7

Contents

7 - Control relays

k control relays

- For control circuit: a.c. or d.c. . . . . page 7/4
- Low consumption. . . . . page 7/5
- Instantaneous and time delay auxiliary contact blocks . . . . . page 7/6
- Mounting and marking accessories. . . . . page 7/7

Mini-control relays

- Mini-control relays types CA2-SK and CA3-SK. . . . . page 7/12
- Mini-control relays type CA2-SKE with alternating contacts . . . . . page 7/12
- Instantaneous auxiliary contacts and coil suppressor modules. . . . . page 7/13

Model d TeSys control relays

- For control circuit: a.c., d.c. or low consumption . . . . . page 7/21
- Add-on blocks . . . . . page 7/22
- Accessories and spare parts . . . . . page 7/23

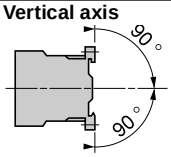
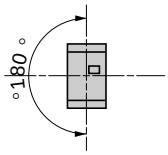
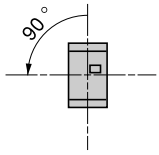
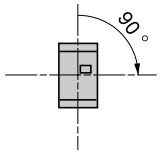
Zelio Control measurement and control relays. . . . . page 7/26

Electronic timers. . . . . page 7/28

7

Control relays
k control relays

Environment

Conforming to standards			IEC 947, NF C 63-140, VDE 0660, BS 5424		
Product certifications			UL, CSA		
Operating positions	**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 cond. without cable end	**mm²**	1 x 0.75	2 x 4	2 x 2.5
	Flexible conductor 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 cond. 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		
Solid 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		
	Conf. to NF F 16-101 and 16-102		Conforming to requirement 2		
Shock resistance (1/2 sine wave, 11 ms)	Control relay open		10 gn		
	Control relay closed		15 gn		
Safety separation of circuits	Conf. to VDE 0106 and IEC 536		VLSV (Very Low Safety Voltage), up to 400 V		

Control circuit characteristics

Control relay type			**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 microbreaks		**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 auxiliary 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
Frequency of the operational current		**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
Non-overlap 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 for up to 3600 operating cycles/hour) on an inductive load such as the coil of an electromagnet: making current (cos φ 0.7) = 10 times the power broken (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 for 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**	**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

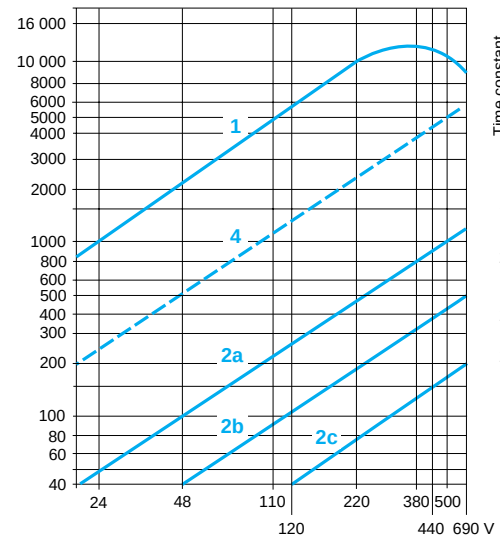
1 Breaking limit of contacts valid for:
- maximum of 50 operating cycles at 10 s intervals (power broken = making current x cos φ 0.7).

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

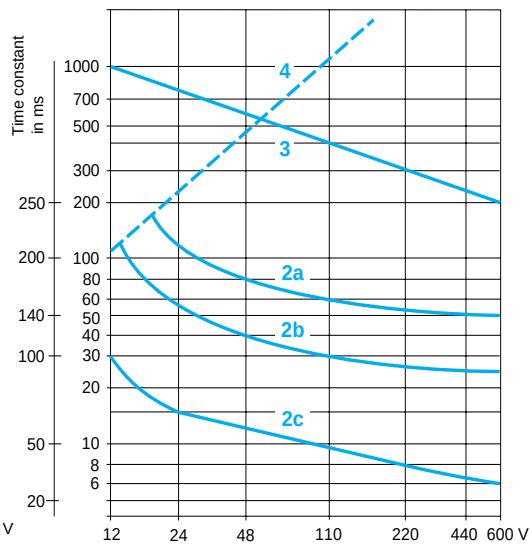
3 Breaking limit of contacts valid for:
- maximum of 20 operating cycles at 10 s intervals with current passing for 0.5 s per operating cycle.

4 Thermal limit

Power broken in VA



Power broken in W



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

Control relays

k control relays

For a.c. or d.c. control circuit



CA2-KN40●●



CA2-KN403●●



CA3-KN407●●

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, to be completed by adding the control voltage code *(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

Control relays for d.c. control circuit

- Mounted on 35 mm ⎓ rail or Ø 4 screw fixing.
- 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 circuit 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 Consumption	Auxiliary contacts		Basic reference, to be completed by adding the control voltage code *(2)*	Weight 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 per control relay

Connection	Composition		Reference	Weight
				kg
Screw terminals	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 terminals	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	2	–	**LA1-KN207**	0.045
1 x 6.35	–	2	**LA1-KN027**	0.045
or 2 x 2.8	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 per control relay

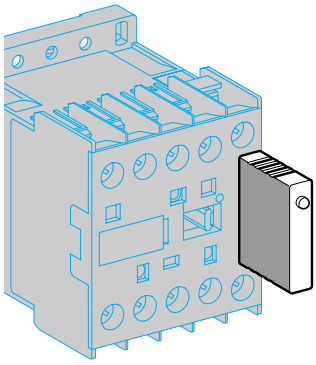
Voltage	Type	Timing range	Composition	Reference	Weight
V		s			kg
∿ or ⎓ 24...48	On-delay	1...30	1	**LA2-KT2E**	0.040
∿ 110...240	On-delay	1...30	1	**LA2-KT2U**	0.040

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

(1) Block of 4 contacts for use 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



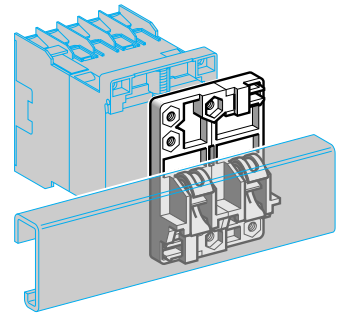
LA4-K●●●

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

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



LA9-D973

Marking accessories

Description	Application		Sold in lots of	Unit reference	Weight kg
Marker holder holder	Clip-on fixing on front face	–	100	**LA9-D90**	0.001
Clip-in markers	4 maximum per relay	Strips of 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

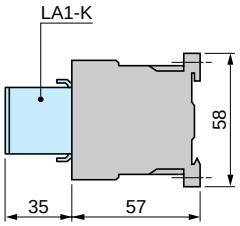
(1) Protection by limitation of the transient voltage to 2 Uc max.
Maximum reduction of transient voltage peaks.
Slight time delay on drop-out (1.1 to 1.5 times the normal time).
(2) No overvoltage or oscillation frequency.
Polarised component.
Slight time delay on drop-out (1.1 to 1.5 times the normal 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 number or character.

