPM 1

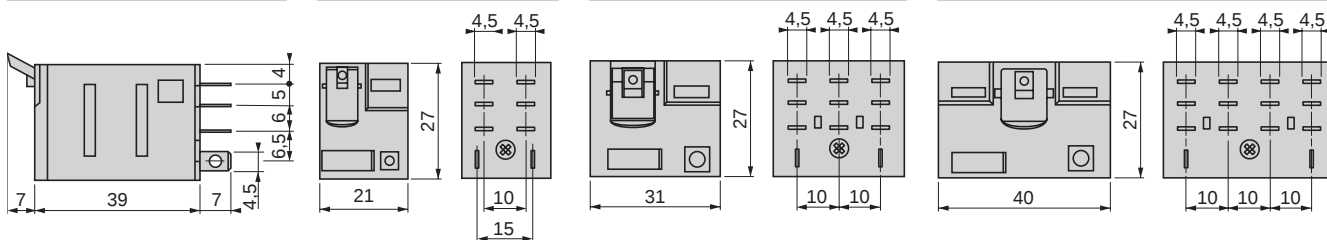


Common side view

RPM 2

RPM 3

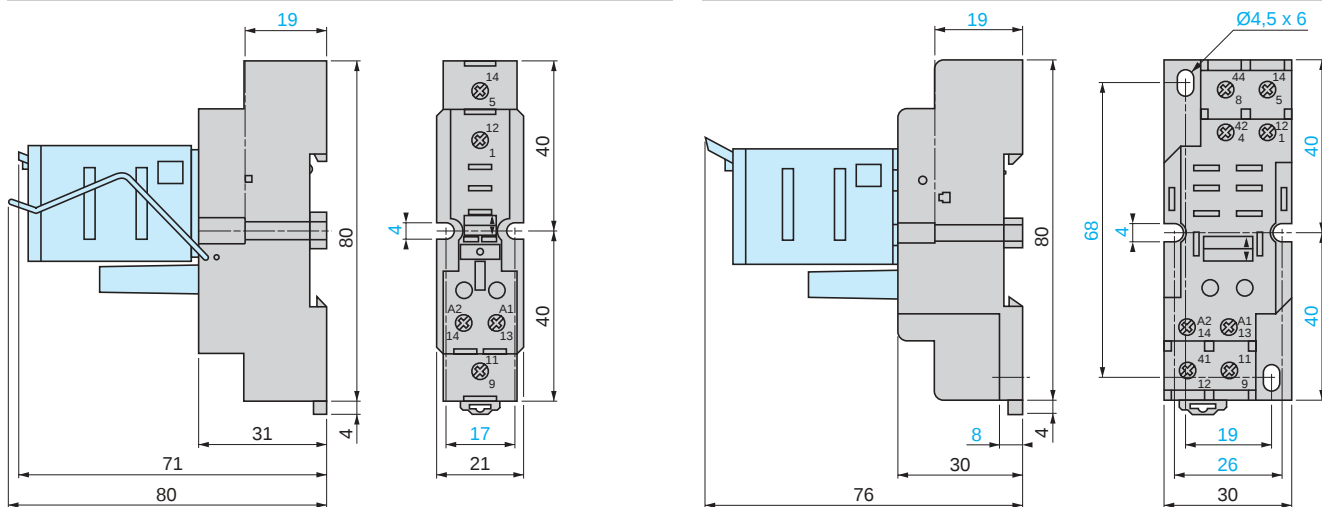
RPM 4



Sockets

RPZ F1

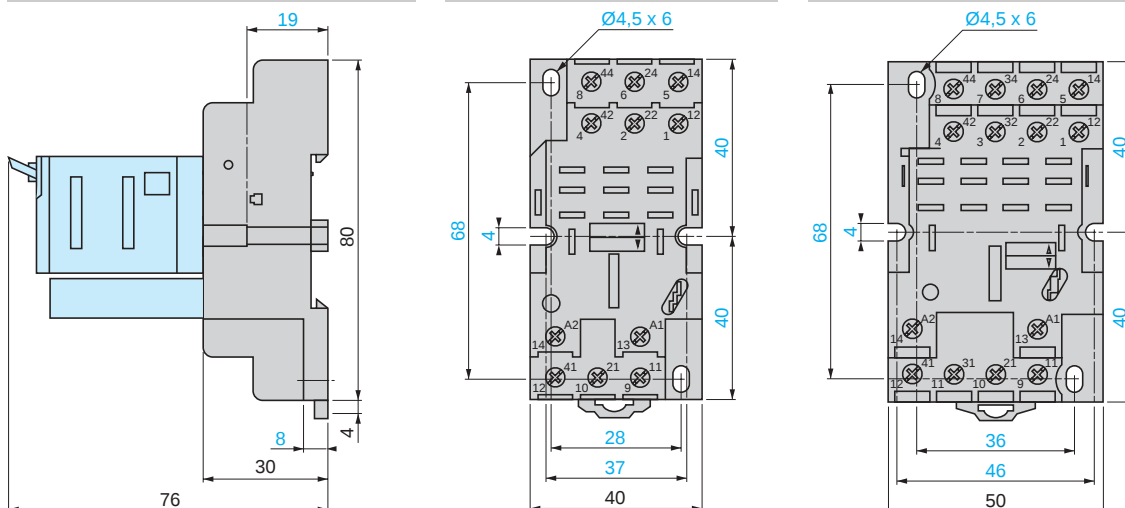
RPZ F2



Common side view

RPZ F3

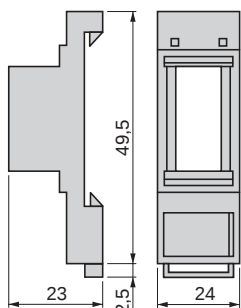
RPZ F4



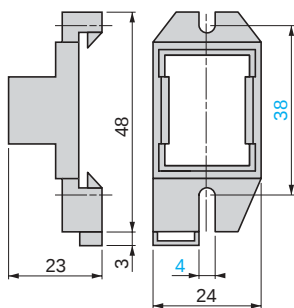
Dimensions (continued)

