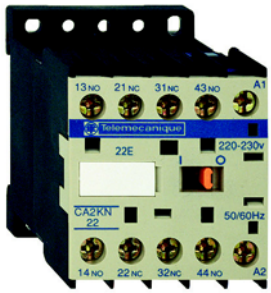
Control relays and plug-in control relays

« Back

Applications		Equipment based on control relays		
		Control relays	Mini-control relays	
				
Control voltages	~	12…690 V	12…690 V	24…400 V
	⎓	12…440 V	12…250 V	12…72 V
Functions				
	Instantaneous relays	●	●	●
	On-delay or Off-delay relays	●	●	–
	Latching relays	●	–	–
	Fleeting contact relays	–	–	–
	Flashing relays	–	–	–
● *Applicable*				
Features		Low consumption version for ⎓		Version with alternating contacts
		Linked contacts (in accordance with INRS and BIA specifications)		
		–		
		–		
Number of contacts	On basic device	5 N/O or 3 N/O + 2 N/C combined double break	4 N/C or N/O combined double break	2 N/C or N/O combined double break
	On auxiliary contact blocks	Up to 4 N/C or N/O contacts combined double break	4 N/C or N/O combined double break	2 N/C or N/O combined double break
Rated conventional thermal current		10 A		
Operational voltage		Up to 690 V	Up to 660 V	Up to 690 V
Durability (operating cycles)	1 A/230 V, AC-15	30 millions	2 millions	10 millions
	1 A/24 V, DC-13	30 millions	6 millions	10 millions
Device type references		CAD	CA●-K	CA●-SK
Pages		24525/3	22003/2	28201/2

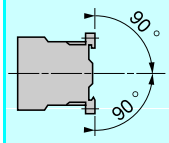
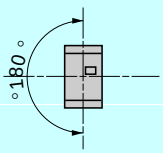
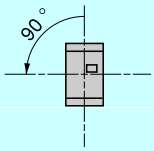
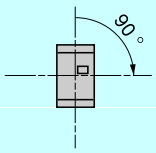
Equipment based on plug-in control relays

Plug-in control relays	Universal type plug-in control	Miniature plug-in control relays		Interface relays
				
12…240 V	24…230 V (other voltages available on request)	24…230 V (other voltages available on request)		24…240 V
5…240 V	24 or 48 V (other voltages available on request)	12, 24, 48 or 110 V (other voltages available on request)		6, 12, 24, 48, 60 or 110 V
●	●	●		●
●	●	–		–
●	–	–		–
●	●	–		–
●	●	–		–
Low consumption as standard for ⎓	Manual override of contact operation possible, by means of actuator			–
–	Version with LED to indicate relay status			–
Version with low level contacts (gold flashed contacts)	–	–	Version with gold flashed contacts	–
–	Other functions and connections available on request			
4 C/O (Off-delay, On-relay)	2 or 3 C/O (Off-delay, On-relay)	2 or 4 C/O (Off-delay, On-relay)	2, 3 or 4 C/O (Off-delay, On-relay)	1 or 2 “C/O” (Off-delay, On-relay)
–	–	–	–	–
5 A	10 A (RUN-21 and RUN-31), 4 A (RUN-33)	5 A (RXN-21)	6 A (RXL-4) 10 A (RXL-3) 12 A (RXL-2)	8 A (RSB-2A080●●) 12 A (RSB-1A120●●) 16 A (RSB-1A160●●)
Up to 250 V				Up to ∿ 400 V/⎓ 300 V
400 000	500 000	100 000	100 000	100 000
–	–	–	–	–
RH	RU	RXN	RXL	RSB
28003/2 to 28003/5	28043/3	28042/4		28041/3

Control relays

k control relays

Environment

Conforming to standards			IEC 947, NF C 63-140, VDE 0660, BS 5424		
Approvals			UL, CSA		
Operating position	**Vertical axis**		**Horizontal axis**		
					
	Without derating		Without derating	Possible positions for **CA2-K** only, with derating, please consult your Regional Sales Office.	
Connection			Min	Max	Max to IEC 947
Screw clamp connections	Solid conductor	**mm²**	1 x 1.5	2 x 4	1 x 4 + 1 x 2.5
	Flexible cable without cable end	**mm²**	1 x 0.75	2 x 4	2 x 2.5
	Flexible cable with cable end	**mm²**	1 x 0.34	1 x 1.5 + 1 x 2.5	1 x 1.5 + 1 x 2.5
Spring terminal connections	Solid conductor	**mm²**	1 x 0.75	1 x 1.5	2 x 1.5
	Flexible conductor without cable end	**mm²**	1 x 0.75	1 x 1.5	2 x 1.5
Faston connectors	Clip	**mm**	2 x 2.8 or 1 x 6.35		
Solder pins for printed circuit board	With locating device between power circuit and control circuit		4 mm x 35 microns		
Tightening torque	Philips head n° 2 and Ø 6	**N.m**	0.8.1.3		
Terminal referencing	Conforming to standards EN 50005 and EN 50011		Up to 8 contacts		
Protective treatment	Conforming to IEC 68 (DIN 50016)		"TC" (Klimafest, Climateproof)		
Degree of protection	Conforming to VDE 0106		Protection against direct finger contact (devices with screw clamp terminals or pins for printed circuit board)		
Ambient air temperature around the device	Storage	**°C**	- 50...+ 80		
	Operation	**°C**	- 25...+ 50		
Maximum operating altitude	Without derating	**m**	2000		
Vibration resistance 5...300 Hz	Control relay open		2 gn		
	Control relay closed		4 gn		
Flame resistance	Conforming to UL 94		Self-extinguishing material V1		
	Conforming to NF F 16-101 and 16-102		Conforming to requirement 2		
Shock resistance (half sine wave, 11 ms)	Control relay open		10 gn		
	Control relay closed		15 gn		
Safe circuit separation	Conforming to VDE 0106 and IEC 536		VLSV (Very Low Safety Voltage), up to 400 V		

Control circuit characteristics

Type of control relay			**CA2-K**	**CA3-K**	**CA4-K**
Rated control circuit voltage (Uc)		**V**	∿ 12...690	⎓ 12...250	⎓ 12...120
Control voltage limits (≤ 50 °C) single-voltage coil	For operation		0.8...1.15 Uc	0.8...1.15 Uc	0.7...1.3 Uc
	For drop-out		≤ 0.2 Uc	≤ 0.1 Uc	≤ 0.1 Uc
Mechanical durability at Uc In millions of operating cycles	50/60 Hz coil		10	–	–
	Standard ⎓ coil		–	20	–
	Wide range, low consumption ⎓ coil		–	–	30
Maximum operating rate	In operating cycles per hour		10 000	10 000	6000
Average consumption at 20 °C and at Uc	Inrush		30 VA	3 W	1.8 W
	Sealed		4.5 VA	3 W	1.8 W
Heat dissipation		**W**	1.3	3	1.8
Operating time at 20 °C and at Uc	Between coil energisation and				
	- opening of the N/C contacts	**ms**	5...15	25...35	25...35
	- closing of the N/O contacts	**ms**	10...20	30...40	30...40
	Between coil de-energisation and				
	- opening of the N/O contacts	**ms**	10...20	10	10...20
	- closing of the N/C contacts	**ms**	15...25	15	15...25
Maximum immunity to micro breaks		**ms**	2	2	2

References : pages 22003/2 and 22003/3 Dimensions : page 22004/2 Schemes : page 22004/3

Control relays
k control relays

Contact characteristics of control relays and instantaneous contact blocks

Number of contacts	On **CA●-K**			4
	On **LA1-K**			2 or 4 for CA2-K and CA3-K: 2 for CA4-K
Rated operational voltage (Ue)	Up to		**V**	690
Rated insulation voltage (Ui)	Conforming to BS 5424		**V**	690
	Conforming to IEC 947		**V**	690
	Conforming to VDE 0110 group C		**V**	750
	Conforming to CSA C 22-2 n° 14		**V**	600
Conventional thermal current (Ith)	For ambient temperature ≤ 50 °C		**A**	10
Operational current frequency			**Hz**	Up to 400
Minimum switching capacity	U min (DIN 19 240)		**V**	17
	I min		**mA**	5
Short-circuit protection	Conforming to IEC 947 and VDE 0660, gG fuse		**A**	10
Rated making capacity	Conforming to IEC 947	I rms	**A**	110
Overload current	Permissible for	1 s	**A**	80
		500 ms	**A**	90
		100 ms	**A**	110
Insulation resistance			**MΩ**	> 10
Make before break distance	**CA●-K and LA1-K**: linked contacts as per INRS, BIA and CNA specifications		**mm**	0.5 (see schemes, page 22004/3)

Operational power of contacts
Conforming to IEC 947

a.c. supply, category AC-15
Electrical durability (valid up to 3600 operating cycles per hour) on an inductive load such as the coil of an electromagnet: making current (cos φ 0.7) = 10 times breaking current (cos φ 0.4).

	V	**24**	**48**	**110/ 127**	**220/ 230**	**380/ 400**	**440**	**600/ 690**
1 million operating cycles	**VA**	48	96	240	440	800	880	1200
3 million operating cycles	**VA**	17	34	86	158	288	317	500
10 million operating cycles	**VA**	7	14	36	66	120	132	200
Occasional making capacity	**VA**	1000	2050	5000	10,000	14,000	13,000	9000

d.c. supply, category DC-13
Electrical durability (valid up to 1200 operating cycles per hour) on an inductive load such as the coil of an electromagnet, without economy resistor, the time constant increasing with the load.

V	**24**	**48**	**110**	**220**	**440**	**600**
W	120	80	60	52	51	50
W	55	38	30	28	26	25
W	15	11	9	8	7	6
W	720	600	400	300	230	200

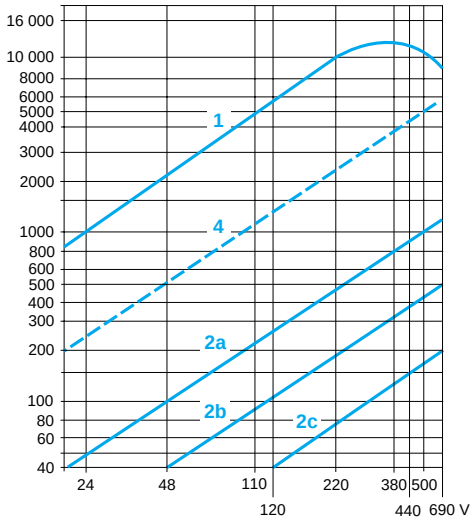
1 Breaking limit of contacts valid for:
- maximum of 50 operating cycles at 10 s intervals (breaking current = making current x cos φ 0.7).

2 Electrical durability of contacts for:
- 1 million operating cycles (2a),
- 3 million operating cycles (2b),
- 10 million operating cycles (2c).

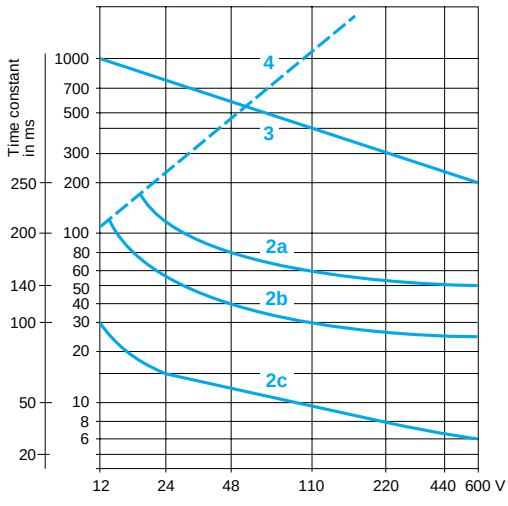
3 Breaking limit of contacts valid for:
- maximum of 20 operating cycles at 10 s intervals with current passing for 0.5 s per operating cycle.

4 Thermal limit.

Power broken in VA



Power broken inW



References : page 22003/4
Dimensions : page 22004/2
Schemes : page 22004/3

Control relays

k control relays
For d.c control circuit : a.c. or d.c.

CA2-KN40●●

Control relays for a.c. control circuit

- Mounted on 35 mm ⊔ rail or Ø 4 screw fixing.
- Screws in open “ready-to-tighten” position.

Control circuit Consumption	Auxiliary contacts		Basic reference. Complete with code indicating control circuit voltage (2)	Weight kg
Screw clamp connections				
4.5 VA	4	–	**CA2-KN40●●**	0.180
	3	1	**CA2-KN31●●**	0.180
	2	2	**CA2-KN22●●**	0.180
Spring terminal connections				
4.5 VA	4	–	**CA2-KN403●●**	0.180
	3	1	**CA2-KN313●●**	0.180
	2	2	**CA2-KN223●●**	0.180
Faston connectors, 1 x 6.35 or 2 x 2.8				
4.5 VA	4	–	**CA2-KN407●●**	0.180
	3	1	**CA2-KN317●●**	0.180
	2	2	**CA2-KN227●●**	0.180
Solder pins for printed circuit boards				
4.5 VA	4	–	**CA2-KN405●●**	0.210
	3	1	**CA2-KN315●●**	0.210
	2	2	**CA2-KN225●●**	0.210

CA2-KN403●●

CA3-KN407●●

Control relays for d.c. control circuit

- Mounted on 35 mm ⊔ rails or Ø 4 screw connections.
- Screws in open “ready-to-tighten” position.

Screw clamp connections				
3 W	4	–	**CA3-KN40●●**	0.225
	3	1	**CA3-KN31●●**	0.225
	2	2	**CA3-KN22●●**	0.225
Spring terminal connections				
3 W	4	–	**CA3-KN403●●**	0.225
	3	1	**CA3-KN313●●**	0.225
	2	2	**CA3-KN223●●**	0.225
Faston connectors, 1 x 6.35 or 2 x 2.8				
3 W	4	–	**CA3-KN407●●**	0.225
	3	1	**CA3-KN317●●**	0.225
	2	2	**CA3-KN227●●**	0.225
Solder pins for printed circuit boards				
3 W	4	–	**CA3-KN405●●**	0.255
	3	1	**CA3-KN315●●**	0.255
	2	2	**CA3-KN225●●**	0.255

(2) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office).

Control relays CA2-K (0.8...1.15 Uc) (*0.85...1.1 Uc*)

Volts ∿ 50/60 Hz	**12**	**20**	**24**(3)	**36**	**42**	**48**	**110**	**115**	**127**	***220/ 230***	**230**	***230/ 240***	***380/ 400***	**400**	***400/ 415***	**440**	**500**	***660/ 690***
Code	J7	Z7	B7	C7	D7	E7	F7	FE7	FC7	*M7*	P7	*U7*	*Q7*	V7	*N7*	R7	S7	*Y7*

Up to and including 240 V, coil with integral suppression device available: add **2** to the code required. Example: **J72**

Control relays CA3-K (0.8...1.15 Uc)

Volts ⎓	**12**	**20**	**24**(3)	**36**	**48**	**60**	**72**	**100**	**110**	**125**	**200**	**220**	**230**	**240**	**250**
Code	JD	ZD	BD	CD	ED	ND	SD	KD	FD	GD	LD	MD	MPD	MUD	UD

Coil with integral suppression device available: add **3** to the code required. Example: **JD3**.

(3) When connecting an electronic sensor or timer in series with the coil of the control relay, select a 20 V coil (∿ control voltage code Z7, ⎓ control circuit voltage code ZD) so as to compensate for the incurred voltage drop.

Characteristics : pages 22002/2 and 22002/3
Dimensions : page 22004/2
Schemes : page 22004/3

Control relays

k control relays
For d.c. control circuit

CA4-KN40●●●

Low consumption control relays (d.c. control circuit)

- Mounted on 35 mm ⎍ rail or Ø 4 screw fixing.
- Screws in open “ready-to-tighten” position.

Control circuit	Auxilliary contacts		Basic reference. Complete with code indicating control circuit voltage (2)	Weigh t
Consumption				kg
Screw clamp connections				
1.8 W	4	–	**CA4-KN40●●**	0.235
	3	1	**CA4-KN31●●**	0.235
	2	2	**CA4-KN22●●**	0.235
Spring terminal connections				
1.8 W	4	–	**CA4-KN403●●**	0.235
	3	1	**CA4-KN313●●**	0.235
	2	2	**CA4-KN223●●**	0.235
Faston connectors, 1 x 6.35 or 2 x 2.8				
1.8 W	4	–	**CA4-KN407●●**	0.235
	3	1	**CA4-KN317●●**	0.235
	2	2	**CA4-KN227●●**	0.235
Solder pins for printed circuit boards				
1.8 W	4	–	**CA4-KN405●●**	0.265
	3	1	**CA4-KN315●●**	0.265
	2	2	**CA4-KN225●●**	0.265

(2) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office).

Control relays CA4-K (Wide range coil: 0.7...1.3 Uc)

Volts ⎓	**12**	**20**	**24**	**48**	**72**	**110**	**120**
Code	JW3	ZW3	BW3	EW3	SW3	FW3	GW3

Characteristics : pages 22002/2 and 22002/3
Dimensions : page 22004/2
Schemes : page 22004/3

Control relays

k control relays
Instantaneous and time delay auxiliary contact blocks

LA1-KN20

LA1-KN40

Instantaneous auxiliary contact blocks

Clip-on front mounting, 1 block per control relay

Type of connection	Composition		Reference	Weight
				kg
Screw clamp	2	–	**LA1-KN20**	0.045
	–	2	**LA1-KN02**	0.045
	1	1	**LA1-KN11**	0.045
	4	–	**LA1-KN40** (1)	0.045
	3	1	**LA1-KN31** (1)	0.045
	2	2	**LA1-KN22** (1)	0.045
	1	3	**LA1-KN13** (1)	0.045
	–	4	**LA1-KN04** (1)	0.045
Spring terminal	2	–	**LA1-KN203**	0.045
	–	2	**LA1-KN023**	0.045
	1	1	**LA1-KN113**	0.045
	4	–	**LA1-KN403** (1)	0.045
	3	1	**LA1-KN313** (1)	0.045
	2	2	**LA1-KN223** (1)	0.045
	1	3	**LA1-KN133** (1)	0.045
	–	4	**LA1-KN043** (1)	0.045
Faston connectors 1 x 6.35 or 2 x 2.8	2	–	**LA1-KN207**	0.045
	–	2	**LA1-KN027**	0.045
	1	1	**LA1-KN117**	0.045
	4	–	**LA1-KN407** (1)	0.045
	3	1	**LA1-KN317** (1)	0.045
	2	2	**LA1-KN227** (1)	0.045
	1	3	**LA1-KN137** (1)	0.045
	–	4	**LA1-KN047** (1)	0.045

LA2-KT2●

Electronic time delay contact blocks

- Relay output with common point changeover contact, ∿ or ⎓ 240 V, 2 A maximum
- Control voltage: 0.85...1.1 Uc
- Maximum switching capacity: 250 VA or 150 W
- Operating temperature: - 10...+ 60 °C
- Reset time: 1.5 s during the time delay period, 0.5 s after the time delay period

Clip-on front mounting, 1 block per control relay

Voltage	Type	Timing range	Composition	Reference	Weight
V		**s**			kg
∿ or ⎓ 24...48	On-delay	1...30	1	**LA2-KT2E**	0.040
∿ 110...240	On-delay	1...30	1	**LA2-KT2U**	0.040

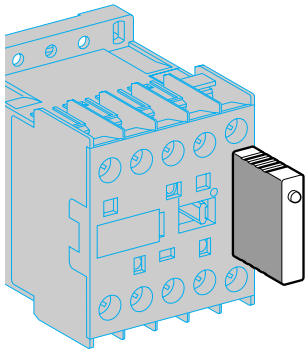
For other electronic timers type RE4, please consult your Regional Sales Office.