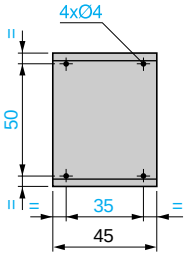
Dimensions :
page 22004/2

Control relays

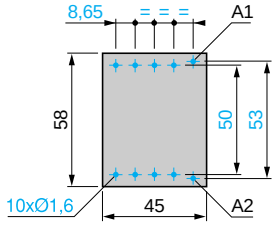
CA2-K, CA3-K, CA4-K

On panel

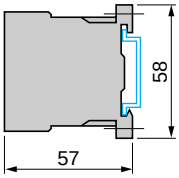


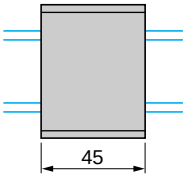


On printed circuit board



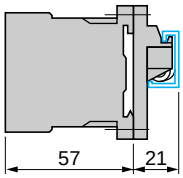
On mounting rail AM1-DP200 or AM1-DE200 (⌐ 35 mm)

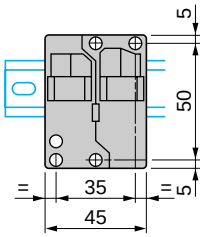




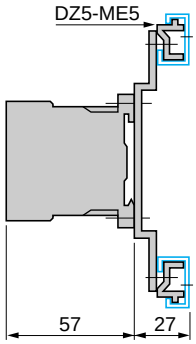
LA9-D973

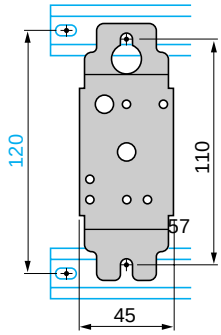
On asymmetrical rail with clip-on mounting plates





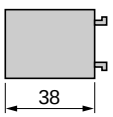
DX1-AP25

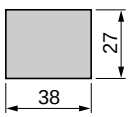




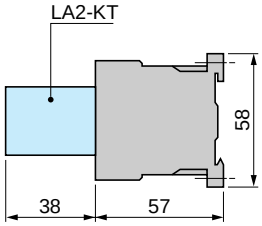
Electronic time delay contact blocks

LA2-KT



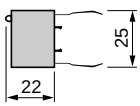


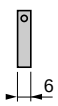
On control relay



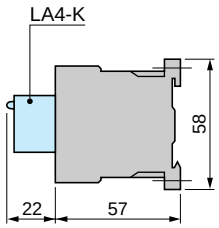
Suppressor modules

LA4-K





On control relay



Characteristics :
pages 22002/2 and 22003/3

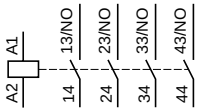
References :
pages 22003/2 to 22003/5

Schemes :
page 22004/3

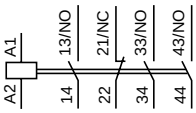
Control relays
k control relays

Control relays
CA2-K, CA3-K, CA4-K

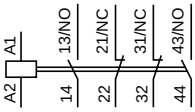
4 N/O



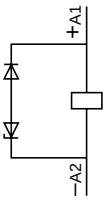
3 N/O + 1 N/C



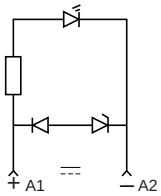
2 N/O + 2 N/C



With integral suppression device
CA3-K

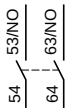


CA4-K

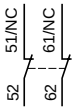


Instantaneous auxiliary contact blocks LA1-K
for CA2-K, CA3-K, CA4-K

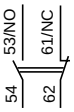
2 N/O
LA1-KN20
LA1-KN207



2 N/C
LA1-KN02
LA1-KN027

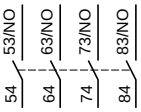


1 N/O + 1 N/C
LA1-KN11
LA1-KN117

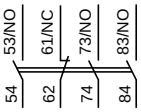


for CA2-K, CA3-K

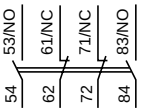
4 N/O
LA1-KN40
LA1-KN407



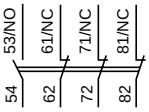
3 N/O + 1 N/C
LA1-KN31
LA1-KN317



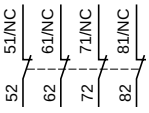
2 N/O + 2 N/C
LA1-KN22
LA1-KN227



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

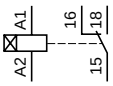


4 N/C
LA1-KN04
LA1-KN047

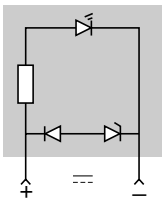


Electronic time delay contact blocks LA2-KT
for CA2-K, CA3-K, CA4-K

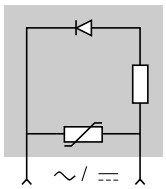
1 C/O
LA2-KT2



Suppressor modules
LA4-KC



LA4-KE



Characteristics :
pages 22002/2 and 22003/3

References :
pages 22003/2 to 22003/5

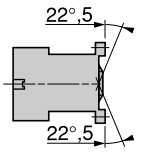
Schemes :
page 22004/2

Control relays
Mini-control relays types CA●-SK and CA2-SKE

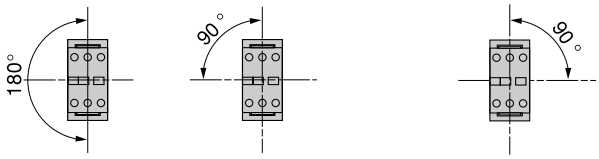
Environment

Rated insulation voltage (Ui)	Conforming to IEC 947, VDE 0110 gr C, BS 5424, CSA 22-2 n° 14, UL 508	**V**	690
Conforming to standards			IEC 947, NF C 63-110, VDE 0660, BS 5424
Product certifications			UL, CSA
Protective treatment	Conforming to IEC 68 (DIN 50015)		"TC" (Klimafest, Climateproof)
Degree of protection	Conforming to VDE 0106		Protection against direct finger contact
Ambient air temperature around the device	Storage	**°C**	- 50…+ 70
	Operation	**°C**	- 20…+ 50
Maximum operating altitude	Without derating	**m**	2000