Mounting adapters for rail

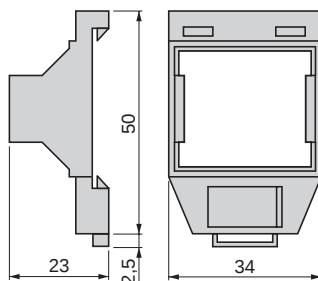
RPZ 1DA



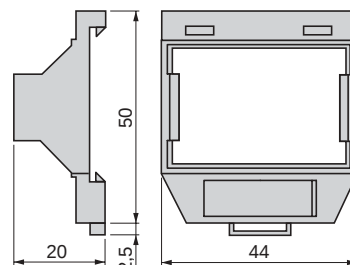
RXZ E2DA



RPZ 3DA

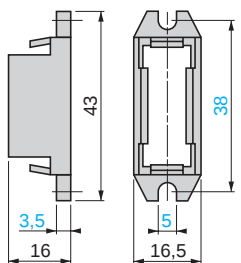


RPZ 4DA

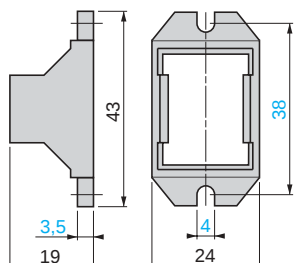


Mounting adapters with fixing lugs for panel

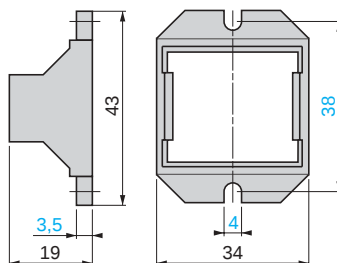
RPZ 1FA



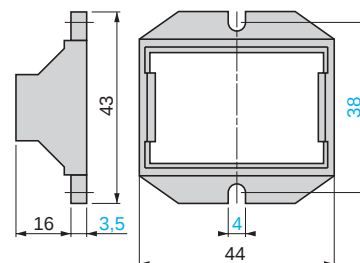
RXZ E2FA



RPZ 3FA

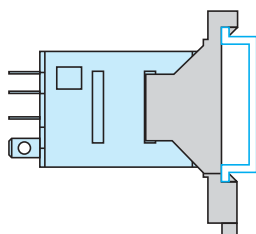


RPZ 4FA

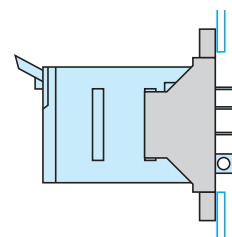
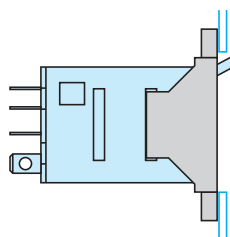


Mounting

Mounting adapters for rail (1)



Mounting adapters with fixing lugs for panel

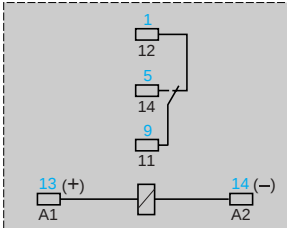
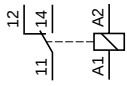


(1) Test button becomes inaccessible

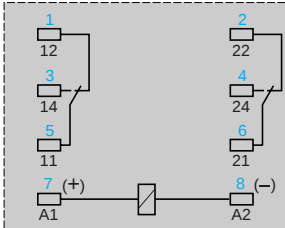
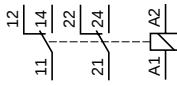
Schemes

Power relays

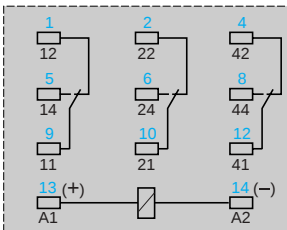
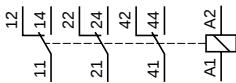
RPM 1●●●



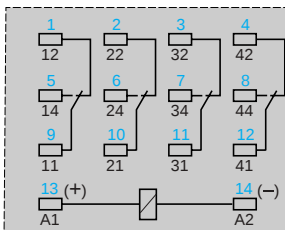
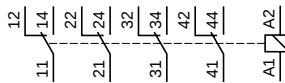
RPM 2●●●



RPM 3●●●

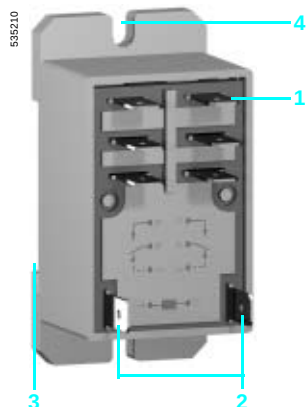


RPM 4●●●



Symbols shown in blue correspond to Nema marking.

Presentation of the range



RPF power relays with 2 C/O or 2 N/O contacts comprise:

- 1 Four or six Faston type pins.
- 2 Two relay supply pins.
- 3 A locating slot for mounting on  rail.
- 4 Two fixing holes for panel mounting.