(1) Block of 4 contacts for use only on CA2-K and CA3-K

Characteristics : page 22002/3
Dimensions : page 22004/2
Schemes : page 22004/3

Control relays

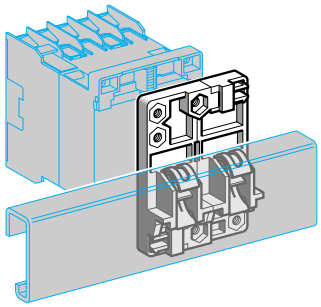
k control relays
Mounting and marking accessories



LA4-K●●●

Suppressor modules incorporating LED indicator

Mounting and connection	Type	For voltages	Sold in lots of	Unit reference	Weight kg
Clips onto front of relay with locating device. No tools required for connection.	Varistor (1)	∿ and ⎓ 12...24 V	5	**LA4-KE1B**	0.010
		∿ and ⎓ 32...48 V	5	**LA4-KE1E**	0.010
		∿ and ⎓ 50...129 V	5	**LA4-KE1FC**	0.010
		∿ and ⎓ 130...250 V	5	**LA4-KE1UG**	0.010
	Diode + Zener diode (2)	⎓ 12...24 V	5	**LA4-KC1B**	0.010
		⎓ 32...48 V	5	**LA4-KC1E**	0.010
	RC (3)	∿ 220...250 V	5	**LA4-KA1U**	0.010



LA9-D973

Mounting accessories

Description	Application		Sold in lots of	Unit reference	Weight kg
Mounting plates	On 1 ⌴ rail	Clip-on fixing	1	**LA9-D973**	0.025
	On 2 ⌴ rails	110/120 mm fixing centres	10	**DX1-AP25**	0.065

Marking accessories

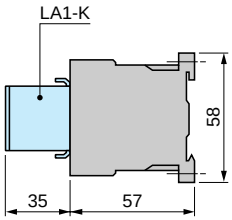
Description	Application		Sold in lots of	Unit reference	Weight kg
Marker holder	Clip-on fixing on front face	–	100	**LA9-D90**	0.001
Clip-in markers	4 maximum per relay	Strips of 10 identical numbers 0 to 9	25	**AB1-R●** (4)	0.002
		Strips of 10 identical capital letters A to Z	25	**AB1-G●** (4)	0.002

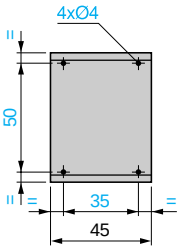
(1) Protection by limitation of the transient voltage to 2 Uc max.
Maximum reduction of transient voltage peaks.
Slight time delay on drop-out (1.1 to 1.5 times the normal time).
(2) No overvoltage or oscillation frequency.
Polarised component.
Slight time delay on drop-out (1.1 to 1.5 times the normal time).
(3) Protection by limitation of the transient voltage to 3 Uc max and limitation of the oscillation frequency.
Slight time delay on drop-out (1.2 to 2 times the normal time).
(4) Complete the reference by replacing the ● with the required character.

Dimensions :
page 22004/2

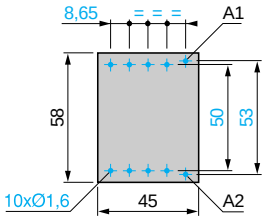
Control relays
k control relays

Auxiliary control relays
CA2-K, CA3-K, CA4-K
On panel

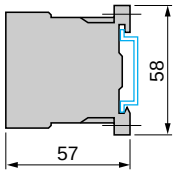


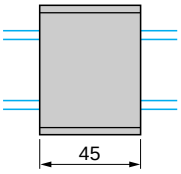


On printed circuit board

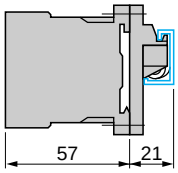


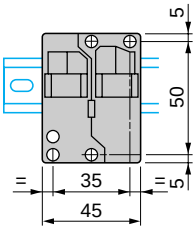
On mounting rail AM1-DP200 or AM1-DE200 (⎵ 35 mm)



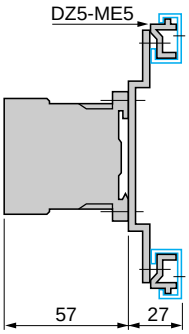


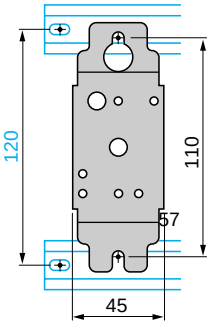
On asymmetrical rail with clip-on mounting plates
LA9-D973



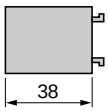


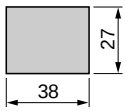
DX1-AP25



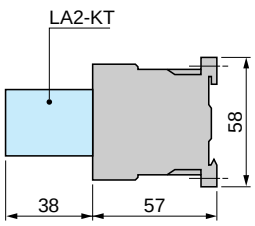


Electronic time delay contact blocks
LA2-KT

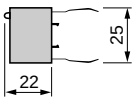


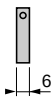


On auxiliary control relay

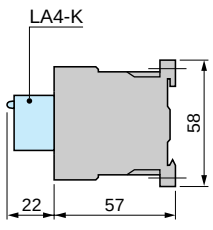


Suppressor modules
LA4-K





On auxiliary control relay



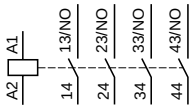
Characteristics : pages 22002/2 and 22003/3
References : pages 22003/2 to 22003/5
Schemes : page 22004/3

Control relays

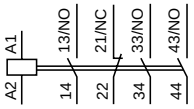
k control relays

Auxiliary control relays
CA2-K, CA3-K, CA4-K

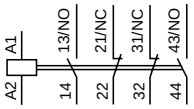
4 N/O



3 N/O + 1 N/C

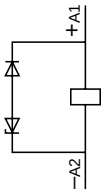


2 N/O + 2 N/C

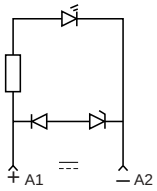


With integral suppression device

CA3-K

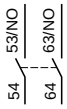


CA4-K

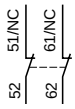


Instantaneous auxiliary contact blocks LA1-K
for CA2-K, CA3-K, CA4-K

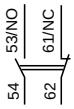
2 N/O
LA1-KN20
LA1-KN207



2 N/C
LA1-KN02
LA1-KN027

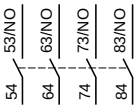


1 N/O + 1 N/C
LA1-KN11
LA1-KN117

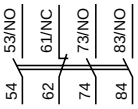


for CA2-K, CA3-K

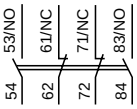
4 N/O
LA1-KN40
LA1-KN407



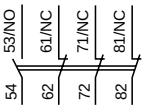
3 N/O + 1 N/C
LA1-KN31
LA1-KN317



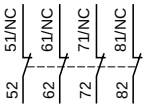
2 N/O + 2 N/C
LA1-KN22
LA1-KN227



1 N/O + 3 N/C
LA1-KN13
LA1-KN137

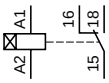


4 N/C
LA1-KN04
LA1-KN047



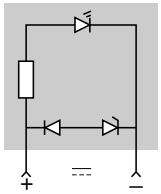
Electronic time delay contact blocks LA2-KT
for CA2-K, CA3-K, CA4-K

1 C/O
LA2-KT2

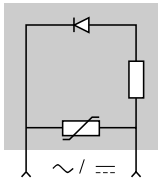


Suppressor modules

LA4-KC



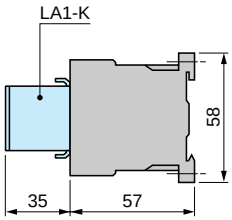
LA4-KE

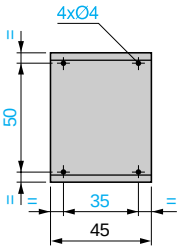


Characteristics : pages 22002/2 and 22002/3
References : pages 22003/2 to 22003/5
Dimensions : page 22004/2

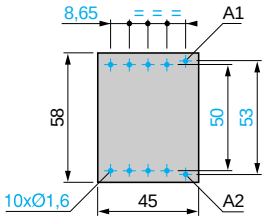
Control relays
k control relays

Auxiliary control relays
CA2-K, CA3-K, CA4-K
On panel

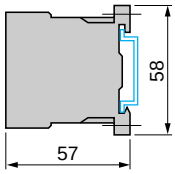


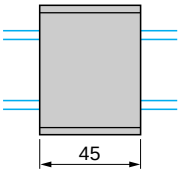


On printed circuit board

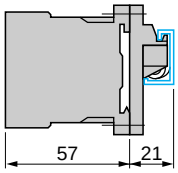


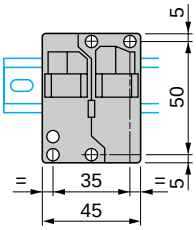
On mounting rail AM1-DP200 or AM1-DE200 (⎵ 35 mm)



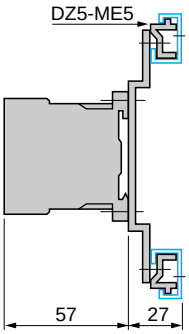


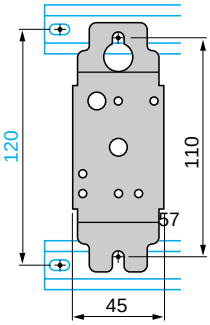
On asymmetrical rail with clip-on mounting plates
LA9-D973



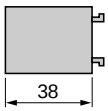


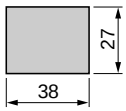
DX1-AP25



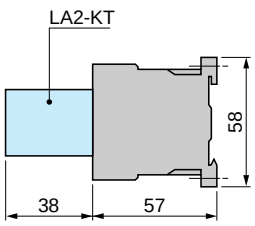


Electronic time delay contact blocks
LA2-KT

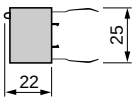


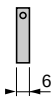


On auxiliary control relay

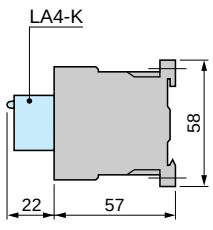


Suppressor modules
LA4-K





On auxiliary control relay



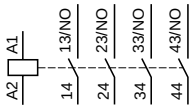
Characteristics : pages 22002/2 and 22003/3
References : pages 22003/2 to 22003/5
Schemes : page 22004/3

Control relays

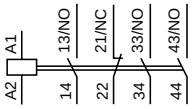
k control relays

Auxiliary control relays
CA2-K, CA3-K, CA4-K

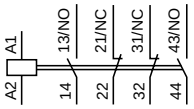
4 N/O



3 N/O + 1 N/C

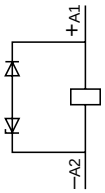


2 N/O + 2 N/C

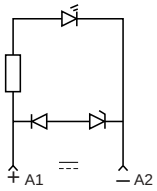


With integral suppression device

CA3-K

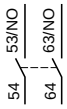


CA4-K

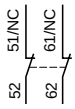


Instantaneous auxiliary contact blocks LA1-K
for CA2-K, CA3-K, CA4-K

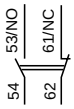
2 N/O
LA1-KN20
LA1-KN207



2 N/C
LA1-KN02
LA1-KN027

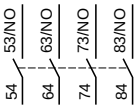


1 N/O + 1 N/C
LA1-KN11
LA1-KN117

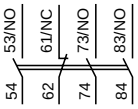


for CA2-K, CA3-K

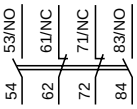
4 N/O
LA1-KN40
LA1-KN407



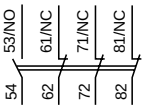
3 N/O + 1 N/C
LA1-KN31
LA1-KN317



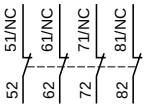
2 N/O + 2 N/C
LA1-KN22
LA1-KN227



1 N/O + 3 N/C
LA1-KN13
LA1-KN137

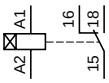


4 N/C
LA1-KN04
LA1-KN047



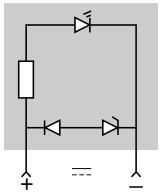
Electronic time delay contact blocks LA2-KT
for CA2-K, CA3-K, CA4-K

1 C/O
LA2-KT2

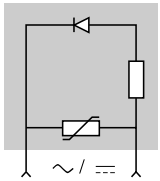


Suppressor modules

LA4-KC



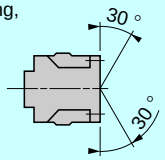
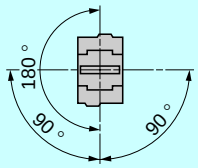
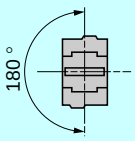
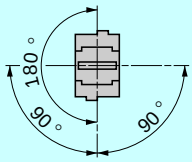
LA4-KE



Characteristics : pages 22002/2 and 22002/3
References : pages 22003/2 to 22003/5
Dimensions : page 22004/2

TeSys control relays

Model d control relays

Type			CAD ∿	CAD ⎓	CAD low consumption
Environment					
Rated insulation voltage (Ui)	Conforming to IEC 947-5-1 Overvoltage category III and degree of pollution 3	**V**	690	690	690
	Conforming to UL, CSA	**V**	600	600	600
Rated impulse withsand voltage (Uimp)	Conforming to IEC 947	**kV**	6	6	6
Separation of electrical circuits	To IEC 536 and VDE 0106		Reinforced insulation up to 400 V		
Conforming to standards			IEC 947-5-1, N-F C 63-140, VDE 0660, BS 4794. EN 60947-5-15		
Approvals			UL, CSA		
Protective treatment	Conforming to IEC 68		"TH"		
Degree of protection	Conforming to VDE 0106		Front face protected against direct finger contact IP 2X		Protection against direct finger contact
Ambient air temperature around the device	Storage	**°C**	- 60…+ 80	- 60…+ 80	- 60…+ 80
	Operation, conforming to IEC 255 (0.8…1.1 UC)	**°C**	- 5…+ 60	- 5…+ 60	- 5…+ 60
	For operation at Uc	**°C**	- 40…+ 70	- 40…+ 70	- 40…+ 70
Maximum operating altitude	Without derating	**m**	3000	3000	3000
Operating positions	Without derating, in the following positions 				
Shock resistance (1) half sine wave for 11 ms	Control relay open		10 gn	10 gn	10 gn
	Control relay closed		15 gn	15 gn	15 gn
Vibration resistance (1) 5…300 Hz	Control relay open		2 gn	2 gn	2 gn
	Control relay closed		4 gn	4 gn	4 gn
Connection to screw clamp terminals	Flexible conductor without cable end, 1 conductor	**mm²**	1…4	1…4	1…4
	Flexible conductor without cable end, 2 conductors	**mm²**	1…4	1…4	1…4
	Flexible conductor with cable end, 1 conductor	**mm²**	1…4	1…4	1…4
	Flexible conductor with cable end, 2 conductors	**mm²**	1…2.5	1…2.5	1…2.5
	Solid conductor without cable end, 1 conductor	**mm²**	1…4	1…4	1…4
	Solid conductor without cable end, 2 conductors	**mm²**	1…4	1…4	1…4
	Tightening torque	**N.m**	1.7	1.7	1.7
Connection to spring terminals	1 or 2 flexible or rigid conductors without cable end	**mm²**	1…2.5	1…2.5	1…2.5

(1) In the least favourable direction, without change of contact state, with coil supplied at Uc.

References : pages 24525/3 to 24525/5
Dimensions : page 24537/2
Schemes : page 24537/2

TeSys control relays
Model d control relays

Type				CAD ∿	CAD ⎓	CAD low consumption
Control circuit characteristics						
Rated control circuit voltage (Uc)			**V**	12…690	12…440	⎓ 5…72
Control voltage limits Operation	With coil type:	50/60 Hz		0.8…1.1 Uc at 50 Hz	–	–
				0.85…1.1 Uc at 60 Hz	–	–
		standard, wide range		–	0.7…1.25 Uc	0.7…1.25 Uc
Drop-out				0.3…0.6 Uc	0.1…0.25 Uc	0.1…0.25 Uc
Average consumption at 20 °C and at Uc	∿ 50/60 Hz (to 50 Hz)		**VA**	Inrush: 70	–	–
				Hold-in: 8	–	–
	With standard coil		**W**	–	Inrush or hold-in: 5.4	Inrush or hold-in: 2.4
Operating time (at rated control circuit voltage and at 20 °C)	Between coil energisation and - opening of the N/C contacts		**ms**	4…19	35…45	45…55
	- closing of the N/O contacts		**ms**	12…22	50…55	60…70
	Between coil de-energisation and - opening of the N/O contacts		**ms**	4…12	6…14	10…15
	- closing of the N/C contacts		**ms**	6…17	20	25
Short supply failures	Maximum duration without affecting hold-in of the device		**ms**	2	2	2
Maximum operating rate	In operating cycles per second			3	3	3
Mechanical durability In millions of operating cycles	With coil type:	50/60 Hz (at 50 Hz)		30	–	–
		standard ⎓ wide range		–	30	30
Time constant L/R			**ms**	–	28	40

References : pages 24525/3 to 24525/
5 Dimensions : page 24537/2
Schemes : page 24537/2

TeSys control relays
Model d control relays

Characteristics of instantaneous contacts incorporated in the control relay

Number of contacts				5
Rated operational voltage (Ue)	Up to		**V**	690
Rated insulation voltage (Ui)	Conforming to IEC 947-5-1		**V**	690
	Conforming to UL, CSA		**V**	600
Rated conventional thermal current (Ith)	For ambient temperature ≤ 40 °C		**A**	10
Frequency of operational current			**Hz**	25…400
Minimum switching capacity	U min		**V**	17
	I min		**mA**	5
Short-circuit protection	Conforming to IEC 947-5-1			gG fuse: 10 A
Rated making capacity	Conforming to IEC 947-5-1 I rms		**A**	∿: 140, ⎓: 250
Short time rating	Permissible for	1 s	**A**	100
		500 ms	**A**	120
		100 ms	**A**	140
Insulation resistance			**MΩ**	> 10
Non-overlap time	Guaranteed between N/C and N/O contacts		**ms**	1.5 (on energisation and on de-energisation)
Tightening torque	Phillips n°2 and Ø 6		**N.m**	1.2
Non-overlap distance				Linked contacts in association with auxiliary contacts LAD-N
Linked contacts	According to draft standard IEC 947-4-5			The 3 “N/O” contacts and the 2 “N/C” contacts of CAD-N32 are linked mechanically by one mobile contact holder.

References : pages 24525/3 to 24525/5
Dimensions : page 24537/2
Schemes : page 24537/3

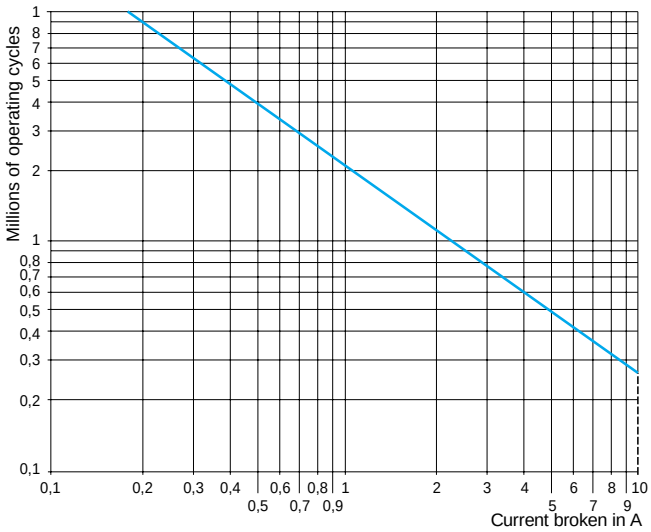
TeSys control relays
Model d control relays

Rated operational power of contacts (conforming to IEC 947-5-1)

a.c. supply, categories AC-14 and AC-15

Electrical durability (up to 3600 operating cycles/hour) on an inductive load such as the coil of an electromagnet: making power (cos φ 0.7) = 10 times the power broken (cos φ 0.4).