Operating position — **Vertical axis** — **Horizontal axis**



Without derating



Without derating

Connection by connectors			Min.	Max.
	Solid conductor	**mm²**	1 x 1.5 or 2 x 1.5	1 x 6 or 2 x 4
	Flexible conductor without cable end	**mm²**	1 x 0.5 or 2 x 0.35	1 x 6 or 2 x 2.5
	Flexible conductor with cable end	**mm²**	1 x 0.35 or 2 x 0.35	1 x 6 or 2 x 1.5
Tightening torque	Pozidriv n° 1 head	**N.m**	0.8	
Terminal referencing	Conforming to standards EN 50005 and EN 50011		Up to 4 contacts	

Control circuit characteristics

Control relay type			**CA2-SK**	**CA2-SKE**	**CA3-SK**
Rated control circuit voltage (Uc)		**V**	∼ 24…400		⎓ 12…72
Control voltage limits (≤ 50 °C)	Operation		0.85…1.1 Uc		0.85…1.1 Uc
	For drop-out		≥ 0.20 Uc		≥ 0.10 Uc
Average consumption at 20 °C and at Uc	Inrush		16 VA	23 VA	2.2 W
	Sealed		4.2 VA	4.9 VA	2.2 W
Heat dissipation		**W**	1.4	1.5	2.2
Operating time at 20 °C and at Uc	Between coil energisation and				
	- opening of the N/C contacts	**ms**	8…16		10…18
	- closing of the N/O contacts	**ms**	7…14		8…12
	Between coil de-energisation and				
	- opening of the N/O contacts	**ms**	6…8		4…6
	- closing of the N/C contacts	**ms**	8…10		6…8
Maximum operating rate	In operating cycles per hour		1200		1200
Mechanical durability at Uc in millions of operating cycles	50/60 Hz coil		10		–
	Standard ⎓ coil		–		10

References : pages 22201/2 and 22201/3
Dimensions : page 22202/2
Schemes : page 22202/3

Auxiliary contact characteristics of mini-control relays and instantaneous contact blocks

Rated operational voltage (Ue)		**V**	Up to 690
Rated insulation voltage (Ui)	Conforming to IEC 947, BS 5424, VDE 0110 group C, CSA C 22-2 n° 14	**V**	690
Conventional thermal current (Ith)	For ambient temperature ≤ 55 °C	**A**	10
Frequency of the operating current		**Hz**	Up to 400
Short-circuit protection	Conforming to IEC 947 and VDE 0660, gl fuse	**A**	10

Operational power of contacts conforming to IEC 947

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

				110/	220/	380/	
	V	**24**	**48**	**127**	**230**	**400**	**440**
1 million operating cycles	**VA**	48	96	240	440	800	880
3 million operating cycles	**VA**	17	34	86	158	288	317
10 million operating cycles	**VA**	7	14	36	66	120	132
Occasional making capacity	**VA**	1000	2050	5000	10000	14000	13000

d.c. supply, category DC-13
Electrical durability (valid for 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**	**110**	**220**	**440**
1 million operating cycles	**W**	120	80	60	52	51
3 million operating cycles	**W**	55	38	30	28	26
10 million operating cycles	**W**	15	11	9	8	7
Occasional making capacity	**W**	720	600	400	300	230

References :
pages 22201/2 and 22201/3

Dimensions :
page 22202/2

Schemes :
page 22202/3

Control relays

Mini-control relays types CA2-SK and CA3-SK
Mini-control relay type CA2-SKE with alternating contacts



CA2-SK20

Mini-control relays

- Width of mini-control relays 27 mm.
- Mounting on 35 mm ⎓ rail.
- Connection by connectors.

Control circuit supply	Auxiliary contacts		Basic reference, to be completed by adding the control voltage code *(2)*	Weight kg
a.c. supply	2	–	**CA2-SK20●●**	0.132
	1	1	**CA2-SK11●●**	0.132
d.c. supply	2	–	**CA3-SK20●●**	0.132
	1	1	**CA3-SK11●●**	0.132



CA2-SKE20

Mini-control relay with alternating contacts

This mini-control relay with alternating contacts (see function diagram page 22202/3) makes it possible to automatically split the operating time between 2 circuits of a redundant system. By regularly energising the "safety circuits", this device makes it possible to ensure that they are operating correctly.

- Width of mini-control relay 45 mm.
- Fixing by Ø 4 screws.
- Connection by connectors.
- Cannot be fitted with front-mounted auxiliary contact block.
- Cannot be fitted with coil suppressor module.

Control circuit supply	Auxiliary contacts		Basic reference, to be completed by adding the control voltage code *(2)*	Weight kg
a.c. supply	2	–	**CA2-SKE20●●**	0.175

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

Mini-control relays CA2-SK and CA2-SKE

Volts ∿ 50/60 Hz	**24**	**48**	**110**	**120**	**220**	**230**	**240**	**380**	**400**
Code	B7	E7	F7	G7	M7	P7	U7	Q7	V7

Mini-control relays CA3-SK

Volts ⎓	**12**	**24**	**36**	**48**	**72**
Code	JD	BD	CD	ED	SD

Characteristics : pages 22200/2 and 22200/3
Dimensions : page 22202/2
Schemes : page 22202/3

Control relays

Mini-control relays types CA2-SK and CA3-SK

Instantaneous auxiliary contacts and coil suppressor modules



LA1-SK11

Instantaneous auxiliary contact blocks

Clip-on front mounting

For use on control relays	Maximum number of blocks per contactor	Composition		Reference	Weight kg
CA2-SK20	1	2	–	**LA1-SK20**	0.022
		–	2	**LA1-SK02**	0.022
		1	1	**LA1-SK11**	0.022



LA4-SK●1●

Suppressor modules

Clip-on fixing and electrical connection on right-hand side, without use of tools