General characteristics

Conforming to standards			IEC/EN 61810-1 (iss. 2), UL 508, CSA C22-2 n°14
Product certifications			UL, CSA (pending)
Ambient air temperature around the device	Storage	°C	- 40...+ 85
	Operation	°C	- 40...+ 55
Vibration resistance	Conforming to IEC 60068-2-6		>10 gn (10...55 Hz)
Degree of protection	Conforming to IEC/EN 60529		IP 40
Shock resistance conforming to IEC/EN 60068-2-27	Opening		10 gn
	Closing		10 gn
Protection category			RT IV
Mounting position			Any

Insulation characteristics

Rated insulation voltage (Ui) Conforming to IEC/EN 60947		V	250
Rated impulse withstand voltage (Uimp)		kV	3.6 (1.2/50 μs)
Dielectric strength (rms voltage)	Between coil and contact	~ V	2500
	Between poles	~ V	2500
	Between contacts	~ V	1500

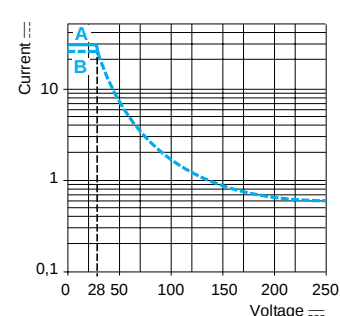
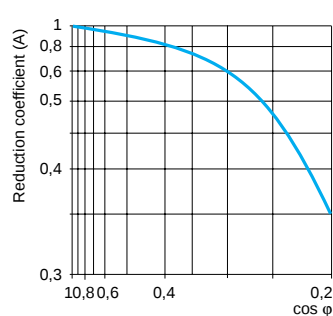
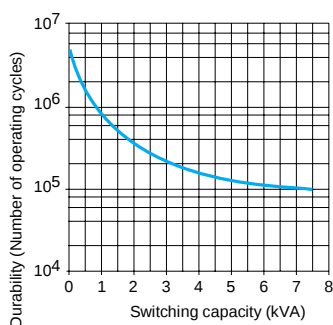
Contact characteristics

Relay type			RPF 2A●●	RPF 2B●●
Number and type of contacts			2 N/O	2 C/O
Contact materials			AgSnO ₂	
Conventional thermal current (I _{th})	For ambient temperature ≤ 40°C	A	30 (when mounted with 13 mm gap between two relays) 25 (when mounted side by side without a gap)	
Rated operational current in utilisation categories AC-1 and DC-1	Conforming to IEC	N/O	A	30
		N/C	A	3
	Conforming to UL		A	30
Maximum operating rate In operating cycles/hour	No-load		18 000	
	Under load		1200	
Switching voltage	Maximum	V	~ 250	
Switching capacity	Minimum	mA	10 mA on ~ 17 V	
	Maximum	VA	7200	
Utilisation coefficient			10 %	
Mechanical durability			5	
Electrical durability In millions of operating cycles/hour	Resistive load		0.05 (N/O contact only)	
	Inductive load		See curves below	

Electrical durability of contacts
Resistive load ~

Reduction coefficient for inductive load ~
(depending on power factor cos φ)

Maximum switching capacity on resistive load ~



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

A RPF 2●●●: 30 A
B RPF 2●●●: 25 A

Coil characteristics

Average consumption		~	VA	4				
		---	W	1.7				
Drop-out voltage threshold		~		≥ 0.15 Uc				
		---		≥ 0.1 Uc				
Operating time (response time)	Between coil energisation and making of the On-delay contact	~	ms	20				
		---	ms	20				
	Between coil de-energisation and making of the Off-delay contact	~	ms	20				
		---	ms	20				
Control circuit voltage Uc			V	12	24	110	120	230
Relay control voltage codes				JD	BD	FD	—	—
DC	Average resistance at 20 °C ± 10%		Ω	86	350	7255	—	—
	Operating voltage limits	Min.	V	9.6	19.2	88	—	—
		Max.	V	13.2	26.4	121	—	—
Relay control voltage codes				—	B7	—	F7	P7
AC	Average resistance at 20 °C ± 15%		Ω	—	250	—	1600	6500
	Operating voltage limits	Min.	V	—	19.2	—	96	184
		Max.	V	—	26.4	—	132	253