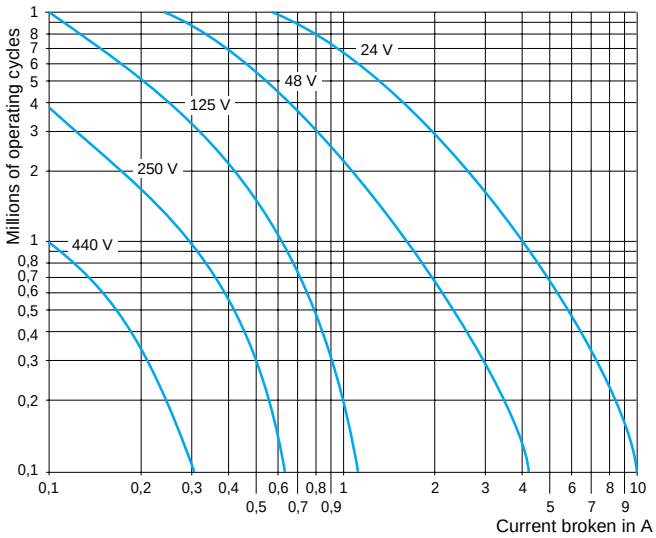
	V	24	48	115	230	400	440	600
1 million operating cycles	VA	60	120	280	560	960	1050	1440
3 million operating cycles	VA	16	32	80	160	280	300	420
10 million operating cycles	VA	4	8	20	40	70	80	100



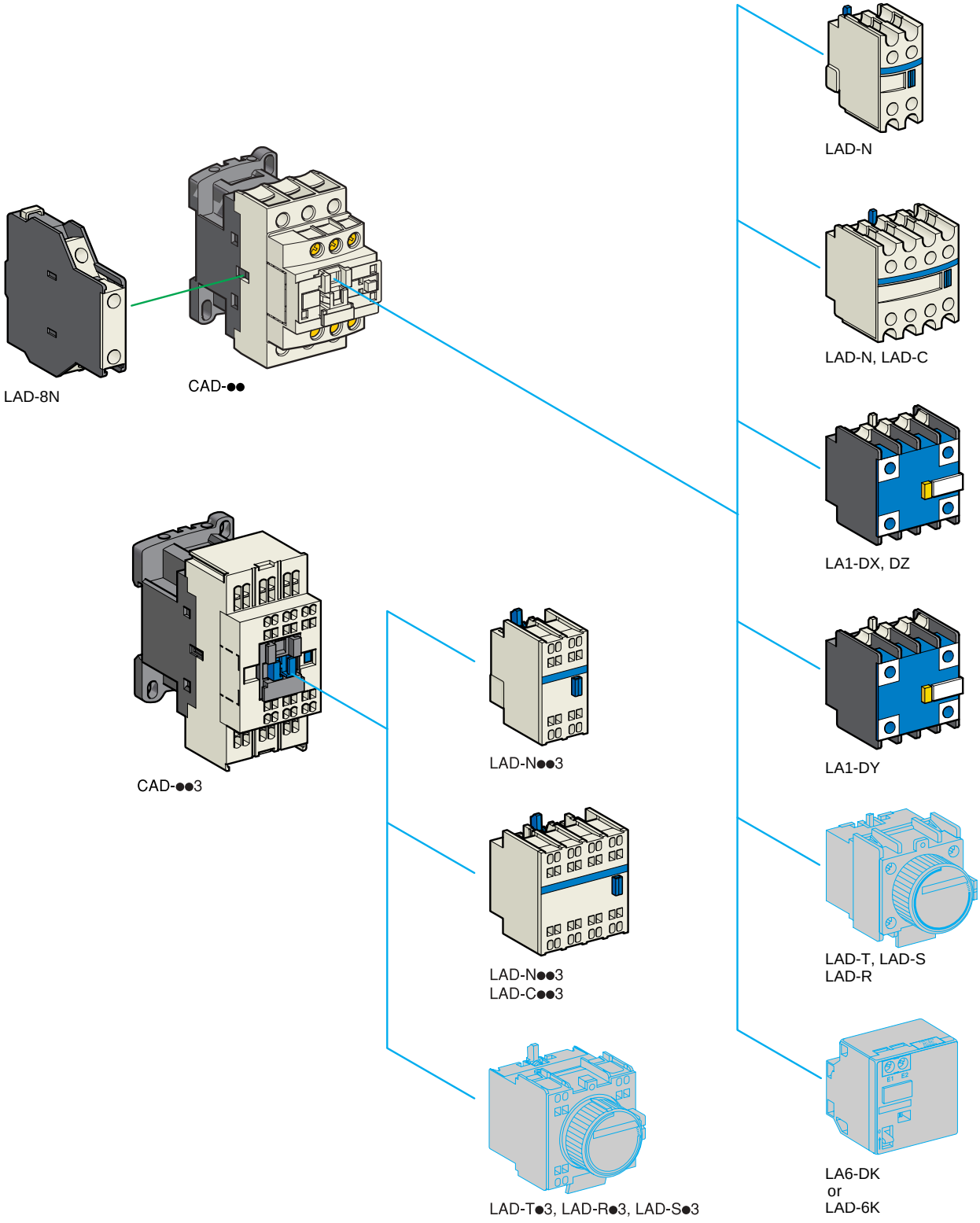
d.c. supply, category DC-13

Electrical durability (up to 1200 operating cycles/hour) on an inductive load such as the coil of an electromagnet, without economy resistor, the time constant increasing with the power.

	V	24	48	125	250	440
1 million operating cycles	W	120	90	75	68	61
3 million operating cycles	W	70	50	38	33	28
10 million operating cycles	W	25	18	14	12	10



References :
pages 24525/3 to 24525/
5 Dimensions :
page 24537/2 Schemes :
page 24537/3



See page opposite for mounting possibilities
according to contactor type and rating

TeSys control relays

Model d control relays and add-on blocks
Control circuit: a.c., d.c. or low consumption

CAD-50●●

CAD-32●●

CAD-503●●

CAD-323●●

Control relays for connection by screw clamp terminals

Type	Number of contacts	Composition		Basic reference. Complete with code indicating control circuit voltage (1)	Standard voltages ~		⎓	LC(2)	Weight kg
Instantaneous	5	5	–	**CAD-50●●** (5)	**B7**	**P7**	**BD**	**BL**	0.580
		3	2	**CAD-32●●** (5)	**B7**	**P7**	**BD**	**BL**	0.580

Control relays for connection by spring terminals

Instantaneous	5	5	–	**CAD-503●●**	**B7**	**P7**	**BD**	**BL**	0.580
		3	2	**CAD-323●●**	**B7**	**P7**	**BD**	**BL**	0.580

Instantaneous auxiliary contact blocks for connection by screw clamp terminals

Number of contacts	Maximum number per relay Clip-on mounting front	side	Composition		Reference	Weight kg
For use in normal operation environments						
2	1	–	1	1	**LAD-N11**	0.030
	–	1 on LH side	1	1	**LAD-8N11**	0.030
	1	–	2	–	**LAD-N20**	0.030
	–	1 on LH side	2	–	**LAD-8N20**	0.030
	1	–	–	2	**LAD-N02**	0.030
	–	1 on LH side	–	2	**LAD-8N02**	0.030
4 (4)	1	–	2	2	**LAD-N22**	0.050
			1	3	**LAD-N13**	0.050
			4	–	**LAD-N40**	0.050
			–	4	**LAD-N04**	0.050
			3	1	**LAD-N31**	0.050
4 (4)	1	–	2	2	**LAD-C22**	0.050

Including 1 N/O and 1 N/C make before break.

With dust and damp protected contacts, for use in particularly harsh industrial environments

Number of contacts	Maximum number per relay Front mounting	Composition protected (3)					Reference	Weight kg
2	1	2	–	–	–	–	**LA1-DX20**	0.040
		–	2	–	–	–	**LA1-DX02**	0.040
		2	–	2	–	–	**LA1-DY20**	0.040
4 (4)	1	2	–	–	2	–	**LA1-DZ40**	0.050
		2	–	–	1	1	**LA1-DZ31**	0.050

Instantaneous auxiliary contact blocks for connection by spring terminals

This type of connection is not possible for contact blocks LAD-8 and blocks with dust and damp protected contacts.
For all other instantaneous auxiliary contact blocks, add the digit **3** to the end of the references selected above.
Example: **LAD-N11** becomes **LAD-N113**.

(1) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office).

a.c. supply												
Volts ~	**24**	**42**	**48**	**110**	**115**	**220**	**230**	**240**	**380**	**400**	**415**	**440**
50/60 Hz	B7	D7	E7	F7	FE7	M7	P7	U7	Q7	V7	N7	R7

d.c. supply (coils with integral suppression device fitted as standard)											
Volts ⎓	**12**	**24**	**36**	**48**	**60**	**72**	**110**	**125**	**220**	**250**	**440**
U 0.7 to 1.25 Uc	JD	BD	CD	ED	ND	SD	FD	GD	MD	UD	RD

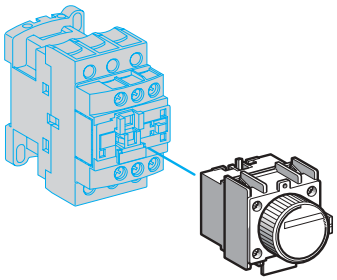
Low consumption (coils with integral suppression device fitted as standard)								
Volts ⎓	**5**	**12**	**20**	**24**	**48**	**110**	**220**	**250**
Code	AL	JL	ZL	BL	EL	FL	ML	UL

(2) LC: low consumption.
(3) Product fitted with 4 earth screen continuity terminals.
(4) Blocks with 4 auxiliary contacts cannot be used on low consumption control relays.
(5) To order control relays with connection by lugs, add the digit **6** to the end of the selected reference.
Example: **CAD50●●** becomes **CAD506●●**.

Characteristics : pages 24526/2 and 24526/3
Dimensions : page 24537/2
Schemes : page 24537/3

TeSys control relays

Model d control relays
Add-on blocks



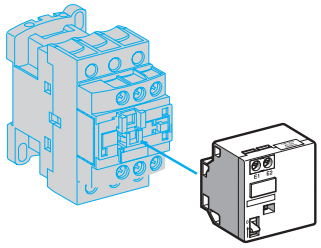
LAD-T

Time delay auxiliary contact blocks for connection by screw clamp terminals

Number and type of contacts	Maximum number per relay Front mounting	Time delay Type	Range	Reference	Weight kg
1 N/C and 1 N/O	1	On-delay	0.1…3 s (1)	**LAD-T0**	0.060
			0.1…30 s	**LAD-T2**	0.060
			10…180 s	**LAD-T4**	0.060
			1…30 s (2)	**LAD-S2**	0.060
		Off-delay	0.1…3 s (1)	**LAD-R0**	0.060
			0.1…30 s	**LAD-R2**	0.060
(Sealing cover: see page 24511/9)			10…180 s	**LAD-R4**	0.060

Time delay auxiliary contact blocks for connection by spring terminals

Add the digit **3** to the end of the references selected above. Example: **LAD-T0** becomes **LAD-T03**.



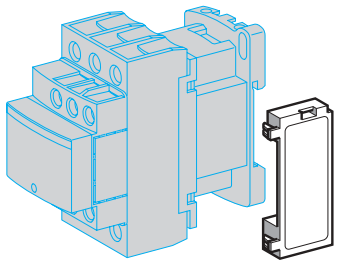
LA6-DK

Mechanical latch blocks (3)

Unlatching control	Maximum number per relay Front mounting		Basic reference. Complete with code indicating control voltage (4)	Standard voltages	Weight kg
Manual or electric	1		**LA6-DK10●**	**B E F M Q**	0.070
		or	**LA6-6K10●**	**B E F M Q**	0.070

Coil suppressor modules

These modules clip onto the top of the control relay and the electrical connection is instantly made.
Fitting of an input module is still possible.



LAD-4

RC circuits (Resistor-Capacitor)

- Effective protection for circuits highly sensitive to “high frequency” interference.
- Voltage limited to 3 Uc maximum and oscillating frequency limited to 400 Hz maximum.
- Slight increase in drop-out time (1.2 to 2 times the normal time).

For mounting on	Operational voltage	Reference	Weight kg
CAD ∿	∿ 24…48 V	**LAD-4RCE**	0.012
	∿ 110…240 V	**LAD-4RCU**	0.012

Varistors (peak limiting)

- Protection provided by limiting the transient voltage value to 2 Uc maximum.
- Maximum reduction of transient voltage peaks.
- Slight increase in drop-out time (1.1 to 1.5 times the normal time).

CAD ∿	∿ 24…48 V	**LAD-4VE**	0.012
	∿ 50…127 V	**LAD-4VG**	0.012
	∿ 110…250 V	**LAD-4VU**	0.012

Bidirectional peak limiting diode

- Protection provided by limiting the transient voltage value to 2 Uc maximum.
- Maximum reduction of transient voltage peaks.

CAD ∿	∿ 24 V	**LAD-4TB**	0.012
	∿ 72 V	**LAD-4TS**	0.012

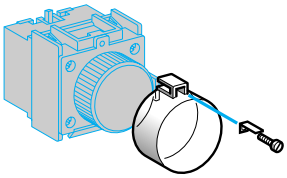
(1) With extended scale from 0.1 to 0.6 s.
(2) With switching time of 40 ms ± 15 ms between opening of the N/C contact and closing of the N/O contact.
(3) Power should not be simultaneously applied or maintained to the mechanical latching block and the CAD-N. The duration of the control signal to the mechanical latching block and the CAD-N should be ≥ 100 ms.
(4) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office).

Volts ∿ and ⎓	**24**	**32/36**	**42/48**	**60/72**	**100**	**110/127**	**220/240**	**256/277**	**380/415**
Code	B	C	E	EN	K	F	M	U	Q

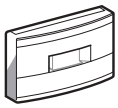
Characteristics : pages 24526/2 and 24526/3
Illustrations : page 24525/2
Dimensions : page 24537/2
Schemes : page 24537/3

TeSys control relays

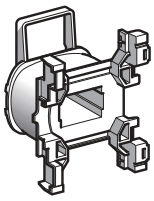
Model d control relays
Accessories and spare parts



LA9-D901



LAD-9ET1



LXD-1

Accessories (to be ordered separately)

Description	For mounting on	Sold in lots of	Unit reference	Weight kg
For marking				
Sheet of 64 blank legends, self-adhesive, 8 x 33 mm	CAD, LAD (4 contacts), LA6-DK	10	**LAD-21**	0.020
Sheet of 112 blank legends, self-adhesive, 8 x 12 mm	LAD (2 contacts), LAD-T	10	**LAD-22**	0.020
Strips of blank, self-adhesive legends for printing by plotter (4 sets of 5 strips)	All products	35	**LAD-24**	0.200
"SIS Label" label creation software for legends LAD-21 and LAD-22	Multi-language (EN, FR, GE)	1	**XBY-1U**	0.060
Legend holder snap-in, 8 x 18 mm	LC1-D09...38 LC1DT20...40 LADN (4 contacts) LAD-T, LAD-R	100	**LAD-90**	0.001
For protection				
Sealable cover	LAD-T, LAD-R	1	**LA9-D901**	0.005
Safety cover preventing access to the moving contact carrier	CAD	1	**LAD-9ET1**	0.004

Spare parts: coils

Specifications

- Average consumption at 20 °C:
  - inrush (cos φ = 0.75) 50/60 Hz: 70 VA at 50 Hz,
  - sealed (cos φ = 0.3) 50/60 Hz: 8 VA at 60 Hz.
- Operating range (θ < 60 °C): 0.85 to 1.1 Uc

Control circuit voltage Uc	Average resistance at 20 °C ± 10 %	Inductance of closed circuit	Reference (1) 50/60 Hz	Weight
V	**V**	**H**		kg
12	6.3	0.26	**LXD-1J7**	0.070
21 (2)	5.6	0.24	**LXD-1Z7**	0.070
24	6.19	0.26	**LXD-1B7**	0.070
32	12.3	0.48	**LXD-1C7**	0.070
36	–	–	**LXD-1CC7**	0.070
42	19.15	0.77	**LXD-1D7**	0.070
48	25	1	**LXD-1E7**	0.070
60	–	–	**LXD-1EE7**	0.070
100	–	–	**LXD-1K7**	0.070
110	130	5.5	**LXD-1F7**	0.070
115	–	–	**LXD-1FE7**	0.070
120	159	6.7	**LXD-1G7**	0.070
127	192.5	7.5	**LXD-1FC7**	0.070
200	–	–	**LXD-1L7**	0.070
208	417	16	**LXD-1LE7**	0.070
220/230	539	22	**LXD-1M7** (3)	0.070
230	595	21	**LXD-1P7**	0.070
230/240	645	25	**LXD-1U7** (4)	0.070
277	781	30	**LXD-1W7**	0.070
380/400	1580	60	**LXD-1Q7**	0.070
400	1810	64	**LXD-1V7**	0.070
415	1938	74	**LXD-1N7**	0.070
440	2242	79	**LXD-1R7**	0.070
480	2300	85	**LXD-1T7**	0.070
500	2499	–	**LXD-1S7**	0.070
575	3294	–	**LXD1SC7**	0.070
600	3600	135	**LXD-1X7**	0.070
690	5600	190	**LXD-1Y7**	0.070

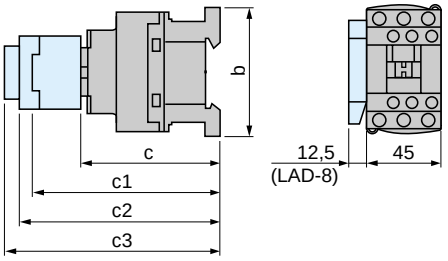
(1) The last 2 digits in the reference represent the voltage code.
(2) Voltage for special coils fitted in contactors with serial timer module, with 24 V supply.
(3) This coil can be used on 240 V at 60 Hz.
(4) This coil can be used on 230/240 V at 50 Hz and on 240 V only at 60 Hz.

Characteristics : pages 24526/2 and 24526/3
Dimensions : page 24537/2
Schemes : page 24537/3

TeSys control relays

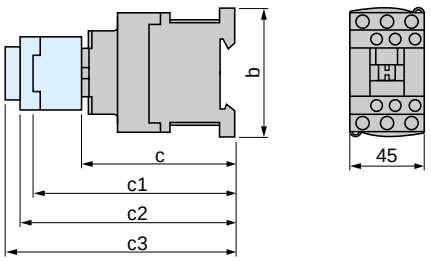
Model d control relays and add-on blocks

CAD ∿



CAD-	32 50	323 503
b	77	99
c without cover or add-on blocks	84	84
with cover, without add-on blocks	86	86
c1 with LAD-N or C (2 or 4 contacts)	117	117
c2 with LA6-DK10	129	129
c3 with LAD-T, R, S	137	137
with LAD-T, R, S and sealing cover	141	141

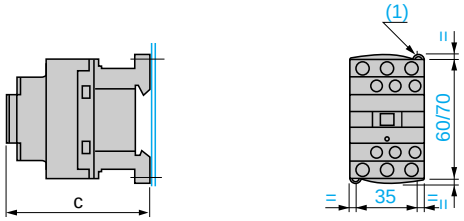
CAD ⎓ or LC (low consumption)



CAD-	32 50	323 503
b	77	99
c without cover or add-on blocks	93	93
with cover, without add-on blocks	95	95
c1 with LAD-N or C (2 or 4 contacts)	126	126
c2 with LA6-DK10	138	138
c3 with LAD-T, R, S	146	146
with LAD-T, R, S and sealing cover	150	150

CAD

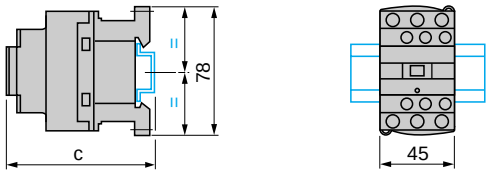
Panel mounted



	CAD ∿	CAD ⎓ or BC
c with cover	86	95

(1) 2 elongated holes 4.5 x 9

Mounted on rail AM1-DP200 or DE200

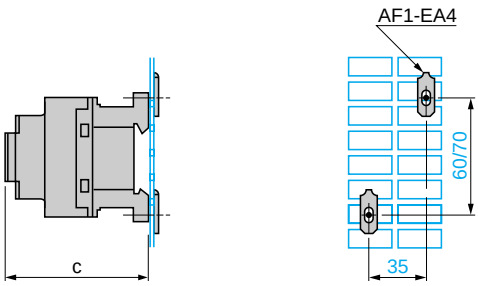


	CAD ∿	CAD ⎓ or LC
c (AM1-DP200) (1)	88	97
c (AM1-DE200) (1)	96	105

(1) With cover

CAD

Mounted on plate AM1-P

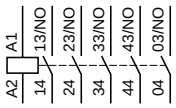


	CAD ∿	CAD ⎓ or LC
c with cover	86	95

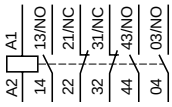
TeSys control relays

Model d control relays and add-on blocks

Control relays
instantaneous
5 N/O
CAD-50

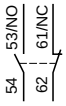


3 N/O + 2 N/C
CAD-32

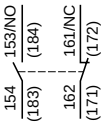


Instantaneous auxiliary contact blocks

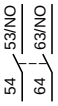
1 N/O + 1 N/C
LAD-N11



LAD-8N11 (1)

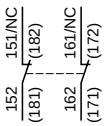


2 N/O
LAD-N20

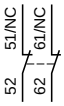


LAD-8N20 (1)

2 N/C
LAD-8N02

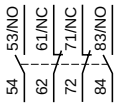


LAD-N02

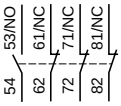


(1) The figures in brackets are for the device mounted on the RH side of the contactor..