For use on control relays	Type	For voltages	Sold in lots of	Unit reference	Weight kg
CA2-SK and CA3-SK	Varistor *(1)*	∿ and ⎓ 24 V…48 V	10	**LA4-SKE1E**	0.003
		∿ and ⎓ 110 V…250 V	10	**LA4-SKE1U**	0.003
	Diode *(2)*	⎓ 24 V…250 V	10	**LA4-SKC1U**	0.003

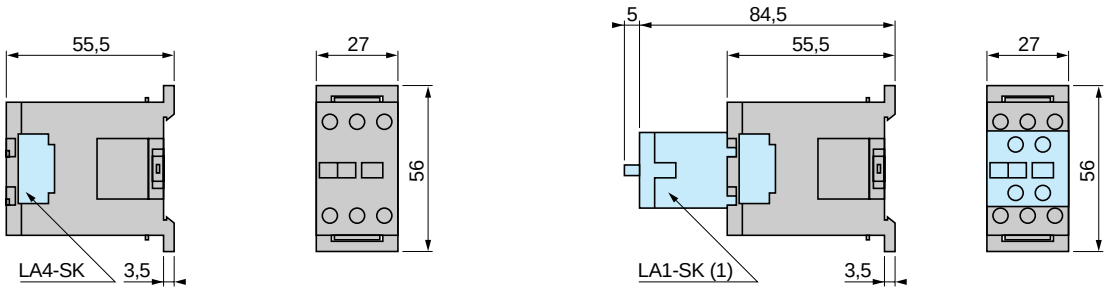
(1) Protection by limitation of the transient voltage to 2 Uc max.
Maximum reduction of transient voltage peaks.
Slight time delay on drop-out (1.1 to 1.5 times the normal time).

(2) No overvoltage or oscillation frequency.
Slight time delay on drop-out (1.1 to 1.5 times the normal time).

Characteristics : pages 22200/2 and 22200/3
Dimensions : page 22202/2
Schemes : page 22202/3

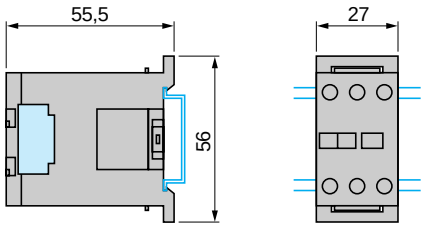
Control relays
Mini-control relays types CA●-SK and CA2-SKE

Dimensions
Mini-control relays
CA2-SK and CA3-SK

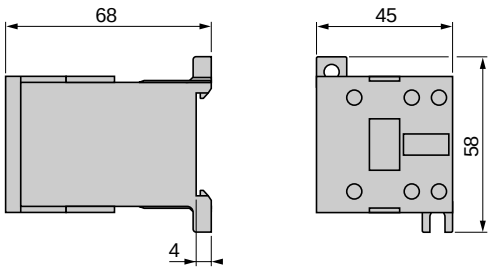


(1) Only on CA2-SK20.

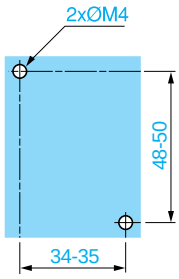
Mounting
Mini-control relays
CA2-SK and CA3-SK
on mounting rail AM1-DP200 or AM1-DE200 (⌙ 35 mm)



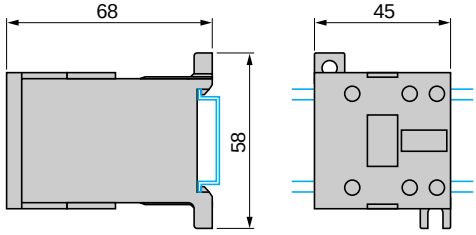
Dimensions
CA2-SKE



Mounting
on panel



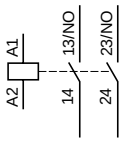
on mounting rail AM1-DP200 or AM1-DE200 (⌙ 35 mm)



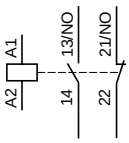
Characteristics : pages 22200/2 and 22200/3
References : pages 22201/2 and 22201/3
Schemes : page 22202/3

Control relays
Mini-control relays types CA●-SK and CA2-SKE

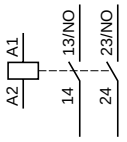
CA2-SK20, CA3-SK20
2 N/O



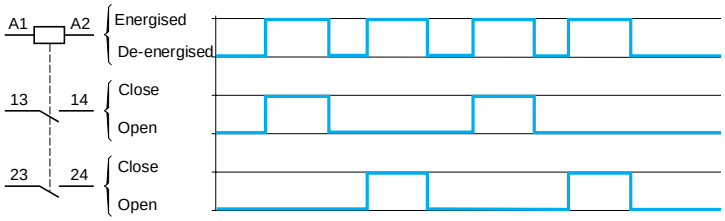
CA2-SK11, CA3-SK11
1 N/O + 1 N/C



CA2-SKE
2 N/O

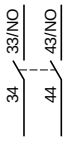


CA2-SKE
Function diagram

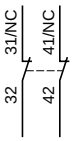


Instantaneous auxiliary contacts

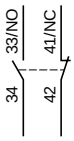
2 N/O
LA1-SK20



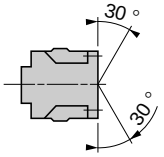
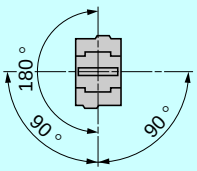
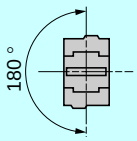
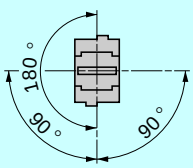
2 N/C
LA1-SK02



1 N/O + 1 N/C
LA1-SK11



TeSys control relays
Model d control relays

Control relay 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 withstand voltage (Uimp)	Conforming to IEC 947	**kV**	6	6	6
Separation of electrical circuits	Conforming 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		
Product certifications			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 11ms	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
Screw clamp connections	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
Spring terminal connections	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

Telemecanique

Control relay 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	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 (at 50 Hz)		**VA**	Inrush: 70	–	–
				sealed: 8	–	–
	With standard coil		**W**	–	Inrush or sealed: 5.4	Inrush or sealed: 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
	- 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 failure	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	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

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
Conventional thermal current (Ith)	For ambient temperature ≤ 60 °C		**A**	10
Frequency of the 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		∿ : 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	Philips head n° 2 and Ø 6		**N.m**	1.2
Non-overlap distance				Linked contacts in association with auxiliary contacts LAD-N
Linked contacts	Conforming 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 carrier.