Zelio Relay - plug-in relays

RPF power relays
With clamp fixing



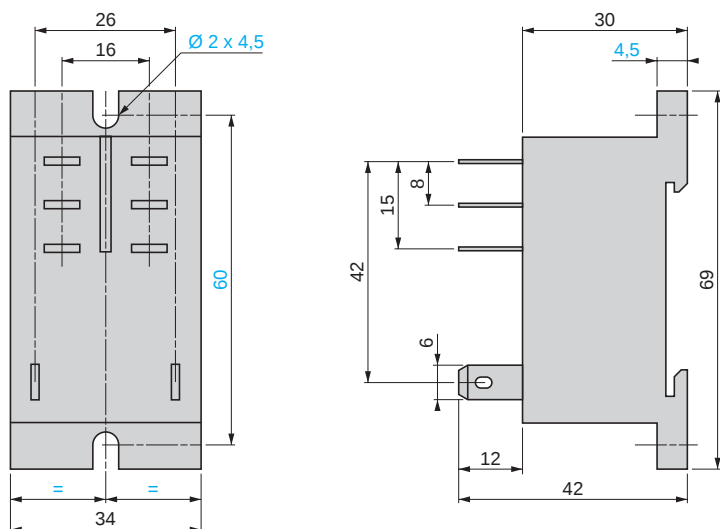
Power relays (sold in lots of 10)			
Control circuit voltage	Number and type of contacts - Thermal current (Ith)		Weight
	2 N/O - 30 A (1)	2 C/O - 30 A (1)	
	Unit reference	Unit reference	
V			kg
--- 12	RPF 2AJD	RPF 2BJD	0.086
--- 24	RPF 2ABD	RPF 2BBD	0.086
--- 110	RPF 2AFD	RPF 2BFD	0.086
~ 24	RPF 2AB7	RPF 2BB7	0.086
~ 120	RPF 2AF7	RPF 2BF7	0.086
~ 230	RPF 2AP7	RPF 2BP7	0.086

(1) 30 A when mounted with 13 mm gap between two relays and 25 A when mounted side by side without a gap.

Dimensions

Power relays

RPF 2A●●, RPF 2B●●

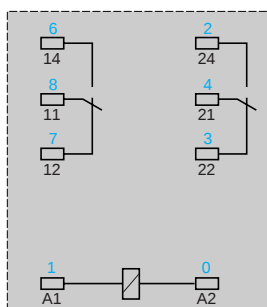
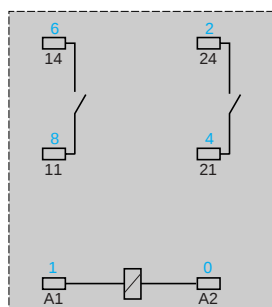


Schemes

Power relays

RPF 2A●●

RPF 2B●●



Symbols shown in blue correspond to Nema marking.

Relays

Contact types

Symbol	Configuration	EU	USA
	Make contact (Normally Open)	NO	SPST-NO DPST-NO nPST-NO (1)
	Break contact (Normally Closed)	NC	SPST-NC DPST-NC nPST-NC (1)
	Changeover Contact	CO	SPDT DPDT nPDT (1)

Utilisation categories

Category	Type of current	Applications
AC-1	~ single-phase ~ 3-phase	Resistive or slightly inductive loads.
AC-3	~ 3-phase	Starting and braking of squirrel cage motors; reversing direction of rotation only after stopping of motor.
AC-4	~ 3-phase	Starting of squirrel cage motors, inching. Plugging, reversing direction of rotation.
DC-1	---	Resistive or slightly inductive loads (2).
AC-14	~ single-phase	Control of electromagnetic loads (< 72 VA), auxiliary control relays, power contactors, electromagnetic solenoid valves and electromagnets.
AC-15	~ single-phase	Control of electromagnetic loads (> 72 VA), auxiliary control relays, power contactors, electromagnetic solenoid valves and electromagnets.
DC-13	---	Control of electromagnetic loads, auxiliary control relays, power contactors, magnetic solenoid valves and electromagnets.