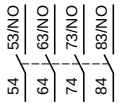
2 N/O + 2 N/C
LAD-N22



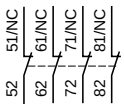
1 N/O + 3 N/C
LAD-N13



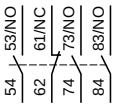
4 N/O
LAD-N40



4 N/C
LAD-N04

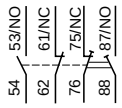


3 N/O + 1 N/C
LAD-N31

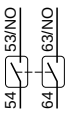


With dust and damp protected contacts

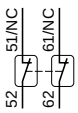
2 N/O + 2 N/C including 1 N/O + 1 N/C make before break
LAD-C22



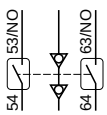
2 N/O protected
LA1-DX20



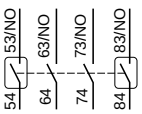
2 N/C protected
LA1-DX02



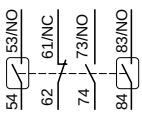
2 N/O protected (2)
LA1-DY20



2 N/O protected + 2 N/O non protected
LA1-DZ40



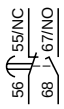
2 N/O protected + 1 N/O + 1 N/C non protected
LA1-DZ31



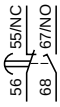
(2) Device fitted with 4 screening continuity terminals.

Time delay auxiliary contact blocks

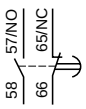
On-delay 1 N/O + 1 N/C
LAD-T



LAD-S

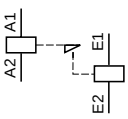


Off-delay 1 N/O + 1 N/C
LAD-R



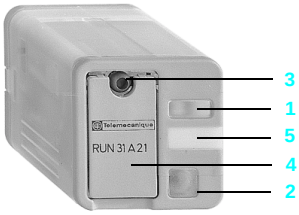
Mechanical latch blocks

LA6-DK10



Plug-in relays
Universal relays type RU

Relay



1 Mechanical indicator showing contact position. Indicator orange when contacts tripped.

2 “Power on” LED indicator (applicable to one version of relay).

3 Spring return pushbutton, enabling contacts to be forced. This in turn activates the mechanical indicator.

4 When the pivoting cover is in the open position, the pushbutton is held down. This position is clearly evident. In use, the cover must always be closed.

5 Slot for relay identification label. The label is blank and intended for marking by the user, to suit the requirements of the application.

Sockets

Two standard sockets : 8-pin and 11-pin.

Suitable for mounting on 35 mm ⎓ rail or fixing by two 3 mm diameter screws.

Screw connector terminations.

Slot for socket identification label.

One socket with attachment carrier : 11-pin.
The attachment carrier enables the simple plugging-in of either an LED display module, a protection module or a timer module.

Characteristics : pages 28031/3 to 28031/5
References : pages 28031/6 and 28031/7
Dimensions, schemes : page 28031/8
Setting-up : page 28031/9

Plug-in relays
Universal relays type RU

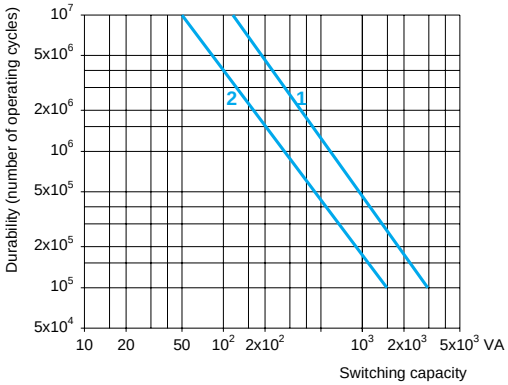
Environment

Conforming to standards	Standard version		IEC 255-1-00, VDE 0435 - part 201
Product certifications (pending)	Standard version		Relays : CSA, UL
Protective treatment	Standard version		"TC"
Rated insulation voltage	Conforming to IEC 947	**V**	250
Insulation class	Conforming to VDE 0110		C 250, B 380
Dielectric strength (rms voltage)	Between coil and contact	**V**	2500
	Between poles	**V**	2500
	Between contacts	**V**	1000
Ambient air temperature around the device	Storage	**°C**	- 40…+ 70
	Operation ~	**°C**	- 20…+ 50
	Operation ⎓	**°C**	- 20…+ 50
Vibration resistance	Conforming to IEC 68-2-6		5 gn (30…100 Hz)
Degree of protection			IP 40

Contact characteristics

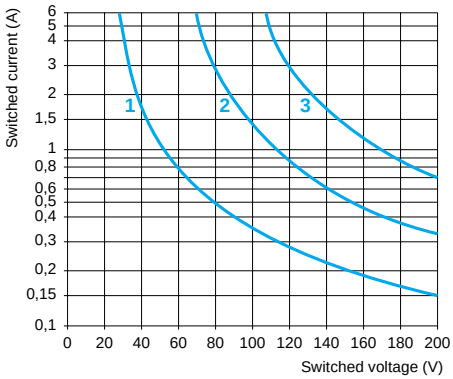
Type of relay			**RUN-21**	**RUN-31**	**RUN-33**
Number and type of contacts			2 single C/O	3 single C/O	3 bifurcated C/O
Contact material	Single contact		Hard silver, gold flashed		Hard silver, gold plated 10 µ
Conventional thermal current	For temperature ≤ 40 °C	**A**	10		4
Minimum switching power			10 mA - 17 V		3 mA - 5 V
Bounce time		**ms**	5 approx.		

Durability on ~ (230 V - 50 Hz)



1 Resistive load
2 Inductive load

Switching capacity on a for ⎓ minimum durability : 10^6 operating cycles (résistive or inductive load with diode RUW-040BD).



1 1 contact
2 2 contacts in series
3 3 contacts in series

Presentation : page 28031/2
References : pages 28031/6 and 28031/7
Dimensions, schemes : page 28031/8
Setting-up : page 28031/9

Plug-in relays
Universal relays type RU

Control circuit characteristics

Nominal voltage (Un)	~		**V**	24, 48, 110, 230, 50/60 Hz (Other voltages on request)
	⎓		**V**	12, 24, 48, 110 (Other voltages on request)
Average consumption	~	Inrush	**VA**	3.5
		Sealed	**VA**	2.3
	⎓		**W**	1.2
Permissible voltage variation				0.8…1.1 Un (50 Hz and ⎓), 0.85…1.1 Un (60 Hz)
Drop-out voltage threshold	~			> 0.15 Un
	⎓			> 0.05 Un

Other characteristics

Mechanical durability at nominal voltage Un, at 20 ° C and at 2 operations/s	In millions of operating cycles	~		20
		⎓		20
Maximum operating rate	In operating cycles/s	No load		4
		Full load		1
Operating time (response time) at nominal voltage and at 20 °C	Between energisation of the coil and making of the on-delay contact	~	**ms**	15
		⎓	**ms**	15
	Between de-energisation of the coil and making of the off-delay contact	~	**ms**	15
		⎓	**ms**	15

Socket characteristics

Conventional thermal current (Ith)		**A**	10
Insulation class	Conforming to VDE 0110		C 250
Degree of protection			IP 20
Cabling	Type		Screw connector
	Solid cable without cable end	**mm²**	2 x 2.5
	Flexible cable without cable end	**mm²**	2 x 1.5
	Flexible cable with cable end	**mm²**	2 x 1.5

Presentation : page 28031/2 **References :** pages 28031/6 and 28031/7 **Dimensions, schemes :** page 28031/8 **Setting-up :** page 28031/9

Plug-in relays
Universal relays type RU

Accessories - common characteristics

Conforming to standards		IEC 255-1-00, VDE 0435
Protective treatment		"TC"
Ambient air temperature around the device	**°C**	- 40…+ 70
Storage		
Operation	**°C**	- 5…+ 40
Vibration resistance Conforming to IEC 68-2-6		4 gn (30…100 Hz)
Insulation class Conforming to VDE 0110		C 250, B380
Degree of protection		IP 20

RUW-101 MW multi-function time delay module characteristics

Operating voltage	**V**	≂ 24…240 Connection in series with RU relay coil
Permissible voltage variation		0.85…1.1 Un
Permissible frequency variation	**Hz**	45…65
Load factor		100%
Functions		On-delay timer Off-delay timer Monostable with maintained control (on energisation) Monostable with pulse control (on energisation) Monostable (starting on de-energisation) Flashing relay (starting on-delay phase) Flashing relay (starting off-delay phase)
Time delay range 8 ranges	**s**	0.1…1 1…10
	min	0.1…1 1…10
	h	0.1…1 1…10
	day	0.1...1 1...10
Accuracy		1 %
LED indicators		
Power on		Green LED illuminated
Energised (applicable to RU relays)		Green LED flashing
Input B1		To be controlled by low level contact

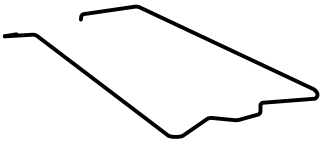
Presentation : page 28031/2 | References : pages 28031/6 and 28031/7 | Dimensions, schemes : page 28031/8 | Setting-up : page 28031/9

Plug-in relays
Universal relays type RU

RUN-31A21●●

RUZ-1A

RUZ-7A
+
RUW-101MW



RUZ-200

Universal plug-in control relays, without socket (1)

For normal use

Contact position indication	"Power on" indication	Number of poles	Sold in lots of (3)	Unit reference. Complete with code indicating control circuit voltage (2)	Weight kg
By mechanical indicator on front face of relay	Without	2	10	**RUN-21D21●●**	0.105
		3	10	**RUN-31A21●●**	0.105
	By LED on front face of relay	2	10	**RUN-21D22●●**	0.105
		3	10	**RUN-31A22●●**	0.105

With gold plated contacts

By mechanical indicator on front face of relay	By LED on front face of relay	3	10	**RUN-33A22●●**	0.105

Sockets and accessory

Description		Sold in lots of (3)	Unit reference	Weight kg
Standard sockets	8-pin for RUN-21	10	**RUZ-1D**	0.067
	11-pin for RUN-31 and RUN-33	10	**RUZ-1A**	0.067
Socket with attachment carrier	11-pin for RUN-31 and RUN-33	10	**RUZ-7A**	0.069
Maintaining clamp	–	25	**RUZ-200**	0.001

(1) Socket and maintaining clamp (if required) to be ordered separately.
(2) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office).

For	Volts	12	24	48	110	230
RUN-21	⎓	JD	BD	ED	FD	–
RUN-31	∿ 50/60 Hz	–	B7	E7	F7	P7
For	Volts	–	**24**	**48**	**110**	**230**
RUN-33	⎓	–	BD	–	–	–
	∿ 50/60 Hz	–	–	–	–	P7

(3) These products are sold in lots, in bulk packs.

Presentation : page 28031/2 **Characteristics : pages 28031/3 to 28031/5** **Dimensions, schemes : page 28031/8** **Setting-up : page 28031/9**

Plug-in relays
Universal relays type RU

Add-on modules for RUN-3

LED display modules, protection modules and the timer module, necessitate the use of the RUZ-7A socket with attachment carrier (see page 28031/6). This socket enables the module to be simply and quickly plugged-in, either :
- in parallel for LED display modules and protection modules, or
- in series for the timer module.

RUW-042P7

RUW-101MW

RUZ-7A
+
RUN-31A2●●●
+
RUW-101MW

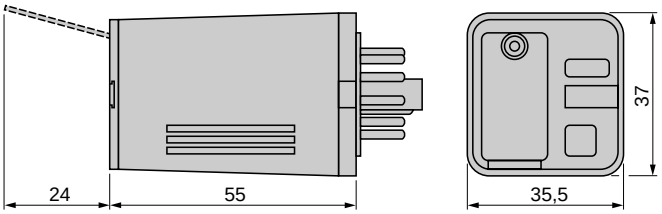
Description		Sold in lots of (1)	Unit reference	Weight kg
LED display modules				
"Power on" indication	∿ 110/230 V	20	**RUW-010P7**	0.006
	With protection diode ⎓ 6/24 V	20	**RUW-030BD**	0.006
Protection modules				
Diode	⎓ 6…220 V	20	**RUW-040BD**	0.006
Varistor	∿ 24 V	20	**RUW-042B7**	0.006
	∿ 230 V	20	**RUW-042P7**	0.006
RC circuit	∿ 110…240 V	20	**RUW-041P7**	0.006
Timer module				
Multi-function	≂ 24…240 V	1	**RUW-101MW**	0.020

(1) These products are sold in lots, in bulk packs.

Plug-in relays
Universal relays type RU

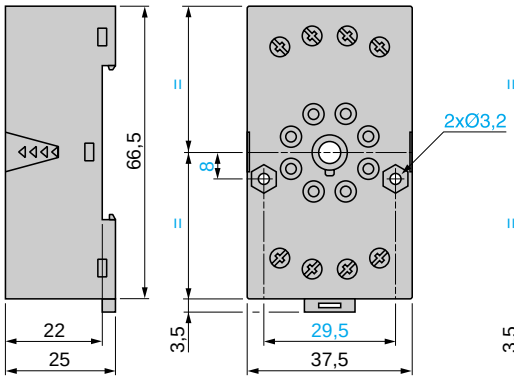
Dimensions

Relays
RUN-2●D21●●, RUN-3●A2●●●

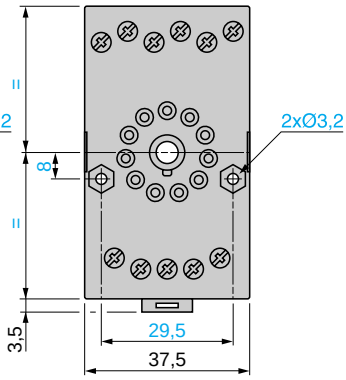


Sockets (8 and 11-pin)

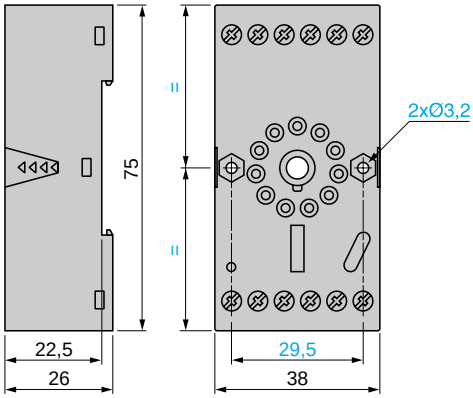
RUZ-1D



RUZ-1A



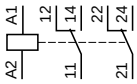
RUZ-7A



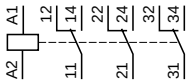
Common side view

Schemes

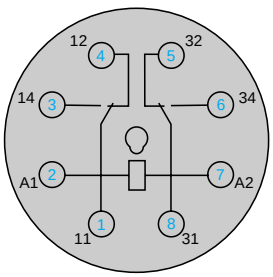
RUN-2●D21●●



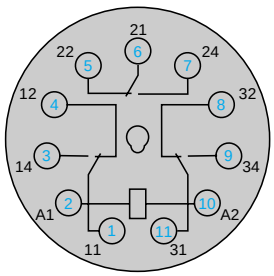
RUN-3●A2●●●



Pin and contact referencing
RUN-2●D21●●



RUN-3●A2●●●

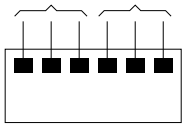


Presentation : page 28031/2
Characteristics : pages 28031/3 to 28031/5
References : pages 28031/6 and 28031/7
Setting-up : page 28031/9

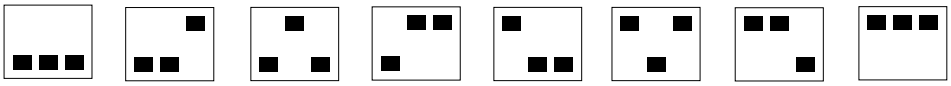
Plug-in relays
Universal relays type RU

Multi-function timer module
RUW-101MW
Programming

Function selection / Time delay selection

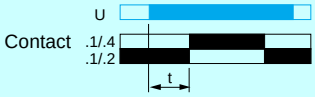
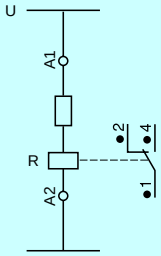
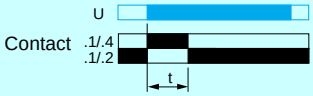
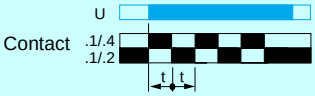
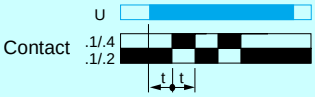
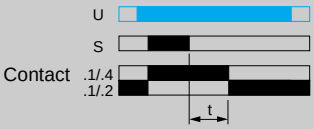
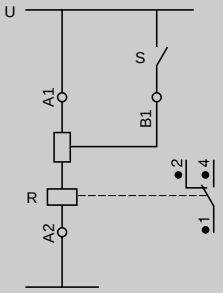
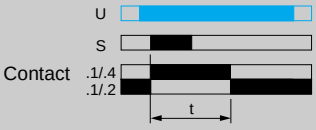
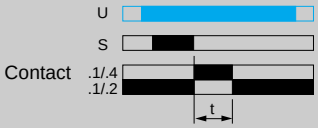
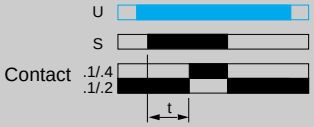


Selecting time delay range



0,1…1 s | 1…10 s | 0,1…1 min | 1…10 min | 0,1…1h | 1…10 h | 0,1…1jour | 1…10 jour

Selecting function

Selection	Function	Control	Function diagram	Series control
	On-delay timer	Series control		
	Monostable with maintained control	Series control		
	Flashing relay, starting on-delay phase	Series control		
	Flashing relay, starting off-delay phase	Series control		
	Off-delay timer	Control by external contact (S)		
	Monostable with pulse control	Control by external contact (S)		
	Monostable starting on de-energisation	Control by external contact (S)		
	On-delay timer	Control by external contact (S)		

Power off / Power on

Contact open / Contact closed

U: Voltage
R relay RUN●●●

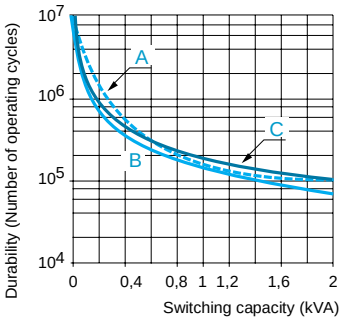
S: external control
t : adjustable time delay

Presentation : page 28031/2
Characteristics : pages 28031/3 to 28031/5
References : pages 28031/6 and 28031/7
Dimensions, schemes : page 28031/8

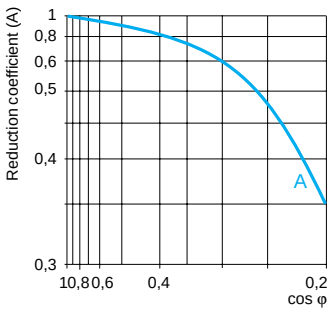
Zelio Relay plug-in relays
Interface relays