References :
pages 24525/3 to 24525/5

Dimensions :
page 24537/2

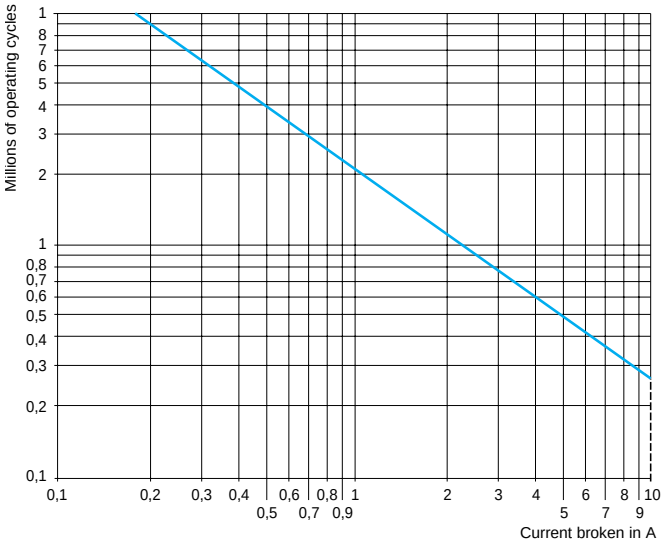
Schemes :
page 24537/3

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

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

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

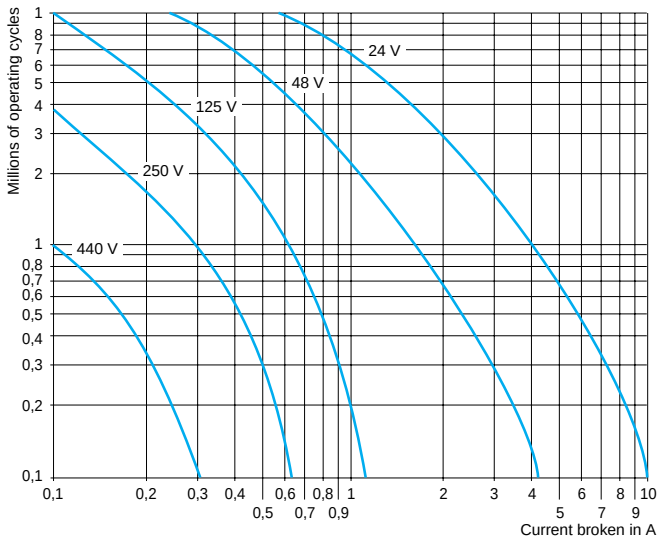
	V	24	48	115	230	400	440	600
1 million operating cycles	VA	60	120	280	560	960	1050	1440
3 million operating cycles	VA	16	32	80	160	280	300	420
10 million operating cycles	VA	4	8	20	40	70	80	100



d.c. supply, category DC-13

Electrical durability (valid for 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