Protection categories

Category	Explanation	Condition
RT 0	Unenclosed relay	Relay not provided with a protective case.
RT I	Dust protected relay	Relay provided with a case which protects its mechanism from dust.
RT II	Flux-proof relay	Relay capable of being automatically soldered without allowing the migration of solder fluxes beyond the intended areas.
RT III	Wash-tight relay	Relay capable of being automatically soldered and then washed to remove flux residues without risk of ingress of flux or washing solvents.
RT IV	Sealed relay	Relay provided with a case which has no venting to the outside atmosphere.
RT V	Hermetically sealed relay	Sealed relay having an enhanced level of sealing.

(1) n = number of contacts.

(2) The switchable voltage can be doubled, for an equal current, by connecting two contacts in series.

Protection modules

Whenever an inductive load is de-energised (coil of a relay or of a contactor), an overvoltage appears at its terminals. This voltage peak can reach several thousand volts and a frequency of several MHz.

It is likely to disturb the operation of automation systems which contain electronic devices.

Protection modules are used to reduce the voltage peak on de-energisation and they therefore limit the energy of interference signals to a level that will not disturb surrounding coils and electronic devices.

These modules are used to avoid:

- electromagnetic compatibility problems,
- the deterioration of contact materials,
- the destruction of insulation due to overvoltage,
- the destruction of electronic components.

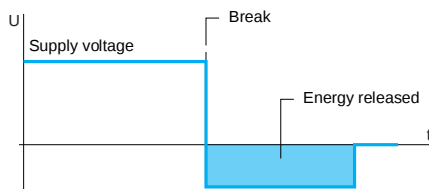
Diode protection module (with or without LED)

■ Advantages

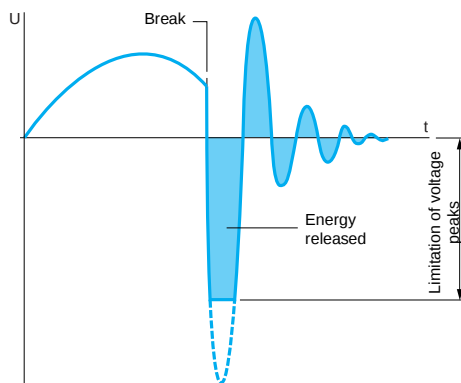
- accumulation of energy allowing current flow in the same direction,
- absence of any voltage peaks at the coil terminals,
- low cost.

■ Disadvantages

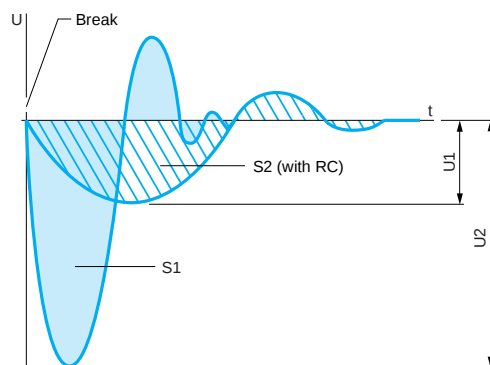
- increase in relay drop-out time (3 to 4 times the usual time),
- no polarity protection,
- de-energisation of the relay.



Coil voltage with diode protection module (— only)



Coil voltage with varistor protection module ($\sim$ and —)



Coil voltage with RC circuit protection module ($\sim$ only)

S1 = S2 = Energy released

Protection module with varistor

■ Advantages

- can be used with $\sim$ and — supply,
- voltage peak limited to about $2 U_n$,
- little effect on relay drop-out time.

■ Disadvantages

- no modification of coil's own oscillating frequency,
- limitation of switching frequency.

Protection module with RC circuit

■ Advantages

- coil oscillating frequency reduced to about 150 Hz,
- voltage peak limited to $3 U_n$,
- little effect on relay drop-out time.

■ Disadvantages

- no protection for low voltages.

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