Relay type			RSB 2A080●●	RSB 1A120●●	RSB 1A160●●
Contact characteristics					
Number and type of contacts			2 C/O	1 C/O	1 C/O
Contact materials			AgNi		
Conventional rated thermal current (Ith)	For temperature ≤ 40°C	**A**	8	12	16
Maximum operating rate In operating cycles/h	No-load		72 000		
	Under load		600		
Switching voltage	Minimum	**V**	5		
	Maximum	**V**	∿ 400, ⎓ 250		
Maximum breaking capacity		**VA**	2000	3000	4000
Coil characteristics					
Rated voltage (Un)		**V**	⎓ 6…110, ∿ 24…240, 50/60 Hz		
Average consumption			⎓ 0.45 W, ∿ 0.75 VA		
Permissible voltage variation			0.8…1.1 Un (50/60 Hz or ⎓) at 20 °C		
Drop-out voltage threshold			≥ ⎓ 0.1 Un, ≥ ∿ 0.15 Un		
Environment					
Conforming to standards	Standard version		IEC 61810-1		
Approvals (pending)	Standard version		UL, CSA		
Ambient air temperature around the device	Storage	**°C**	- 40…+ 85		
	Operation	**°C**	⎓ - 40…+ 85, ∿ - 40...+ 70		
Vibration resistance	Conforming to IEC 68-2-6		> 10 gn (10…150 Hz)		
Degree of protection			IP 40		
Shock resistance			10 gn (closing), 5 gn (opening)		
Mechanical durability	In millions of operating cycles		≥ 30		
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		
Electrical durability In millions of operating cycles/h	Resistive load		8 A - 250 V : ≥ 0.1	12 A - 250 V : ≥ 0.1	16 A - 250 V : ≥ 0.07
	Inductive load		See curves below		
Insulation characteristics					
Rated insulation voltage (Ui)	Conforming to IEC 947	**V**	400		
Insulation class	Conforming to VDE 0110		C 250		
Dielectric strength (rms voltage)	Between coil and contact ∿	**V**	5000		
	Between poles	**V**	2500		
	Between contacts ∿	**V**	1000		

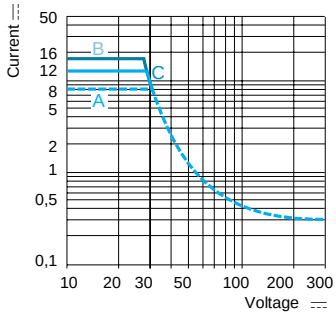
Electrical durability of contacts
Resistive load ∿



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



Maximum switching capacity on a resistive load ⎓



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

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

Socket type			RSZ E1S48M	RSB E1S35M
Socket characteristics				
Conventional rated thermal current (Ith)		**A**	12	
Insulation class			C 250	
Degree of protection			IP 20	
Approvals			CSA, UR	
Connection	Solid cable without cable end		2 x 2.5 mm²	
	Flexible cable with or w/o cable end		2 x 1.5 mm²	
Arrangement of coil/contact terminals			Separate	
Type of protection module			**RZM** type E	
Relay types used			**RSB 2A080** and **RSB 1A160** (contacts to be wired in parallel)	**RSB 1A120**

References : page 28041/3
Dimensions : page 28046/2
Schemes : page 28047/2

Zelio Relay plug-in relays
Interface relays

References

560582

RSB 2A080BD + RSZ E1S48M

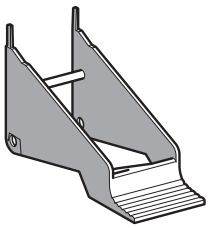
560583

RSB 1A120JD + RZM 031FPD + RSZ E1S35M

560584

RSB 1A160BD + RSZ E1S48M

560585



RSZ R215

Relays for standard applications

Number of C/O contacts	Conventional rated thermal current	Sold in lots of	Unit reference, to be completed by adding the control voltage code (1) (2)	Weight
	A			kg
2	8	10	RSB 2A080●●	0.014
1	12	10	RSB 1A120●●	0.014
	16	10	RSB 1A160●●	0.014

Protection modules

Description	Type	Voltage	Sold in lots of	Unit reference	Weight
		V			kg
Diode	E	⎓ 6…230	10	RZM 040W	0.003
Diode + LED	E	⎓ 6…24	10	RZM 031RB	0.004
		⎓ 24…60	10	RZM 031BN	0.004
		⎓ 110…230	10	RZM 031FPD	0.004
Varistor + LED	E	⎓ or ∿ 6…24	10	RZM 021RB	0.005
		⎓ or ∿ 24…60	10	RZM 021BN	0.005
		⎓ or ∿ 110…230	10	RZM 021FP	0.005
RC circuit	E	∿ 24…60	10	RZM 041BN7	0.010
		∿ 110…240	10	RZM 041FU7	0.010

Sockets - 12 A, ∿ 300 V

Application	Sold in lots of	Unit reference	Weight kg
RSB 2A080 and RSB 1A160	10	RSZ E1S48M	0.050
RSB 1A120	10	RSZ E1S35M	0.060

Accessories

Application	Sold in lots of	Unit reference	Weight kg
Maintaining clamp	10	RSZ R215	0.002
Legend	10	RSZ L300	0.001

(1) Standard control circuit voltages

Volts	6	12	24	48	60	110	120	220	230	240
⎓	RD	JD	BD	ED	ND	FD	–	–	–	–
∿ 50/60 Hz	–	–	B7	E7	–	–	F7	M7	P7	U7

For other voltages, please consult your Regional Sales Office.

*(2) To order a relay complete with socket: add suffix **S** to the references selected above.*
*Example: **RSB 2A080●●** becomes **RSB 2A080●●S***

Coil characteristics

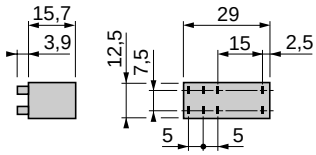
Control circuit voltage Uc	d.c. supply				a.c. supply 50/60 Hz			
	Average resistance at 20 ° ± 10%	Cod.	Operating voltage limits		Average resistance at 20 °C ± 15 %	Cod.	Operating voltage limits	
			Min.	Max.			Min.	Max.
V	Ω		V	V	Ω		V	V
6	90	RD	4.2	15.3	–	–	–	–
12	360	JD	8.4	30.6	–	–	–	–
24	1440	BD	16.8	61.2	400	B7	19.2	26.4
48	5700	ED	33.6	122.4	1550	E7	38.4	32.8
60	7500	ND	42	153	–	–	–	–
110	25 200	FD	77	280	–	–	–	–
120	–	–	–	–	10 200	F7	96	132
220	–	–	–	–	35 500	M7	176	242
230	–	–	–	–	38 500	P7	184	253
240	–	–	–	–	42 500	U7	192	264

Characteristics : page 28041/2
Dimensions : page 28046/2
Schemes : page 28047/2

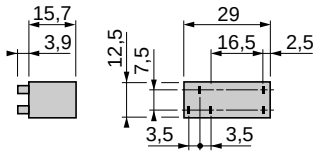
Zelio Relay plug-in relays

Interface relays (References: page 28041/3)

RSB 2A080●●, RSB 1A160●●

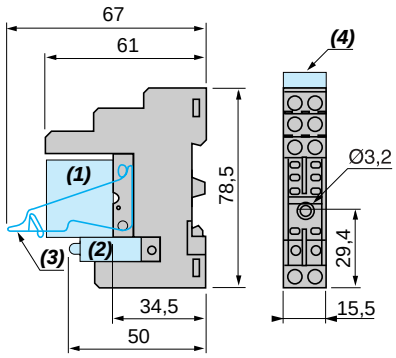


RSB 1A120●●

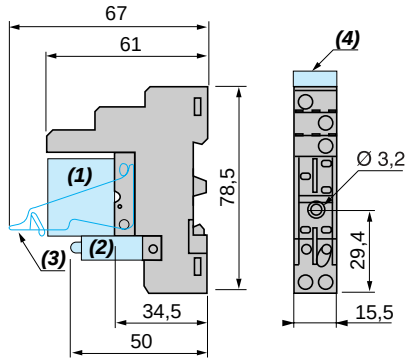


Sockets (References: page 28041/3)

RSZ E1S48M

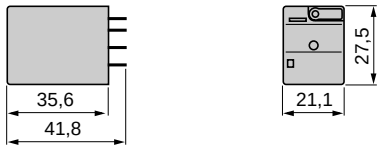


RSZ E1S35M



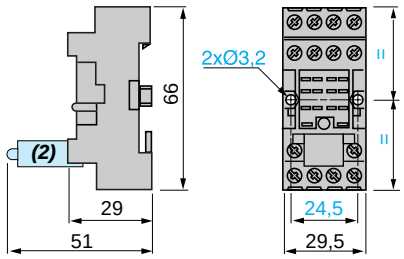
Miniature relays (References: pages 28042/4)

RXN 21E1●●●, RXN 41G1●●●, RXL●●●

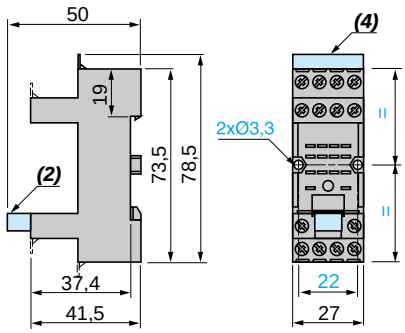


Sockets (References: page 28042/5)

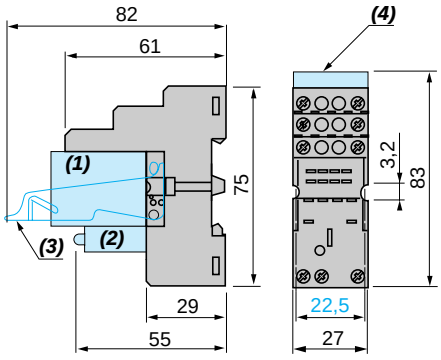
RXZ E1M114



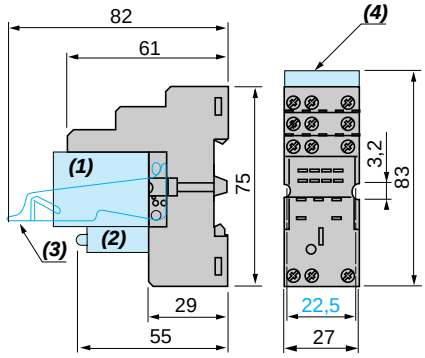
RXZ 7G



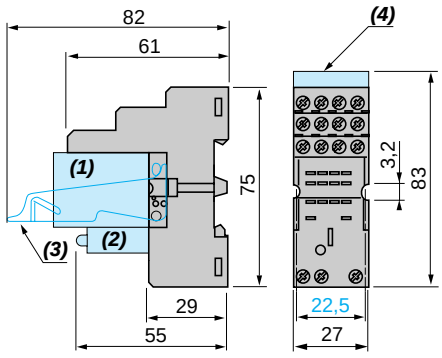
RXZ E1S108M



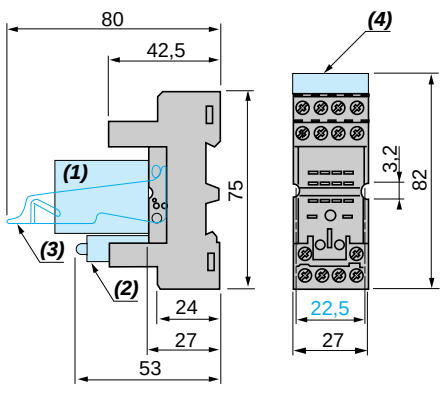
RXZ E1S111M



RXZ E1S114M



RXZ E1M114M



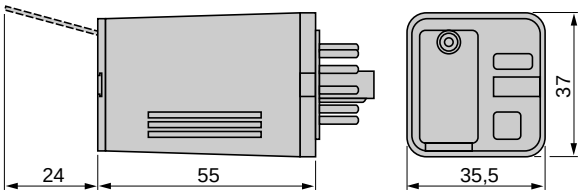
(1) Relays, (2) Add-on protection module,
(3) Maintaining clamp, (4) Legend.

References:
pages 28041/3 and 28042/4

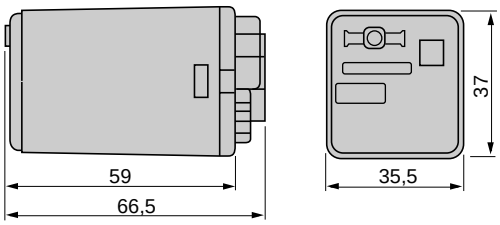
Schemes:
page 28047/2

Universal relays (References: page 28043/3)

RUN 21D2●●●, RUN 31A2●●●, RUN 33A2●●●

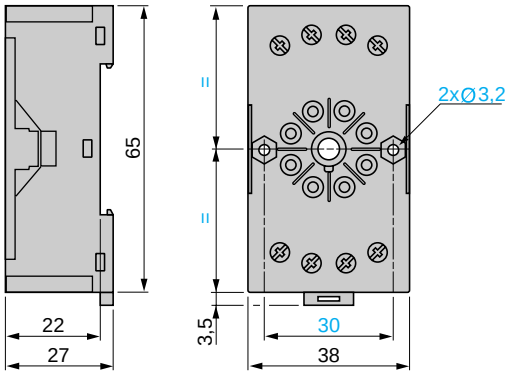


RUN 21C2●●● , RUN 31C2●●●

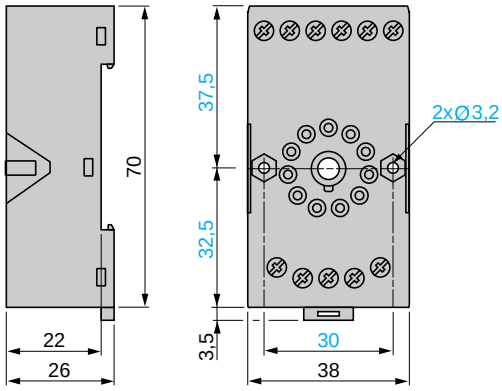


Sockets (References: page 28043/3)

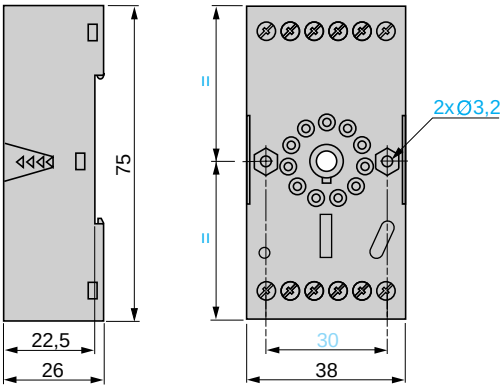
RUZ 1D



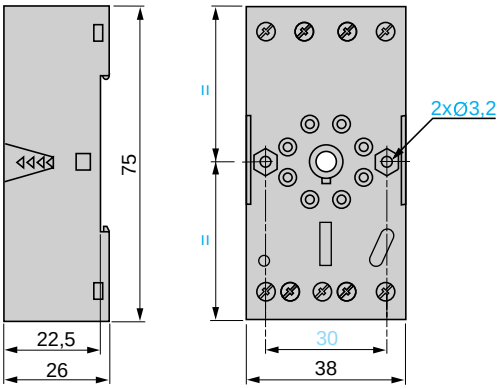
RUZ 1A



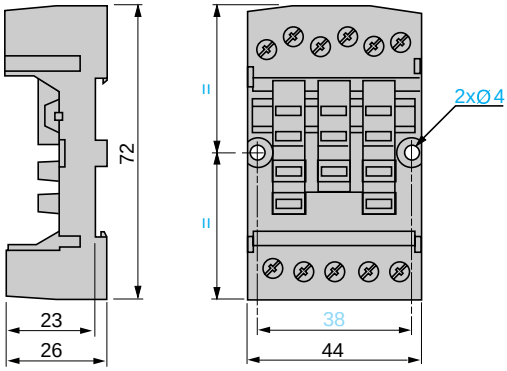
RUZ 7A



RUZ 7D



RUZ 1C



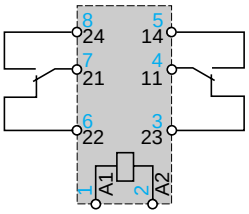
References:
page 28043/3

Schemes:
page 28047/3

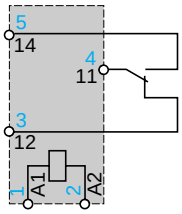
Zelio Relay plug-in relays

Interface relays *(1)*

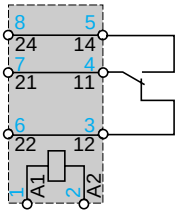
RSB 2A080●●



RSB 1A120●●



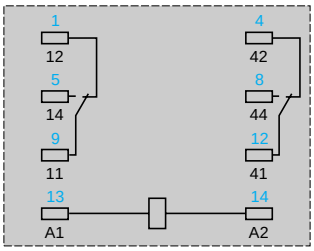
RSB 1A160●●



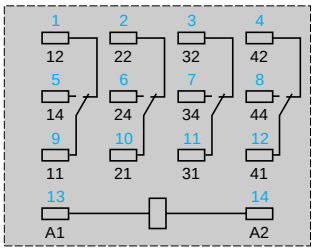
When using relay RSB 1A160●● with socket RSZ E1S48M : terminals 11 and 21, 14 and 24, 12 and 22 must be linked.

Miniature relays *(1)*

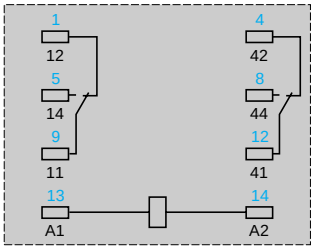
RXN 21E1●●●



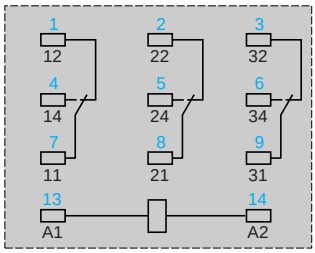
RXN 41G



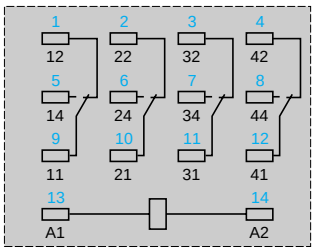
RXL 2●●



RXL 3●●

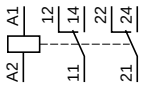


RXL 4●●

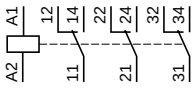


Universal relays *(1)*

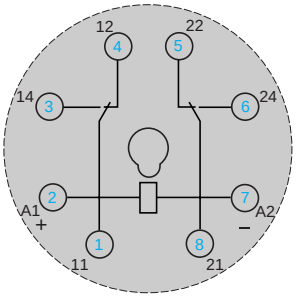
RUN 21D2●●●, RUN 21C2●●●



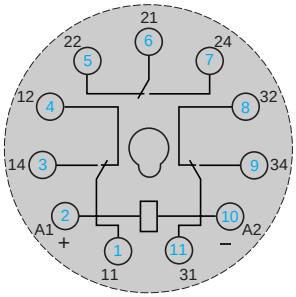
RUN 31A2●●●, RUN 33A2●●●
RUN 31C2●●●



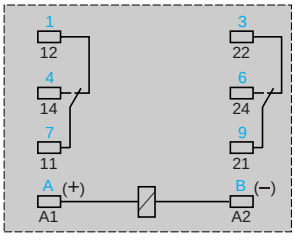
RUN 21D2●●●



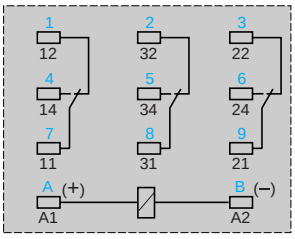
RUN 33A2●●●, RUN 31A2●●●



RUN 21C2●●●



RUN 31C2●●●



(1) Blue references are those marked on the relay

References :
pages 28041/3 and 28042/4

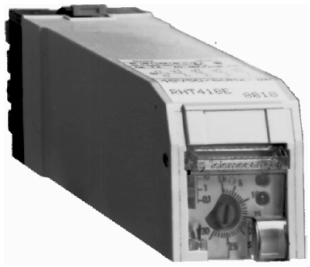
Dimensions:
page 28046/2

Control relays

RH plug-in relays

Instantaneous relay

Latching relay



Fleeting contact relay

The range

The range of RH plug-in control relays with single socket type common to all models and standard front face includes the following models of 5 A relays with 4 C/O contacts, for a.c. and d.c. control:

- instantaneous relays,
- mechanical latching relays (memory relays),
- time delay relays,
- fleeting contact relays,
- flashing relays,
- sequencer step module.