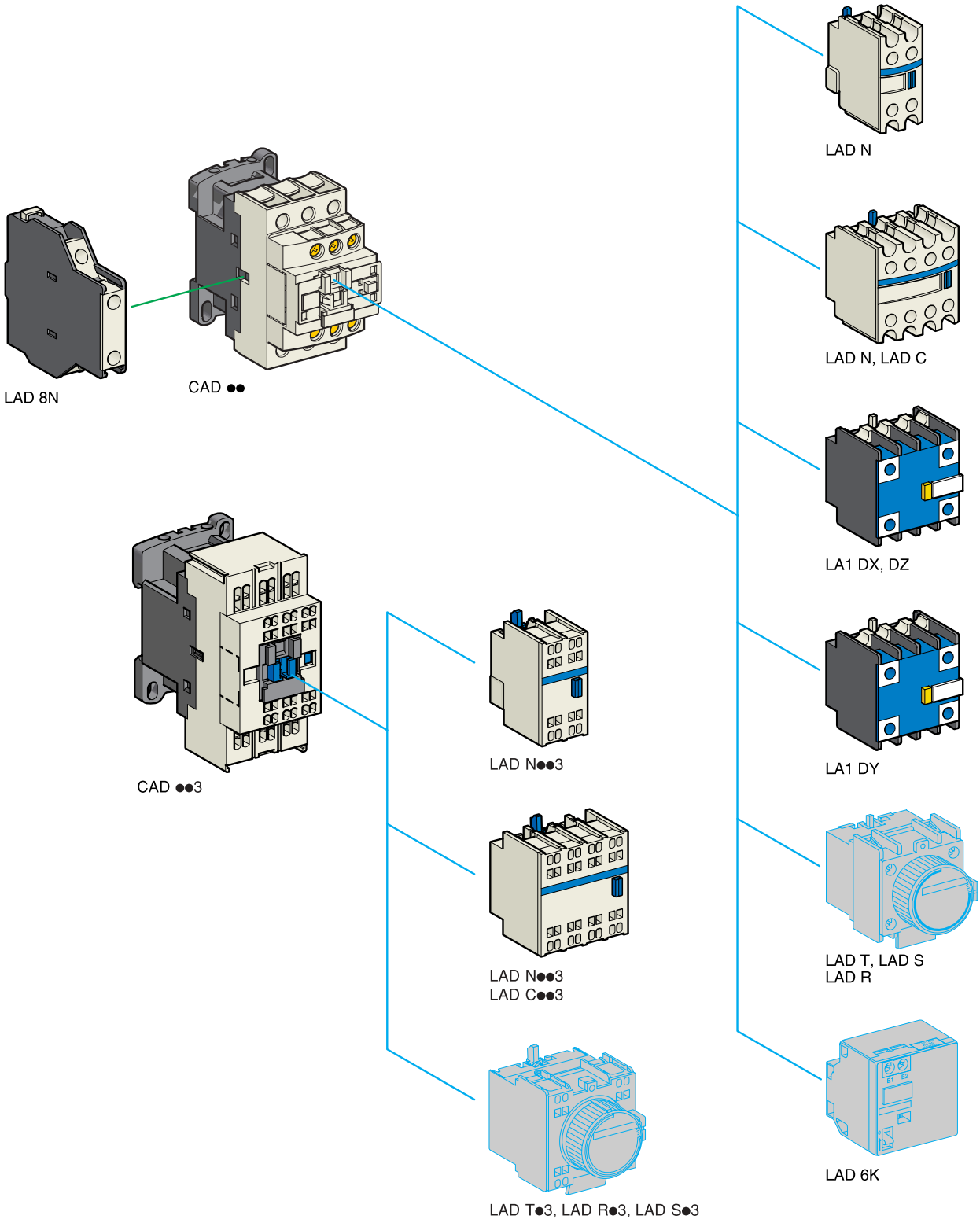


References :
pages 24525/3 to 24525/5

Dimensions :
page 24537/2

Schemes :
page 24537/3

TeSys control relays
Model d control relays and add-on blocks



See page opposite for mounting possibilities according to control relay 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, to be completed by adding the control voltage code *(1)*	Standard voltages ~		Standard voltages ⎓	LC *(2)*	Weight kg
Instantaneous	5	5	–	**CAD 50●● *(3)***	**B7**	**P7**	**BD**	**BL**	0.580
		3	2	**CAD 32●● *(3)***	**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

For use in normal operating environments

Number of contacts	Maximum number per relay, Clip-on mounting: front	Maximum number per relay, Clip-on mounting: side	Composition		Reference	Weight kg
2	1	–	1	1	**LAD N11**	0.030
	–	1 on LH side	1	1	**LAD 8N11 *(6)***	0.030
	1	–	2	–	**LAD N20**	0.030
	–	1 on LH side	2	–	**LAD 8N20 *(6)***	0.030
	1	–	–	2	**LAD N02**	0.030
	–	1 on LH side	–	2	**LAD 8N02 *(6)***	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 *(5)*			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	–	–	**LA1 DZ40**	0.050
		2	–	–	**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

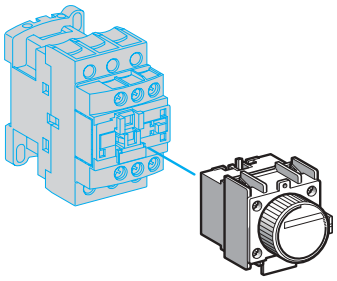
d.c. supply (coils with integral suppression device fitted as standard)											
Volts ⎓	**12**	**24**	**36**	**48**	**60**	**72**	**110**	**125**	**220**	**250**	**440**
U from 0.7 to 1.25 Uc	JD	BD	CD	ED	ND	SD	FD	GD	MD	UD	RD

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

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



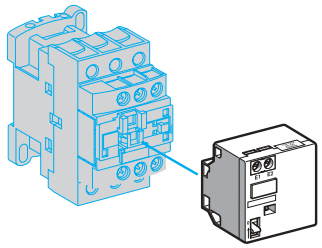
LAD T

Time delay auxiliary contact blocks for connection by screw clamp terminals *(1)*

Number and type of contacts	Maximum number per relay	Time delay		Reference	Weight
	Front mounting	Type	Range		kg
1 N/C and 1 N/O	1	On-delay	0.1…3 s ***(2)***	**LAD T0**	0.060
			0.1…30 s	**LAD T2**	0.060
			10…180 s	**LAD T4**	0.060
			1…30 s ***(3)***	**LAD S2**	0.060
		Off-delay	0.1…3 s ***(2)***	**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 references selected above. Example: **LAD T0** becomes **LAD T03**.



LAD 6K10

Mechanical latch block *(4)*

Unlatching control	Maximum number per relay	Basic reference to be completed *(5)*	Weight
	Front mounting		kg
Manual or electric	1	**LAD 6K10●**	0.070

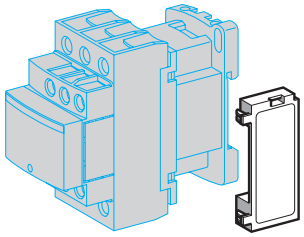
Suppressor modules

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.

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 400Hz maximum.
- Slight time delay on drop-out (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



LAD 4●●

Varistors (peak limiting)

- Protection provided by limiting the transient voltage value to 2Uc maximum.
- Maximum reduction of transient voltage peaks.
- Slight time delay on drop-out (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

Freewheel diode

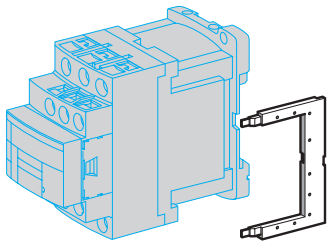
- No overvoltage or oscillating frequency.
- Increase in drop-out time (6 to 10 times the normal time).
- Polarised component.

CAD ⎓	⎓ 24…250 V	**LAD 4DDL**	0.012

Bidirectional peak limiting diode

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

CAD ∿	∿ 24 V	**LAD 4TB**	0.012
	∿ 72 V	**LAD 4TS**	0.012
CAD ⎓	⎓ 24 V	**LAD 4TBDL**	0.012
	⎓ 72 V	**LAD 4TSDL**	0.012
	⎓ 125 V	**LAD 4TGDL**	0.012
	⎓ 250 V	**LAD 4TUDL**	0.012
	⎓ 600 V	**LAD 4TXDL**	0.012



LAD 4DDL ou LAD 4T●DL

(1) These contact blocks cannot be used on low consumption control relays.
(2) With extended scale from 0.1 to 0.6 s.
(3) With switching time of 40 ms ± 15 ms between opening of the N/C contact and closing of the N/O contact.
(4) Power should not be simultaneously applied or maintained to the mechanical latching block of the CAD N. The duration of the control signal to the mechanical latching block and the CAD N should be ⩾100 ms.
(5) 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

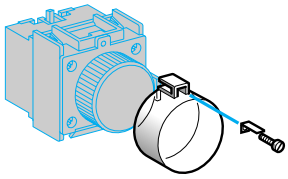
(6) CAD ●● d.c. and low consumption control relays are fitted with a built-in bi-directional peak limiting diode suppressor as standard. On control relays produced after 15th July 2004, this diode is removable. It can therefore be replaced by the user (see references LAD 4T●●● above). It can also be replaced by a freewheel diode LAD 4DDL . If a d.c. or low consumption control replay is used without suppression, the standard suppressor should be replaced with a blanking plug LAD 9DL.