Miniaturisation

The RH relay is designed to provide true miniaturisation, combining minimum installation size with:

- ensured dielectric strength for hard-wired equipment,
- standard pattern contact points compatible with automatic wiring methods,
- direct accessibility to connection points when wiring.

Vibration resistance

The highly versatile RH range offers numerous mounting and wiring possibilities for use in a wide variety of automation equipment installations.

The vibration resistance (severity 55 A conforming to IEC 68-2-6) quoted on pages 28002/2 and 28002/5 are for back wired sockets clipped onto a rigid plate, or for front wired sockets screwed onto a rigid panel.

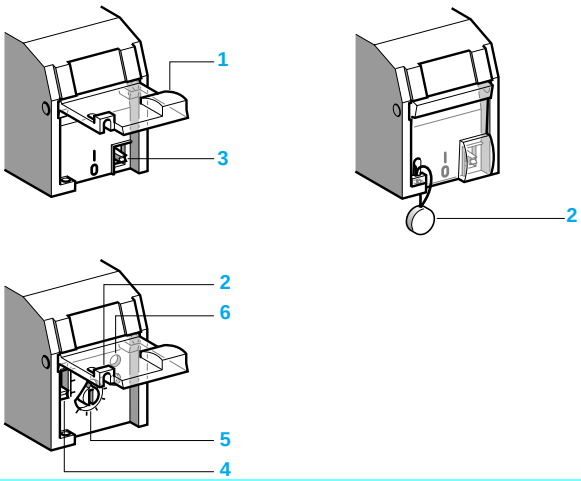
Characteristics :
pages 28002/2 to 28002/9

References :
pages 28003/2 to 28003/5

Dimensions, schemes :
pages 28004/2 to 28004/5

Plug-in relays
RH control relays

Front face



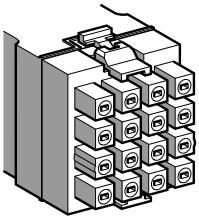
The front of all RH relays have a standard appearance.

The self-adhesive function legend is placed at the top. This legend can be made up and positioned by the user as required.
The hinged flap 1 has three functions:
- acts as an extractor pull tab,
- provides protection against dust and accidental adjustment of settings accessible on the front face: operator, indicators, etc,
- sealing 2 of these active components if necessary.

In operation, the flap must always be down.

The active components differ according to the relay function, ie:
- for instantaneous and latching relays:
  - manual operator 3,
  - mechanical state indicator 3,
- for time delay, fleeting contact and flashing relays:
  - timing range selector switch 4, display 5,
  - 1 or 2 relay state indicators 6.

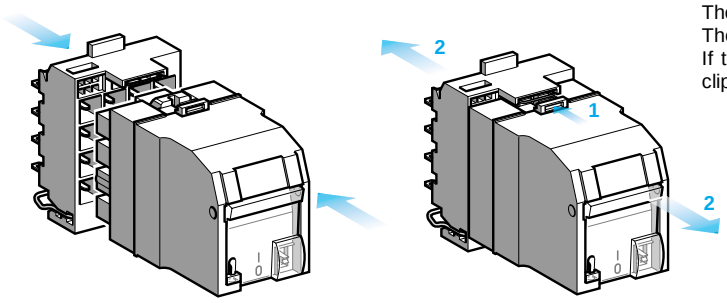
Base



All RH relays have the same type of base, with outlets evenly spaced at 7.62 mm intervals, both vertically and horizontally.
This triple 2.54 mm module allows:
- the use of automatic wiring methods,
- the establishment of leakage paths, so ensuring a dielectric strength of 2500 V with the relay wired.

Also, the outlets are protected female sockets which makes it possible:
- to provide mechanical protection for these outlets during transport and installation,
- to incorporate within the relay (a plug-in and replaceable component) all active components, including plug-in connection clips (note that inside the relay, each contact carrier plate and its corresponding output connection clip are in one piece, with no soldered joins),
- to keep within the socket (a fixed and wired component) only very simple male conductor components, which makes these sockets very reliable.

Locking the relay into the socket



RH relays clip securely into their socket.
They are released by pressing the release tabs with a screwdriver or a finger.
The relay can then be removed by simply pulling the extractor pull tab 1.
If the relay is accidentally released, it must be fully extracted before being clipped back into place.

RH relay operating position

The normal mounting position, with front face vertical and extractor pull tab pointing down is shown in the figure above.
The label gives the wiring scheme for the device together with other information (type, rating, voltage, etc).
Mounting the relay in any other position has virtually no effect on its operating characteristics.

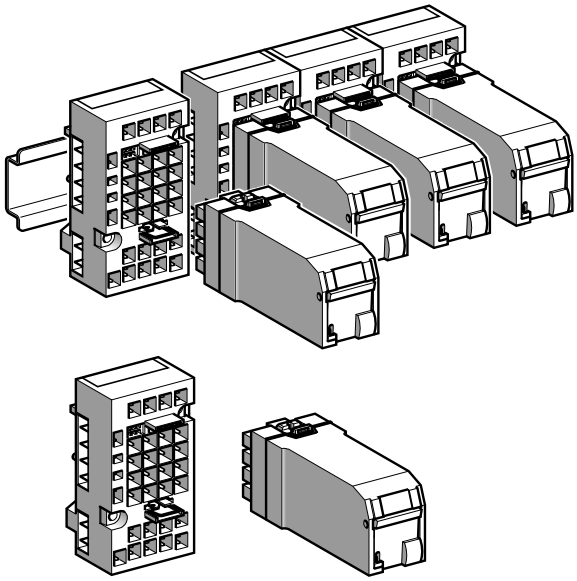
Characteristics :
pages 28002/2 to 28002/9

References :
pages 28003/2 to 28003/5

Dimensions, schemes :
pages 28004/2 to 28004/5

Plug-in relays
RH control relays

RH sequencer



RHZ-42 RHK-412●

The analysis of an industrial process generally involves breaking it down into a succession of clearly defined basic tasks or actions, performed in a set order (opening a valve, for example, followed by starting a mixer, etc.).

The end of one operation generally establishes the start of the next operation. The RH sequencer is a simple way of controlling this type of process. Acting as the backbone of the automated system, it consists of a series of "step modules", one for each step in the sequential process.

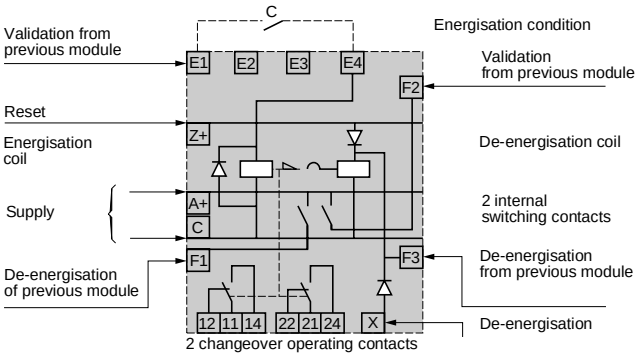
Sequencer composition

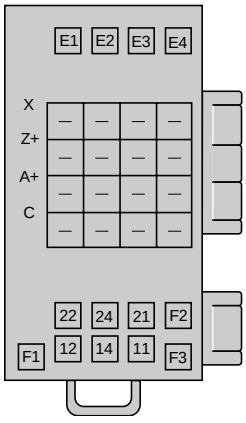
Each "step module" in the sequencer consists of :

- an **RHK-412** mechanical latched relay, with d.c. coil,
- a special socket, **RHZ-42**. The sockets clip onto a 35 mm ⊔ rail and also plug into each other sideways, so providing electrical connection between themselves.

The sequencer is therefore made up of one or more rows, as required, of modules which plug and clip together to form the internal basic scheme of the sequencer, without any need for wiring between sockets.

Step module scheme





The latching relay in each module comprises :
- 2 internal switching contacts,
- 2 changeover operating contacts.

When the step module is activated, the energising coil actuates these 4 contacts :
- one of the internal switching contacts deactivates the previous module;
- the other internal switching contact supplies the validation circuit for the next module,
- the 2 operating changeover contacts are available for switching actions associated with the step (motors, etc.).

Socket RHZ-42 Terminal marking

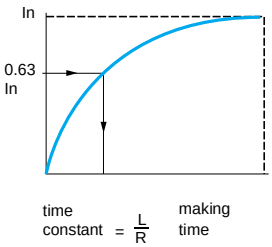
Supply terminal
The following polarities must be complied with :
- Z+ : general reset.
- A+ : + supply to the sequencer.
- C : - supply.

All Z+, A+ and C terminals in a horizontal row of step modules are electrically connected to each other.

Control terminals
Between E1 and E4, wiring of energisation condition(s).
E2, E3 : spare terminals.
For logic connections required between non-adjacent modules :
F1 = Sends reset instruction “n”,
F2 = Sends validation instruction “n”,
F3 and X = Receives reset instruction,
E1 = Receives validation instruction.
Terminal X is equivalent to terminal F3 but introduces a non-return diode, located in the socket, into the wired reset circuit. It is used in certain circuits, in particular for the step preceding a jump of one or more steps.
Please consult the technical manual on the "RH Electrical Sequencer" for more detailed information.

Characteristics : pages 28002/2 to 28002/9
References : pages 28003/2 to 28003/5
Dimensions, schemes : pages 28004/2 to 28004/5

Plug-in relays
RH control relays



RH relays, all models

Time constant

This is the ratio L/R, expressed in milliseconds, between the inductance and the resistance of a load.
The time taken for the current to establish within a load, switched by an RH relay contact for example, depends on the time constant for this load, or more precisely for the whole of the circuit.

Breaking

The breaking time with d.c. control depends on the time constant of the circuit and also on the opening distance of the switching contact : the inductive energy ($1/2\ Li^2$) is in fact dissipated in the arc which appears at the contact terminals.
With a.c. control, breaking occurs when the current passes through zero.
When a contact opens, an overvoltage is crated t its terminals; the higher the inductance of the circuit and the faster the contact opens, the higher the overvoltage ($u = L.di/dt$).

Variable quantities

All quantities (ambient temperature, supply voltage...) whose variations are likely to affect operation of the relay.

Rated thermal current

The highest value of current (rms value for a.c.) which a closed contact can sustain continuously, under the conditions specified by the manufacturer, without its temperature rise exceeding the limits given in the standards.

Making current

The highest value of current (rms value for a.c.) which a contact is capable of making onto.

Breaking current according to the number of operating cycles

With d.c. control, this is the ensured value of the current broken in a resistive or inductive circuit, with a given time constant, at a voltage U and for a specified number of operating cycles.

It is also often expressed as power broken in W (it is in fact a fictitious power in VA = the product of I before breaking, multiplied by U at the contact terminals after breaking).

With a.c. control, this is the value in amps of the current broken in a resistive or inductive circuit, for a given power factor ($\cos \varphi$), at a voltage U and for a specified number of operating cycles.

It is also often expressed in VA.

RH time delay relays

Repeat accuracy

Repeat accuracy defines the variation in time delays obtained on a single relay, for a series of successive operating cycles, without modifying the setting and at rated conditions for temperature, voltage, etc

Setting accuracy

This is the maximum ensured differential between the time delay set and the time delay actually obtained, under normal conditions. This differential is expressed as a % of the time delay per unit variation in the variable quantity (or for the total permissible variation range).

Stability according to variations in variable quantities

For each variable quantity, and within a permissible variation range, this is expressed as % drift of the time delay per unit variation in the variable quantity (or for the total permissible variation range).

Time delay

- The time delay
  - at switch-off or
  - On-delay or
  - on energisation

  starts as soon as supply to the con trol circuit is switched on.

- The time delay
  - at switch-off or
  - Off-delay or
  - on de-energisation

  starts as soon as supply to the control circuit is switched off.

Reset time

Minimum time required between the end of one time delay cycle and the start of the next.

Characteristics : pages 28002/2 to 28002/9
References : pages 28003/2 to 28003/5
Dimensions, schemes : pages 28004/2 to 28004/5

Plug-in relays

RH control relays
Instantaneous (RHN) and latching (RHK)

Type				RHN	RHK
Environment					
Classification	Standard version			EDF, BV, USSR	
Conforming to standards	Standard version			IEC 255, NF C 45-250, VDE 0435, BS 4794	
Product approvals	Standard version			CSA, ASE, UR	CSA, ASE, UR
Protective treatment	Standard version			"TC"	"TC"
Rated insulation voltage			**V**	250	250
Dielectric strength (relay "wired")			**V**	2500	2500
Ambient air temperature around the device	Storage		**°C**	- 40…+ 70	- 40…+ 70
	Operation (Conforming to 1C of IEC 255)		**°C**	- 5…+ 40	- 5…+ 40
	Permissible for operation between 0.85 and 1.1 Un		**°C**	- 25…+ 60	- 25…+ 60
Operating positions				Any	Any
Vibration resistance	Conforming to NF C 20-616 and IEC 68-2-6	Severity 55 A		6 g (10…55 Hz)	6 g (10…55 Hz)
Shock resistance	Conforming to NF C 20-608	Severity 50 A		50 g - 11ms	30 g - 11ms
Contact characteristics					
Number of contacts				4 C/O	4 C/O
Rated thermal current	For temperature ≤ 40 °C		**A**	5 (**RHN-41●●**)	5 (**RHK-41●●**)
				1 (**RHN-42●●**)	1 (**RHK-42●●**)
Minimum switching capacity	At U min : 1 V or I min : 10 mA		**mVA**	150 (**RHN-41●●**)	150 (**RHK-41●●**)
	At U min : 1 V or I min : 1 mA		**mVA**	50 (**RHN-42●●**)	50 (**RHK-42●●**)
Bounce time	Maximum duration of a bounce ≤ 2 ms		**ms**	≤ 10	≤ 10
Volt drop	For 3 A at 24 V		**mV**	≤ 100	≤ 100
Average resistance of contacts	Socket + relay at 20 °C		**mΩ**	30	30
Changeover time	a.c. control circuit	De-energising/Energising	**ms**	0.5…6	0.5…6
		Energising/De-energising	**ms**	1…3	1…3
	d.c. control circuit	De-energising/Energising	**ms**	1.2…4	1.2…4
		Energising/De-energising	**ms**	1…4	1…4

Presentation : pages 28001/2 to 28001/5
References : page 28003/2
Dimensions, schemes : pages 28004/2 to 28004/5

Plug-in relays

RH control relays
Instantaneous (RHN) and latching (RHK)

Type				RHN	RHK	
Control circuit characteristics						
Average consumption at 20 °C					Coil n° 1	Coil n° 2
	a.c. control	Inrush	**VA**	4.5	6	2.5
		Holding	**VA**	2.5	3.5	1.3
	d.c. control	Inrush or Holding	**W**	1.6	1.6	2.9
Permissible voltage variation	Conforming to 1 C of IEC 255			0.8…1.1 Uc	0.8…1.1 Uc	
Drop-out voltage	d.c. control			0.10…0.3 Uc	0.10…0.3 Uc	
	a.c. control			0.15…0.5 Uc	0.15…0.5 Uc	
Cos φ (a.c. control)		Inrush		0.6	0.6	
		Holding		0.7	0.7	
L/R (d.c. control)	L/R, magnetic circuit	Open	**ms**	12	12	
		Closed	**ms**	15	15	
Other characteristics						
Mechanical life (at Uc)	In millions of operating cycles			20	10	
Maximum operating rate	In operating cycles per second			6	2	
Operating time (at rated voltage and at 20 °C)	Between coil energisation and making of N/O contact	a.c. control	**ms**	2…15	5…17	
		d.c. control	**ms**	10…20	12…22	
	Between coil de-energisation and making of N/C contact	a.c. control	**ms**	1.2…12	–	
		d.c. control	**ms**	2…7	–	
	Between energisation of trip coil and making of N/C contact	a.c. control	**ms**	–	8…16	
		d.c. control	**ms**	–	10…14	
Minimum pulse duration	For latching or tripping of **RHK** latch relay		**ms**	–	≥ 50	

Plug-in relays

RH control relays
Time delay (RHT or RHR), fleeting contact (RHE or RHD), flashing (RHC)

Type				RHT, RHR	RHE, RHD	RHC
Environment						
Classification	Standard version			EDF, BV, USSR		
Conforming to standards	Standard version			IEC 255, NF C 45-250, VDE 0435		
Product approvals	Standard version			CSA, ASE	CSA, ASE	CSA, ASE
Protective treatment	Standard version			"TC"	"TC"	"TC"
Rated insulation voltage			**V**	250	250	250
Overvoltage protection	Conforming to IEC 255-5			3 kV, 0.5 Joule	3 kV, 0.5 Joule	3 kV, 0.5 Joule
Dielectric strength, relay "wired"			**V**	2500	2500	2500
Ambient air temperature around the device	Storage		**°C**	- 40…+ 70	- 40…+ 70	- 40…+ 70
	Operation (Conforming to 1 C of IEC 255)		**°C**	- 5…+ 40	- 5…+ 40	- 5…+ 40
	Permissible for operation between 0.85 and 1.1 Un		**°C**	- 25…+ 60	- 25…+ 60	- 25…+ 60
Operating positions				Any	Any	Any
Vibration resistance	Conforming to NF C 20-616 and IEC 68-2-6	Severity 55 A		6 g (10…55 Hz)	6 g (10…55 Hz)	6 g (10…55 Hz)
Shock resistance	Conforming to NF C 20-608	Severity 50 A		50 g - 11 ms	50 g - 11 ms	50 g - 11 ms
Contact characteristics						
Number of contacts				4 C/O	4 C/O	4 C/O
Rated thermal current	For temperature ≤ 40 °C		**A**	5 (**RH●-41●●**) 1 (**RH●-42●●**)	5 (**RH●-41●●**) 1 (**RH●-42●●**)	5 (**RHC**)
Minimum switching capacity	At U min: 1 V or I min: 10 mA		**mVA**	150 (**RH●-41●●**)	150 (**RH●-41●●**)	150 (**RHC**)
	At U min: 1 V or I min: 1 mA		**mVA**	50 (**RH●-42●●**)	50 (**RH●-42●●**)	–
Bounce time	Maximum duration of bounce ≤ 2 ms		**ms**	≤ 10	≤ 10	≤ 10
Volt drop	For 3 A at 24 V		**mV**	≤ 100	≤ 100	≤ 100
Average resistance	Socket + relay at 20 °C		**mΩ**	30	30	30
Changeover time	a.c. control circuit	De-energising/Energising	**ms**	0.5…6	0.5…6	0.5…6
		Energising/De-energising	**ms**	1…3	1…3	1…3
	d.c. control circuit	De-energising/Energising	**ms**	1.2…4	1.2…4	1.2…4
		Energising/De-energising	**ms**	1…4	1…4	1…4

Presentation : pages 28001/2 to 28001/5 **References :** page 28003/3 et 28003/4 **Dimensions, schemes :** pages 28004/2 to 28004/5

Plug-in relays

RH control relays
Time delay (RHT or RHR), fleeting contact (RHE or RHD), flashing (RHC)

Type				RHT, RHR	RHE, RHD	RHC
Control circuit characteristics						
Average consumption at 20 °C	Output state 1	a.c. control	**VA**	2.9	2.9	2.9
		d.c. control	**W**	2.5	2.5	2.5
	For 220 V a.c.		**VA**	3.5	3.5	3.5
Permissible voltage variation	Conforming to 1 C of IEC 255			0.8…1.1 Uc	0.8…1.1 Uc	0.8…1.1 Uc
External control contact	Type (only)			Mechanical	Mechanical	Mechanical
Other characteristics						
Mechanical life (at Uc)	In millions of operating cycles			20	20	20
Status indication	During time delay period (Green LED)			Illuminated	–	–
	On making of on-delay contacts (Red LED)			Illuminated	Illuminated	Illuminated
Time delay (adjustable by potentiometer on front face)	3 setting ranges (selected by switch on front face)			Normal / Long	–	–
			s	0.2…3 / 1.25…24	–	–
			s	1.5…30 / 12.5…240	–	–
				15…300 s / 2…4 min	–	–
	Repeat accuracy			± 1 %	–	–
	Setting accuracy (1)	Normal time delay		± 15 %	–	–
		Long time delay		± 20 %	–	–
	Reset time		**ms**	≤ 100	–	–
Stability to influence quantities	Temperature (range : - 5…+ 40 °C) per °C around 20 °C			0.14 %	–	–
	Voltage (range : 0.8…1.1 Uc) for extreme limits		**ms**	± 20	–	–
Immunity to micro-breaks	During time delay period		**ms**	Up to 10	–	–
	After time delay period		**ms**	Up to 2	–	–
Fleeting contacts	Fleeting contact time		**ms**	–	200	–
	Tolerance		**ms**	–	- 20…+ 100	–
	Response time at Uc and at 20 °C		**ms** **ms**	–	10…30 (**RHE**) 35…65 (**RHD**)	–
Flashing relay symmetrical contact time	Adjustable by potentiometer on front face			–	–	0.5…5 or 2…30