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

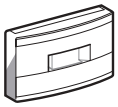
TeSys control relays
Model d control relays
Accessories and spare parts



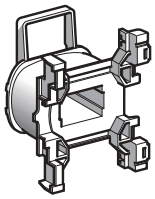
XBY 2U



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)	10	**LAD 21**	0.020
Sheet of 112 blank legends, self-adhesive, 8 x 12 mm	LAD (2 contacts), LAD T		**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" labelling software for legends LAD 21 and LAD 22, supplied on CD-Rom	Multi-language version: English, French, German, Italian, Spanish	1	**XBY 2U**	0.100
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				
Sealing 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

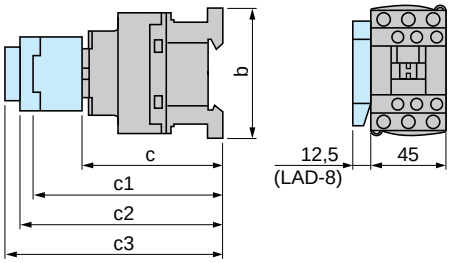
Control circuit voltage Uc	Average resistance at 20 °C ± 10 %	Inductance of closed circuit	Reference *(1)* 50/60 Hz	Weight
V	V	H		kg
12	6;3	0.26	**LXD 1J7**	0.070
21 ***(2)***	5;6	0.24	**LXD 1Z7**	0.070
24	6;19	0.26	**LXD 1B7**	0.070
32	12;3	0.48	**LXD 1C7**	0.070
36	–	–	**LXD 1CC7**	0.070
42	19;15	0.77	**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	–	**LXD 1SC7**	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 control relays 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

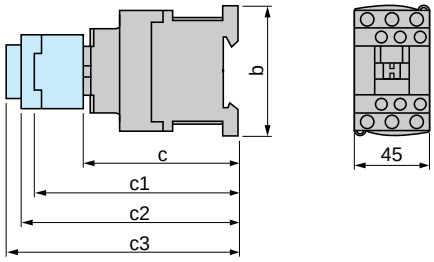
Dimensions

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 LAD-6K10	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)

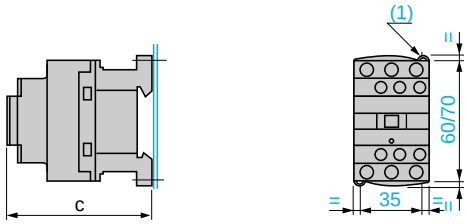


CAD-		32 50	323 503
b		77	99
c	without cover or add-on blocks	93	93
	with cover, without add-on blocks	95	95
c1	with LAD-N or C (2 or 4 contacts)	126	126
c2	with LAD-6K10	138	138
c3	with LAD-T, R, S	146	146
	with LAD-T, R, S and sealing cover	150	150

Mounting

CAD

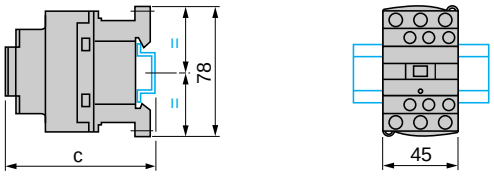
Panel mounted



		CAD ∿	CAD ⎓ or LC
c	with cover	86	95

(1) 2 elongated holes 4.5 x 9

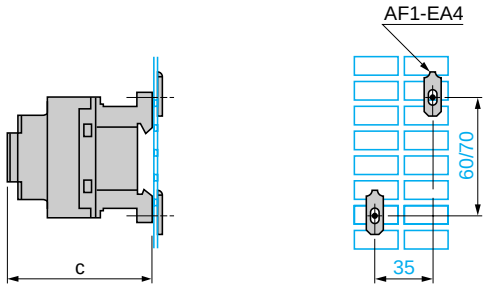
Mounted on rail AM1-DP200 or DE200



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

(1) With cover

Mounted on plate AM1-P

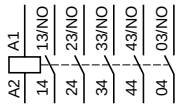


		CAD ∿	CAD ⎓ or LC
c	with cover	86	95

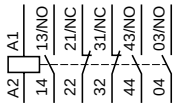
TeSys control relays
Model d control relays and add-on blocks

Instantaneous auxiliary contacts

5 N/O
CAD-50

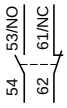


3 N/O + 2 N/C
CAD-32



Instantaneous auxiliary contact blocks

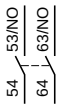
1 N/O + 1 N/C
LAD-N11



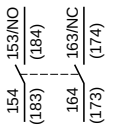
LAD-8N11 *(1)*



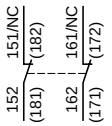
2 N/O
LAD-N20



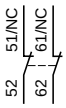
LAD-8N20 *(1)*



2 N/C
LAD-8N02

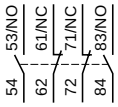


LAD-N02



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

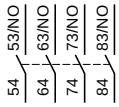
2 N/O + 2F N/C
LAD-N22



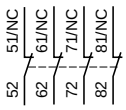
1 N/O + 3 N/C
LAD-N13



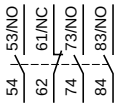
4 N/O
LAD-N40



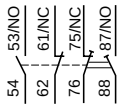
4 N/C
LAD-N04



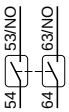
3 N/O + 1 N/C
LAD-N31



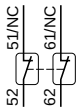
2 N/O + 2 N/C including 1 N/O + 1 N/C make before break
LAD-C22



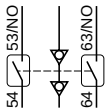
With dust and damp protected contacts
2 N/O protected
LA1-DX20



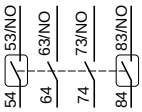
2 N/C protected
LA1-DX02



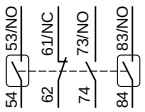
2 N/O protected *(2)*
LA1-DY20



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



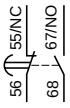
2 N/O protected + 1 N/O + 1 N/C non protected
LA1-DZ31



(2) Product fitted with 4 earth screen continuity terminals.

Time delay auxiliary contact blocks

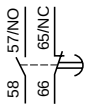
On-delay 1 N/O + 1 N/C
LAD-T



LAD-S

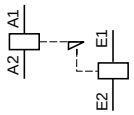


Off-delay 1 N/O + 1 N/C
LAD-R



Mechanical latch blocks

LAD-6K10



Zelio Control - measurement and control relays

Applications	Supply control relays		
	3-phase		3-phase + neutral
			
Functions	Control : - rotational direction, - presence of phases, - undervoltage, - overvoltage and undervoltage - asymmetry of phases		Control : - overvoltage and undervoltage - presence of neutral,
Relay output	1 or 2 C/O contacts		2 C/O contacts
Width	22.5 mm	45 mm	45 mm
Relay type	**RM4 T●●●** **RM 84 873 004** **RM 84 873 299** **RM 84 873 5●●**	**RM 84 873 01●** **RM 84 873 201** **RM 84 873 3●●**	**RM 84 873 211**
Pages	28533/3	28536/3	28536/3

Voltage measurement relays	Current measurement relays



Control : - overvoltage ~ 50 mV...5 V ~ 1..0.100 V ~ 30..0.500 V	Control : - overvoltage **or** undervoltage ~ 50 mV...5 V ~ 1...100 V ~ 30...500 V ~ 0.2...60 V ~ 15...600 V ~ or ⎓ 20...80 V ~ or ⎓ 65...260 V	~ 0.2...60 V ~ 15...600 V	Control : - overvoltage **and** undervoltage	Control : - overcurrent 1...20 A with built-in TI	3 mA...1 A	Control : overcurrent and undercurrent 3 mA...1 A 2...500 mA 0.1...10 A 10...100 A with built-in TI	0.3...15 A 2...500 mA 0.1...10 A
1 C/O contact	1 or 2 C/O contacts	1 C/O contact	2 C/O contacts	1 C/O contact		1 or 2 C/O contacts	
22.5 mm		45 mm	22.5 mm	17.5 mm	22.5 mm		45 mm
RM4 UA0●●	**RM4 UA3●** **RM 84 872 0●●**	**RM 84 872 3●●**	**RM4 UB3●**	**RM 84 871 102**	**RM4 JA01●**	**RM4 JA31●●** **RM 84 871 0●●**	**RM4 JA32●●** **RM 84 871 3●●**
28472/4	28537/3	28539/3	28474/3	28540/3	28471/4	28541/3	28539/3

Zelio Control - measurement and control relays

Applications	**Liquid level control relays**		
			
Functions	Control : - empty		Control : - empty or fill
Relay output	1 C/O contact		1 or 2 C/O contacts
Width	22.5 mm	Plug-in 8 or 11-pin	22.5 mm
Relay type	**RM 84 870 1●1**	**RM 84 870 30●** **RM 84 870 807**	**RM4 L●●●●** **RM 84 870 00●**
Pages	28545/3	28546/3	28544/3

Liquid level control relays			Motor control relays	
				
Control : - empty or fill with alarm	Control : - empty and fill		Control : - underspeed	Control : - overload and underload (cos φ)
2 C/O contacts	1 C/O contact	1 C/O contact	1 C/O contact	2 C/O contacts
45 mm		Plug-in 8 or 11-pin	45 mm	
RM 84 870 50●	**RM 84 870 604**	**RM 84 870 40●** **RM 84 870 808**	**RM 84 874 30●**	**RM 84 873 40●**
28549/3	28548/3	28547/3	28543/3	28542/3

Zelio Time - timing relays

Applications	**These timing relays enable simple automation cycles to be set up using wired logic. They can also be used to complement the functions of PLCs.**			
Output	**Solid state** **Timing relays with solid state output reduce the amount of wiring required (wired in series). The durability of these timing relays is independent of the number of operating cycles.**		**Relay** **Relay outputs provide complete isolation between the supply and outut circuits.** **It is possible to have several output circuits.**	
				
Type	Modular	Industrial	Modular	Industrial
Timing ranges	***7 ranges :*** 1 s, 10 s, 1 min, 10 min, 1 h, 10 h, 100 h	***1 or 2 ranges,*** depending on model : 10 s, 30 s, 300 s, 60 min	Depending on model : ***6 ranges :*** 1 s, 10 s, 1 min, 10 min, 1 h, 10 h ***7 ranges :*** 1 s, 10 s, 1 min, 10 min, 1 h, 10 h, 100 h	Depending on model : ***4 ranges :*** 0.6 s, 2.5 s, 20 s, 160 s ***7 ranges :*** 1 s, 10 s, 1 min, 10 min, 1 h, 10 h, 100 h ***7 ranges :*** 1 s, 3 s, 10 s, 30 s, 100 s, 300 s, 10 min ***10 ranges :*** 1 s, 3 s, 10 s, 30 s, 100 s, 300 s, 30 min, 300 min, 30 h, 300 h
Relay type	**RE11 L●●●**	**RE9**	**RE11 R●●●**	**RE 88 865 ●●●** **RE7**
Pages	28552/4 and 28552/5	28503/2	28553/4 and 28553/7	28555/4 to 28555/7 and 28504/2 to 28505/3

These timing relays enable simple automation cycles to be set up using wired logic.
They can also be used to complement the functions of PLCs.

Relay
Relay outputs provide complete isolation between the supply and output circuits.
It is possible to have several output circuits.








Optimum	Plug-in		Panel-mounted		
	Universal	Miniature	Analogue	Digital	Electromechanical
1 range, depending on model : 0.5 s, 3 s, 10 s, 30 s, 300 s, 30 min	***7 ranges :*** 1 s, 10 s, 1 min, 10 min, 1 h, 10 h, 100 h	***7 ranges :*** 0,1 s...1 s 1 s...10 s 0,1 min...1 min 1 min...10 min 0,1 h...1 h 1 h...10 h 10 h...100 h	***14 ranges :*** 1,2 s, 3 s, 12 s, 30 s, 120 s, 300 s, 12 min, 30 min, 120 min, 300 min, 12 h, 30 h, 120 h, 300 h	Depending on model : ***7 ranges :*** 99.99 s, 999.99 s, 99 min 59 s, 99.99 min, 999.9 min, 99 h 59 min, 999.9 h ***11 ranges :*** 99.99 s, 999.99 s, 9999 s, 99 min 59 s, 99.99 min, 999.9 min, 9999 min, 99 h 59 min, 99,99 h, 999.9 h, 9999 h	Depending on model : ***3 ranges :*** 6 s, 60 s, 12 min ***3 ranges :*** 6 min, 60 min, 12 h
RE8	**RE 88 867 ●●●**	**RE XL●TM●●**	**RE 48A●●●**	**RE 88 857 ●●●**	**RE 88 226 ●●●**
28507/2 to 28508/3	***(1)***	28513/3	28554/7	***(1)***	***(1)***

(1) Please consult your Regional Sales office.