(1) % of the maximum value of the range selected

Plug-in relays

RH control relays
Sockets and termination adaptor for front wiring

Sockets

Type		**RHZ-11**	**RHZ-12**	**RHZ-13**
Cabling		With 2.8 x 0.5 tags for soldering or Faston connectors	With 0.8 x 1.6 x 22 mm pins for wire-wrap or termi-point at 7.62 (3 x 2.54 mm) centres	With 0.8 x 0.8 x 4.3 mm solder pins for printed circuit board at 7.62 (3 x 2.54 mm) centres
Rated thermal current	**A**	5	5	5
Dielectric strength	**V**	2500	2500	2500
Protection against direct finger contact		Yes	Yes	Yes
Function marking facility		Using three **AB1-R** or **AB1-G** clip-in characters or **AB1-SA1** blank clip-in legend plate		
Relay-socket locking		By simply clipping in the relay. To release, press the 2 red locking tabs. Warning : if accidentally released, the relay must be fully extracted before being clipped back into place.		
Cabling capacity		Solder tags, flexible cable 1 x 1.5 mm^2 or 2 x 1 mm^2	3 connections max. per termi-point pin, flexible cable	On all printed circuit boards 2.54 mm pitch, see page 28004/2
		Faston connector, flexible cable 1 x 1.5 mm^2 or 2 x 0.34 at 1 mm^2	AWG / I max 22 / 5 A 24 / 3 A 26 / 2.4 A	Side cover allows cleaning products to drain awayn socket resistant to these products
		Solder tags, rigid cable 2 x 1 mm^2	Wire-wrap, rigid cable AWG / I max 20 / 7.5 A 22 / 5 A 24-26 / 2.4 A	

Termination adaptor

Type			**RHZ-15**
Wiring			
	Front		Screw clamp terminals with 8 mm connector plates
	Back		Double tags for soldering or 2.8 x 0.5 Faston connectors and 0.8 x 1.6 x 22 mm pins for wire-wrap or termi-point
Cabling capacity			Screw clamp terminals : 1 or 2 x 1.5 mm^2 or 1 x 2.5 mm^2 for flexible or rigid cable
			Tags and wire wrap or termi-point pins : see above **RHZ-11** and **RHZ-12**
Rated thermal current		**A**	5
Dielectric strength		**V**	2500
Marking facility			Using three **AB1-R** or **AB1-G** clip-in characters per terminal

Presentation : pages 28001/2 to 28001/5 **References :** page 28003/5 **Dimensions, schemes :** pages 28004/2 to 28004/5

Plug-in relays

RH control relays
Sockets and termination adaptors for front wiring

Sockets

Type		**RHZ-21**	**RHZ-22**	**RHZ-24**	**RHZ-42**
Cabling		Screw clamp terminals	Double tags for Faston connectors 2.8 x 0.5	Double tags for Faston connectors 4.8 x 0.8	Single tags for Faston connectors 2.8 x 0.5
Rated thermal current	**A**	5	5	5	5
Dielectric strength	**V**	2500	2500	2500	2500
Protection against direct finger contact		Yes	Yes	Yes	Yes
Function marking facility		Using 4 clip-in characters **AB1-R** or **AB1-G** blank clip-in legend plate **AB1-SA1**			
Relay-socket locking		By simply clipping in the relay. To release, press the 2 red locking tabs. Warning : If accidentally released, the relay must be fully extracted before being clipped back into place.			
Cabling capacity	**mm²**	Flexible or solid cable 2 x 2.5 max 2 x 0.5 min	Flexible cable 2 x 1.5 max 2 x 0.34 min	Flexible cable 2 x 1.5 max 2 x 0.34 min	Flexible cable 2 x 1.5 max 2 x 0.34 min

Termination adaptor

Type		**RHZ-25**			
Wiring					
Bottom connection		Screw clamp terminals with 8 mm connector plates			
Centre connection		Double tags for soldering or 2.8 x 0.5 mm Faston connectors			
Top connection		Single pins, 0.8 x 1.6 x 22 mm for wire-wrap or termi-point, maximum of 3 connections.			
Cabling capacity		Screw terminals, flexible or rigid cable 1 or 2 x 0.5 to 1.5 mm^2 or 1 x 2.5 mm^2			
		Tags, flexible cable 1 or 2 x 0.34 to 1 mm^2 or 1 x 1.5 mm^2, rigid cable 1 or 2 x 1 mm^2			
		Faston connectors, flexible cable 1 or 2 x 0.34 to 1.5 mm^2 or 1 x 1.5 mm^2			
		Wire-wrap pins, rigid cable		Termi-point pins, flexible cable	
		AWG	I max	AWG	I max
		20	7.5 A	22	5A
		22	5 A	24	3 A
		24-26	2.4 A	26	2.4 A
Rated thermal current	**A**	5			
Dielectric strength	**V**	2500			
Function marking facility		Using 4 clip-in characters **AB1-R** or **AB1-G** per terminal			

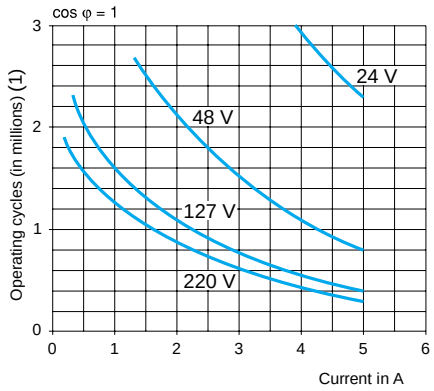
Presentation : pages 28001/2 to 28001/5
References : page 28003/5
Dimensions, schemes : pages 28004/2 to 28004/5

Plug-in relays

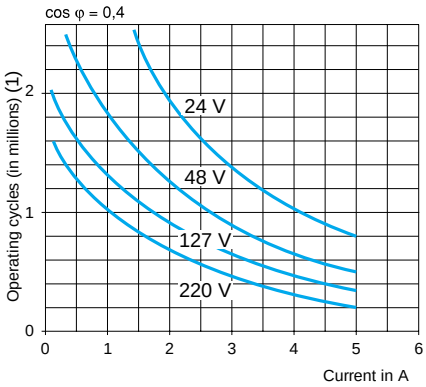
RH control relays

Electrical life of normal contacts

a.c. control

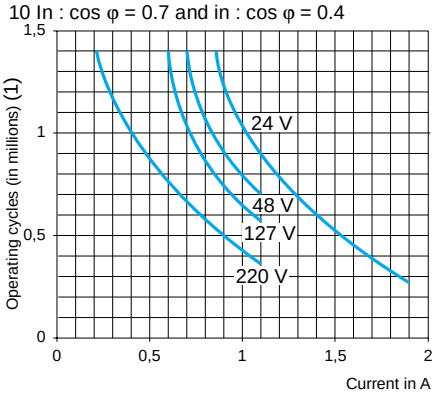


Curves at 1 operating cycle/second



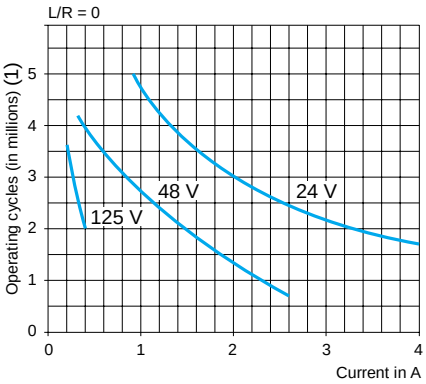
Curves at 1 operating cycle/second

Motor control
10 In : cos φ = 0.7 and in : cos φ = 0.4

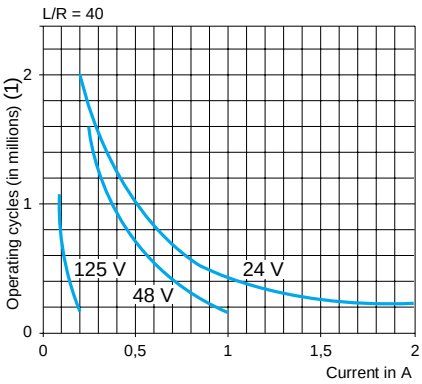


Curves at 1200 operating cycles/hour

d.c. control



Curves at 1 operating cycle/second



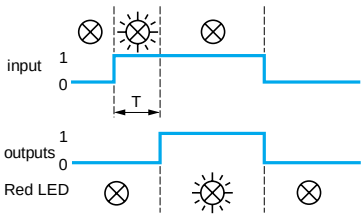
Curves at 720 operating cycles/hour

(1) Number of operating cycles according to current broken

Plug-in relays
RH control relays

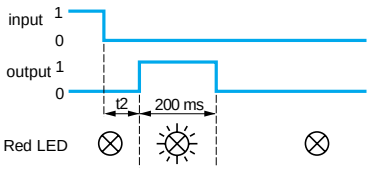
Operating diagrams

Time delay relay
RHT on-delay



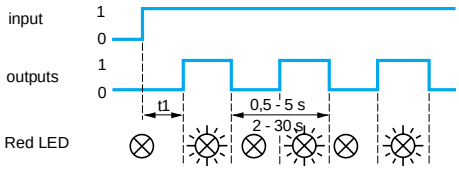
T : time delay

Fleeting contact relay
RHE on energisation



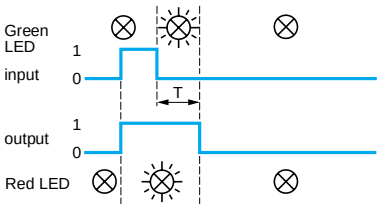
t1 : 20…40 ms

Flashing relay RHC



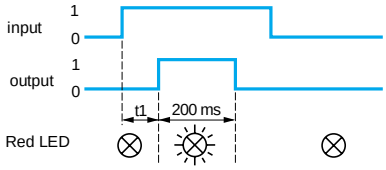
t1 : 20…40 ms

Time delay relay
RHR off-delay



T : time delay

Fleeting contact relay
RHD on de-energisation



t2 : 10 …30 ms

Plug-in relays

RH control relays
with 4 C/O contacts for control circuit : a or c

a
or
c

RHN-411M

Instantaneous relays

Description		Control circuit voltage	Basic reference complete with code indicating control voltage (2)	Normal voltages	Weight kg
Relays with normal contacts		50 Hz	**RHN-411p**	**B E F M**	0.090
		60 Hz	**RHN-416p**	**JV DE KC**	0.090
		c	**RHN-412p**	**B E F**	0.090
Relays with low level contacts		50 Hz	**RHN-421p**	**B E F M**	0.090
		60 Hz	**RHN-426p**	**JV DE KC**	0.090
		c	**RHN-422p**	**B E F**	0.090
Relays with built-in interference suppression diode	Normal contacts	c	**RHN-412pA76**	**B E F**	0.090
	Low level contacts	c	**RHN-422pA76**	**B E F**	0.090

RHK-411M

Latching relays

Relays with normal contacts	50 Hz	**RHK-411p**	**B E F M**	0.140
	60 Hz	**RHK-416p**	**JV DE KC**	0.140
	c	**RHK-412p**	**B E F**	0.140
Relays with low level contacts	50 Hz	**RHK-421p**	**B E F M**	0.090
	60 Hz	**RHK-426p**	**JV DE KC**	0.090
	c	**RHK-422p**	**B E F**	0.090
Relays with built-in interference suppression diode	Normal contacts	c	**RHK-412pA76**	**B E F**	0.090
	Low level contacts	c	**RHK-422pA76**	**B E F**	0.090

(2) Standard control circuit voltages

Volts	**5**	**6**	**9**	**12**	**24**	**36**	**42**	**48**	**60**	**72**	**110**	**120**	**125**	**127**	**208**	**220**	**230**	**240**
50 Hz	–	–	–	J	B	–	D	E	–	–	F	–	–	G	–	M	UG	U
60 Hz	–	–	–	JL	JV	–	–	DE	–	–	KC	KF	–	–	GL	GP	LC	LF
c	JX	R	JJ	J	B	C	D	E	P	EN	F	–	G	–	–	M	–	U

Coil characteristics (RHN relays)

Rated control voltage	**a.c. voltages 50 or 60 Hz** Frequency	Average R at 20 °C	Inrush current	Holding current	L	**d.c. voltages c** Average R at 20 °C	Current	L
V	**Hz**	Ω	**mA**	**mA**	**H**	Ω	**mA**	**H**
5	–	–	–	–	–	15.1	331.1	0.21
6	–	–	–	–	–	15.1	397.4	0.21
9	–	–	–	–	–	46.9	191.9	0.65
12	50	11	483.3	258.3	0.1	76.5	156.9	1.06
12	60	8.8	533.3	275	0.0.8	–	–	–
24	50	43.4	241.7	129.2	0.41	276	87	3.84
24	60	34.9	266.7	137.5	0.33	–	–	–
36	–	–	–	–	–	686	52.5	9.54
42	50	156	138.1	73.8	1.27	876	47.9	12.18
48	50	200	120.8	64.6	1.66	1100	43.6	15.29
48	60	156	133.3	68.8	1.31	–	–	–
60	–	–	–	–	–	1862	32.2	25.88
72	–	–	–	–	–	3025	23.8	42.05
110	50	892	52.7	28.2	8.71	6284	17.5	87.35
110	60	703	58.2	30	6.9	–	–	–
120	60	892	53.3	27.5	8.21	–	–	–
125	–	–	–	–	–	7259	17.2	100.90
127	50	1122	45.7	24.4	11.61	–	–	–
208	60	3145	30.8	15.9	24.66	–	–	–
220	50	4356	26.4	14.1	34.85	27038	8.1	375.83
220	60	3577	29.1	15	27.59	–	–	–
230	50	4356	25.2	13.5	38.09	–	–	–
230	60	3577	27.8	14.3	30.15	–	–	–
240	50	4356	24.2	12.9	41.47	27038	8.9	375.83
240	60	3577	26.7	13.8	32.83	–	–	–

Presentation : pages 28001/2 to 28001/5 **Characteristics :** pages 28002/2, 28002/3, 28002/8 **Dimensions, schemes :** pages 28004/2 to 28004/5

Plug-in relays

RH control relays
with 4 C/O contacts for control circuit : a or c

a
or
c

RHT-418E

Time delay relays - On-delay (1)

Description	Control circuit voltage	Timing range	Basic reference complete with code indicating control voltage (2)	Normal voltages	Weight kg
Relays with normal contacts	12…127 V (3) 50 Hz, 60 Hz, c	0.2…300 s	**RHT-418p**	**B E F**	0.130
		1.25 s…40 min	**RHT-4138p**	**B E F**	0.130
	220 V, 240 V 50 Hz, 60 Hz	0.2…300 s	**RHT-411p**	**M**	0.130
		1.25 s…40 min	**RHT-4131p**	**M**	0.130
Relays with low level contacts	12…127 V (3) 50 Hz, 60 Hz, c	0.2…300 s	**RHT-428p**	**B E F**	0.130
		1.25 s…40 min	**RHT-4238p**	**B E F**	0.130
	220 V. 240 V 50 Hz, 60 Hz	0.2…300 s	**RHT-421p**	**M**	0.130
		1.25 s…40 min	**RHT-4231p**	**M**	0.130

Time delay relays - Off-delay (1)

Relays with normal contacts	12…127 V (3) 50 Hz, 60 Hz, c	0.2…300 s	**RHR-418p**	**B E F**	0.130
		1.25 s…40 min	**RHR-4138p**	**B E F**	0.130
	220 V, 240 V 50 Hz, 60 Hz	0.2…300 s	**RHR-411p**	**M**	0.130
		1.25 s…40 min	**RHR-4131p**	**M**	0.130
Relays with low level contacts	12…127 V (3) 50 Hz, 60 Hz, c	0.2…300 s	**RHR-428p**	**B E F**	0.130
		1.25 s…40 min	**RHR-4238p**	**B E F**	0.130
	220 V, 240 V 50 Hz, 60 Hz	0.2…300 s	**RHR-421p**	**M**	0.130
		1.25 s…40 min	**RHR-4231p**	**M**	0.130

(1) Relay fitted with interference suppression coil with built-in diode.
(2) Standard control circuit voltages.

Volts	**12**	**24**	**42**	**48**	**60**	**72**	**110**	**125**	**127**	**220**	**240**
50 Hz, 60 Hz and c	J	B	D	E	P	EN	F	G	G	–	–
50 Hz and 60 Hz	–	–	–	–	–	–	–	–	–	M	U

(3) These products will not operate on a 12 V.

Presentation : pages 28001/2 to 28001/5
Characteristics : pages 28002/4. 28002/5,
28002/8 and 28002/9
Dimensions, schemes : pages 28004/2 to 28004/5

Plug-in relays

RH type PLC relays
with 4 C/O contacts for control circuit a or c current

a or c

RHE-418E

RHC-418E

Fleeting contact relays (200 ms) (1)

Description	Control circuit voltage	Basic reference complete with code indicating control voltage (2)	Normal voltages	Weight kg
On energisation				
Relays with normal contacts	12…127 V (3) 50 Hz, 60 Hz, c	**RHE-418p**	**B E F**	0.130
	220 V, 240 V 50 Hz, 60 Hz	**RHE-411p**	**M**	0.130
Relays with low level contacts	12…127 V (3) 50 Hz, 60 Hz, c	**RHE-428p**	**B E F**	0.130
	220 V, 240 V 50 Hz, 60 Hz	**RHE-421p**	**M**	0.130
On de-energisation				
Relays with normal contacts	12…127 V (3) 50 Hz, 60 Hz, c	**RHD-418p**	**B E F**	0.130
	220 V, 240 V 50 Hz, 60 Hz	**RHD-411p**	**M**	0.130
Relays with low level contacts	12…127 V (3) 50 Hz, 60 Hz, c	**RHD-428p**	**B E F**	0.130
	220 V, 240 V 50 Hz, 60 Hz	**RHD-421p**	**M**	0.130

Flashing relays (adjustable symmetrical flashing time) (1)

Description	Control circuit voltage		Basic reference complete with code indicating control voltage (2)	Normal voltages	Weight kg
Relays with normal contacts	12…127 V (3) 50 Hz, 60 Hz, c	0.5…5 s	**RHC-418p**	**B E F**	0.130
		2…30 s	**RHC-4198p**	**B E F**	0.130
	220 V, 240 V 50 Hz, 60 Hz	0.5…5 s	**RHC-411p**	**M**	0.130
		2…30 s	**RHC-4191p**	**M**	0.130

(1) Relay fitted with interference suppression coil with built-in diode.
(2) Standard control circuit voltages.

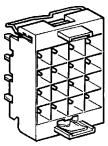
Volts	**12**	**24**	**42**	**48**	**60**	**72**	**110**	**125**	**127**	**220**	**240**
50 Hz, 60 Hz and c	J	B	D	E	P	EN	F	G	G	–	–
50 Hz and 60 Hz	–	–	–	–	–	–	–	–	–	M	U

(3) These products will not operate on a 12 V.

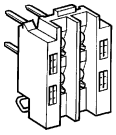
Presentation : pages 28001/2 to 28001/5 **Characteristics : pages 28002/4, 28002/5, 28002/7 and 28002/8** **Dimensions, schemes : pages 28004/2 to 28004/5**

Plug-in relays

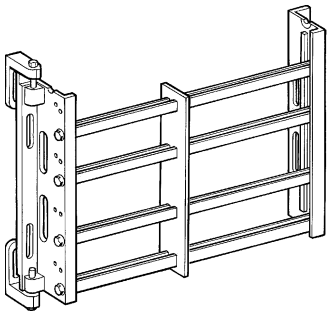
RH type PLC relays
Accessories



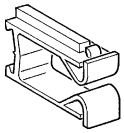
RHZ-11



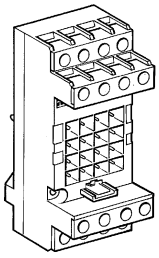
RHZ-15



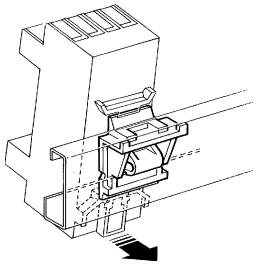
RHZ-71



RHZ-68



RHZ-21



RHZ-66

Accessories for back wiring

Description			Sold in lots of	Unit reference	Weight kg
Sockets (Markable with 3 ABR clip-in characters)	With 2.8 x 0.5 mm tag for soldering or Faston connectors		10	**RHZ-11**	0.020
	With 0.8 x 1.6 x 22 mm pins for wire wrap or termi-point		10	**RHZ-12**	0.020
	With 0.8 x 0.8 x 4.3 mm solder pins on 7.62 mm centres		10	**RHZ-13**	0.020
Adaptor 4 terminals for "back-front" connection	Back : 4 tags 2.8 x 0.5 mm and 4 pins 0.6 x 1.6 x 22 mm Front : 4 screw terminals for 2 x 2.5 mm^2 wires		1	**RHZ-15**	0.025
Hinged modular Chassis supplied in kit form	For 12 sockets or adaptors		1	**RHZ-70**	0.450
	For 21 sockets or adaptors		1	**RHZ-71**	0.500
	For 30 sockets or adaptors		1	**RHZ-72**	0.600
	For 36 sockets or adaptors (on 19 inch chassis)		1	**RHZ-73**	0.650
Cable clip	For mounting on hinged chassis		10	**RHZ-68**	0.010

Accessories for front wiring

Sockets (Protected against direct finger contact and markable with 4 AB1 clip-in characteristics)	Screw terminals for 2 x 2.5 mm^2 wires		1	**RHZ-21**	0.100
	With double tags 2.8 x 0.5 for Faston connectors		1	**RHZ-22**	0.080
	With double tags 4.8 x 0.8 for Faston connectors		1	**RHZ-24**	0.085
Socket integrated wiring	For making up a sequence		1	**RHZ-42**	0.080
Termination adaptor 4 terminals for front-back" connection	Top connectors : 4 tags 2.8 x 0.5 mm and 4 pins 0.8 x 1.6 x 22 mm Bottom connection : 4 screw terminals (protected against direct finger contact) for 2 x 2.5 mm^2 wires		1	**RHZ-25**	0.040
Mounting adaptor	For mounting sockets and termination adaptors on 4 rail		10	**RHZ-66**	0.005

Accessories for suppressors and for marking

Accessories for suppressors	RC suppressor for relays 12…220 V	With flexible cable	10	**RHZ-32**	0.008
		With rigid cable	10	**RHZ-33**	0.008
Accessories for marking	Self-adhesive labels 7 x 13 mm	Pack of 980 labels	1	**RHZ-63**	0.010
	Clip-in characters (3 or 4 maximum)	Strips of 10 identical numbers from 0 to 9	25 identical strips	**AB1-Rp** (1)	0.002
		Strips of 10 identical capital letters A to Z	25 identical strips	**AB1-Gp** (1)	0.002

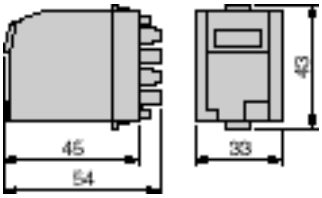
(1) To order, replace the • in the reference with the required character.

Presentation : pages 28001/2 to 28001/5 **Characteristics : pages 28002/6 and 28002/7** **Dimensions, schemes : pages 28004/2 to 28004/5**

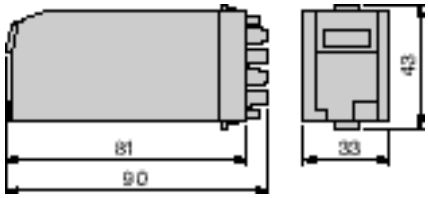
Plug-in relays
RH control relays

Relays

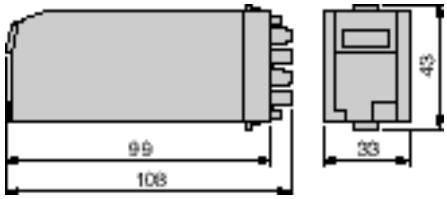
RHN



RHK

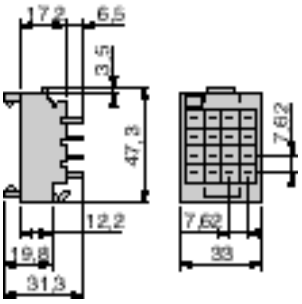


RHT, RHR, RHE, RHD, RHC

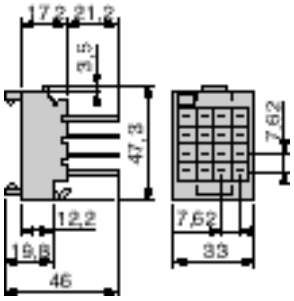


Sockets

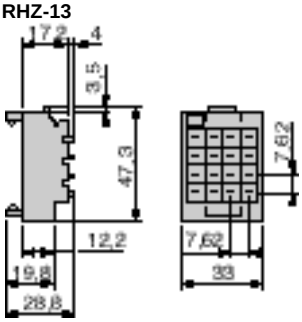
RHZ-11



RHZ-12

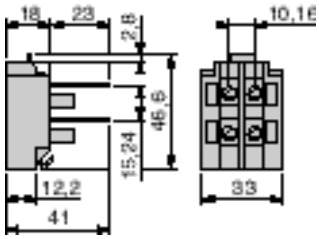


RHZ-13



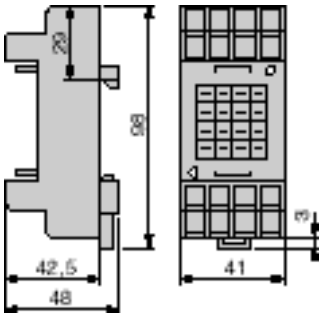
Termination adaptor

RHZ-15

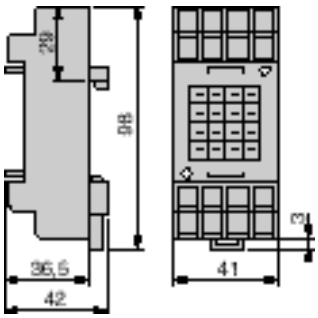


Sockets

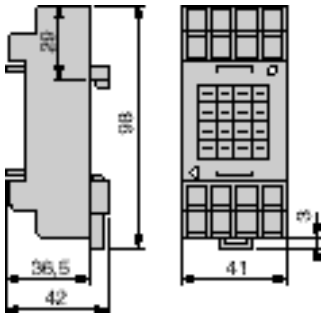
RHZ-21



RHZ-22

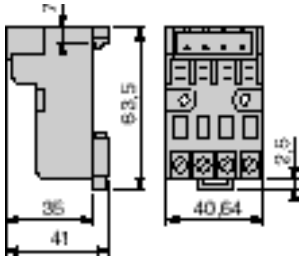


RHZ-24



Termination adaptor

RHZ-25

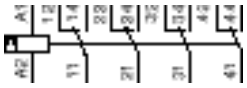


Relay circuit diagrams

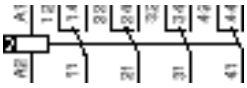
RHN

RHK

RHC

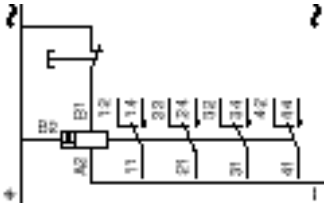


RHT

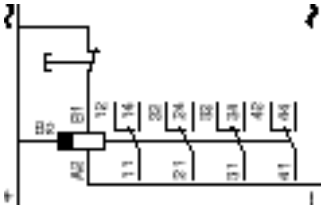


RHE

RHD



RHR



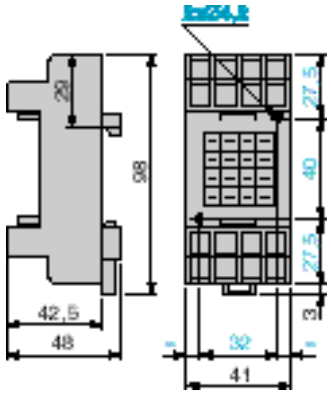
Maintain correct polarity when connecting for d.c. control.

Presentation : pages 28001/2 to 28001/5
Characteristics : pages 28002/2 to 28002/9
References : pages 28003/2 to 28003/5

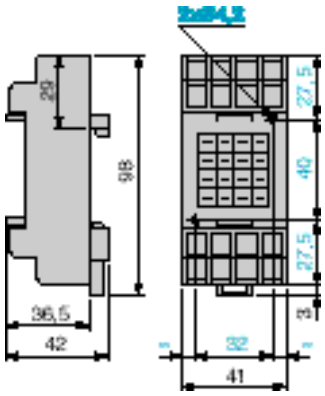
Plug-in relays

RH control relays
Sockets and termination adaptors for front wiring

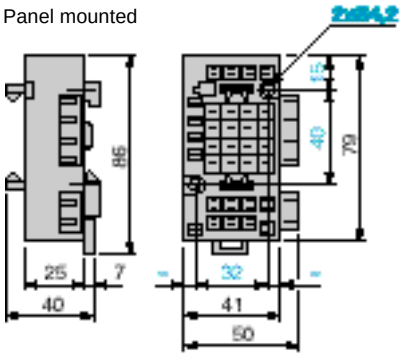
Sockets
RHZ-21
Panel mounted



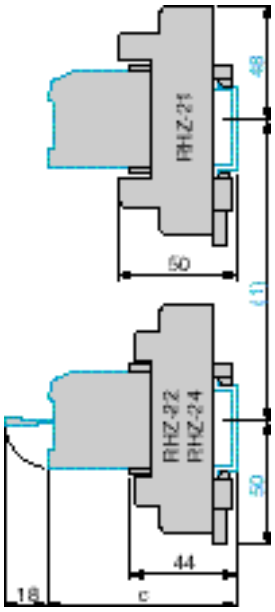
RHZ-22, RHZ-24
Panel mounted



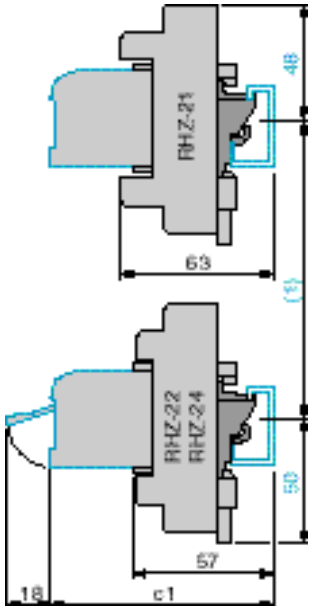
RHZ-42
Panel mounted



Clipped directly onto one AM1-DP rail



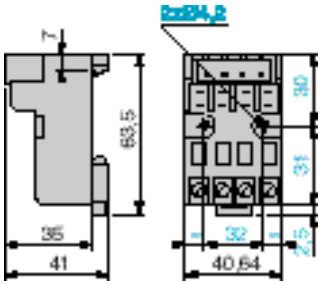
Clipped onto one DZ5-MB rail using adaptor RHZ-66



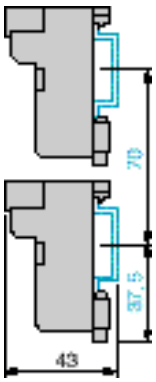
With relay	RHN	RHK	RHT	RHR	RHE	RHD	RHC
c	82	118	136	136	136	136	136
c1	95	131	149	149	149	149	149

(1) 110 min

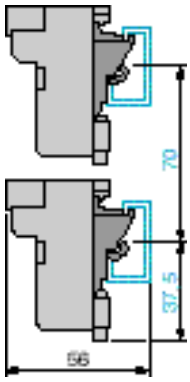
Termination adaptor
RHZ-25
Panel mounted



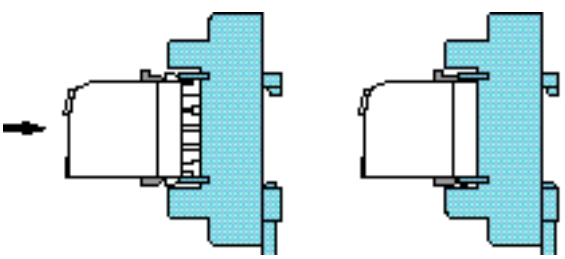
Clipped directly onto one AM1-DP rail



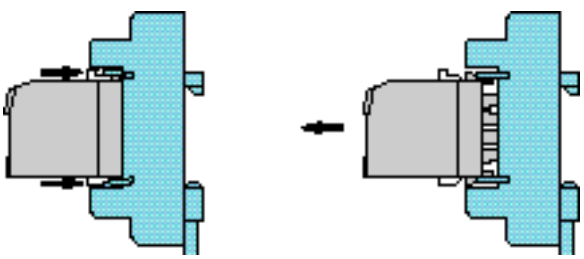
Clipped onto one DZ5-MB rail using adaptor RHZ-66



Mounting the relay on the socket
Instant clip-in locking



Release by pressing tabs

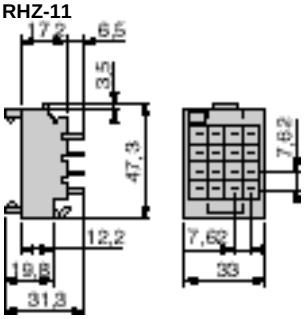


Presentation : pages 28001/2 to 28001/5
Characteristics : pages 28002/6 to 28002/7
References : page 28004/5

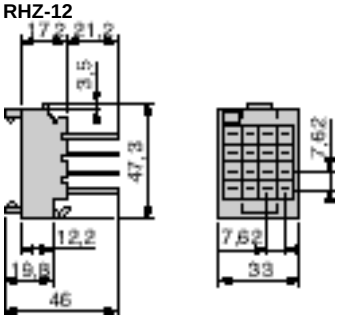
Plug-in relays

RH control relays
Sockets and termination adaptors for back wiring

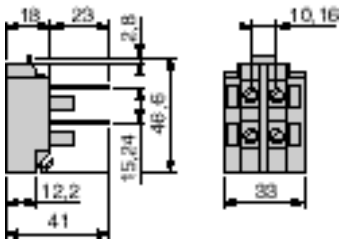
Sockets
RHZ-11



RHZ-12



Termination adaptor
RHZ-15



Mounted directly on slotted plate

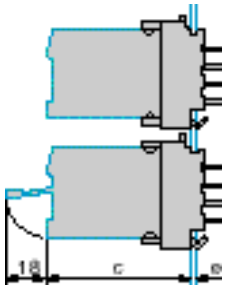
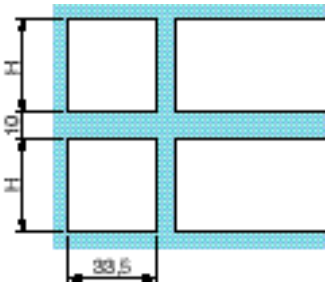


Plate cut-out



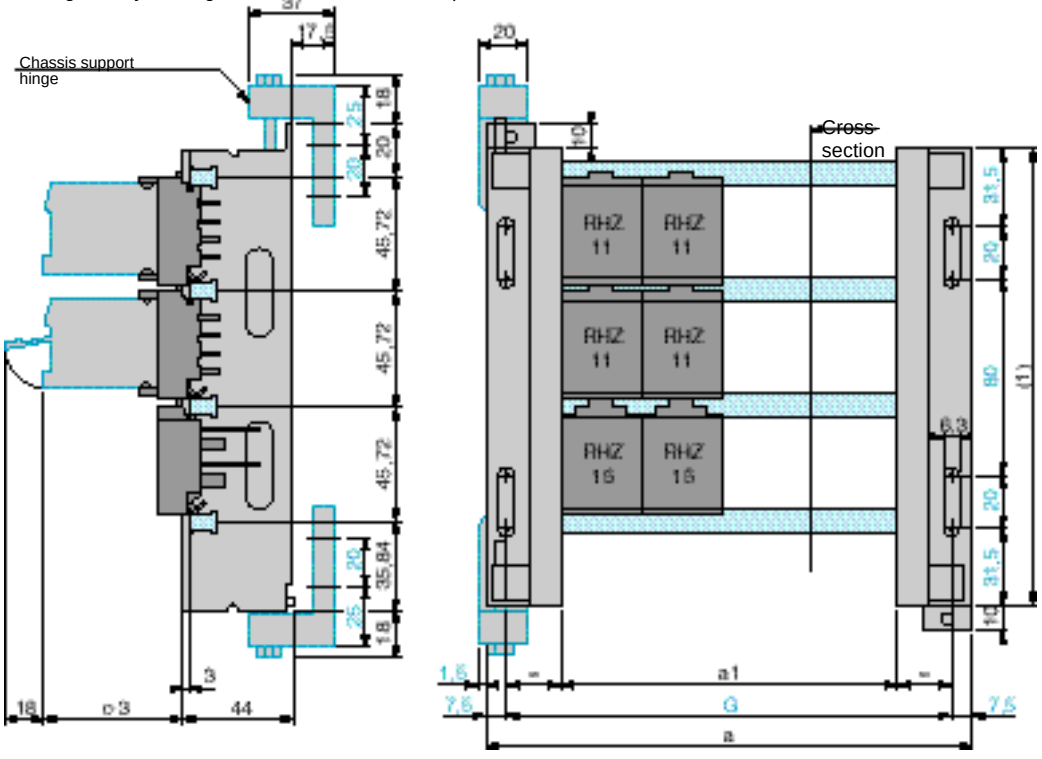
e : 1 mm (min) to 2 mm (max)	

With relays	**RHN**	**RHK**	**RHT** to **RHC**
c	57	93	111

e (1)	1 mm	2 mm
H	35.7 ±0.15	36.7 ±0.15

(1) plate thickness

Mounting directly on hinged modular chassis RHZ-7p



	RHZ-70	**RHZ-71**	**RHZ-72**	**RHZ-73**
a	215	315	415	480
a1	155	255	355	420
G	200	300	400	465

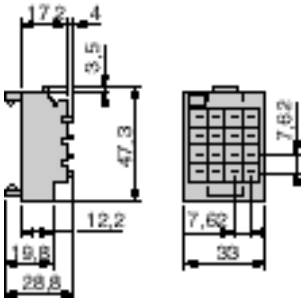
(1) modular 183

Presentation : pages 28001/2 to 28001/5
Characteristics : pages 28002/6 to 28002/7
References : page 28003/5

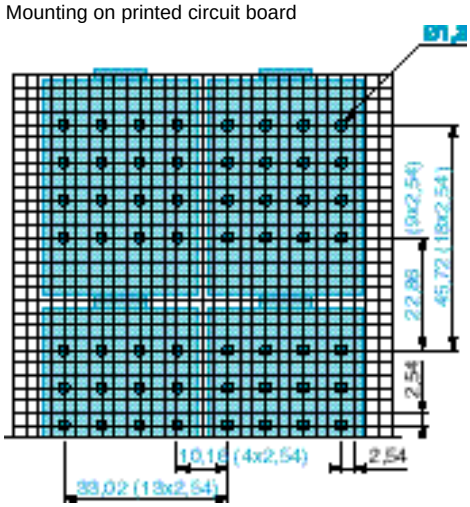
Plug-in relays

RH control relays
Sockets and termination adaptors for back wiring

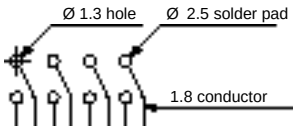
Socket
RHZ-13



Mounting on printed circuit board



Socket mounting



On all printed circuit boards with pin spacing of 2.54 mm.
The 7.62 mm spacing between pins (3 x 2.54 mm) allows space between rows of pins for a 1.8 mm x 70 m conductor with a capacity of 5 A at 240 V a

Presentation :
pages 28001/2 to 28001/5
Characteristics :
pages 28002/6 to 28002/7
References :
page 28003/5