

Control modules

Coil suppressor modules - Indicators

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Characteristics

Environment

Conforming to standards			IEC 337-1
Approvals	Pending		UL, CSA
Protective treatment			"TH"
Degree of protection	Conforming to VDE 0106		Protection against direct finger contact
Ambient air temperature around the device	Storage	°C	- 40...+ 80
	Operation	°C	- 25...+ 55
	For operation at U _c	°C	- 25...+ 70

Control modules "Auto-Man-Stop"

Type			LA4-DM
Protection	Against electric shocks	kV	2
Built-in protection	Contactor coil suppression		By varistor
Indication	By integral LED		Illuminates when the contactor is energised
Electrical life	In operating cycles		20 000
Contact block characteristics	Rated insulation voltage (U _i) (To IEC 158-1 and VDE 0110 group C)	V	250
	Rated operational voltage (U _e)	V	250
Cabling	Flexible or solid cable with or without cable end	mm ²	Min : 1 × 1 Max : 2 × 2,5
Recommendation	The "Auto-Man" selector switch must only be operated with the Start-Stop switch in position "O"		

Coil suppressor modules

Type			LA4-DA1•	LA4-DE1•	LA4-DC1U
Type of protection			RC circuit	Varistor	Diode
Rated operational voltage (U _e)		V	~ 24...250	~ or = 24...250	= 24...250
Maximum peak voltage			3 U _c	2 U _c	No overvoltage
Natural RC frequency		V	24/ 48	50/ 127	110/ 240
		Hz	400	200	150
Rated insulation voltage	Conforming to IEC 158-1 and VDE 0110 group C	V	250	250	250

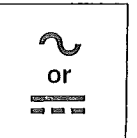
Indicators

Type			LA4-DVE	LA4-DVM	LA4-DVR
Indication			Red LED		
Operating range	~ or =	V	12...72	72...250	250...440
Cable	Colour		White	Blue	Red
Type of connection			By pre-stripped flexible conductor		

Control relays CA2 -D and CA3-D

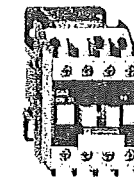
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Control circuit : a.c. or d.c.

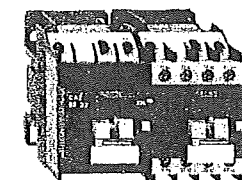


Control circuit : a.c.

Type	Number of contacts	Composition	Basic reference. Complete with code indicating control circuit voltage (2)	Weight kg
Instantaneous	4	4 —	CA2-DN40•• (3)	0.320
		3 1	CA2-DN31•• (3)	0.320
		2 2	CA2-DN22•• (3)	0.320
		2 2 inc. 1 N/O and 1 N/C make before break	CA2-DC22••	0.320
Mechanical latch/memory	4	2 2	CA2-DK22••	0.580



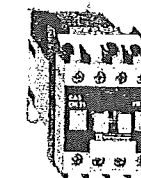
CA2-DN31••



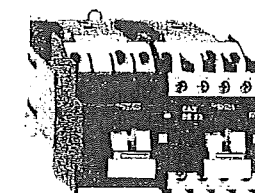
CA2-DK22••

Control circuit : d.c.

Type	Number of contacts	Composition	Basic reference. Complete with code indicating control circuit voltage (2)	Weight kg
Instantaneous	4	4 —	CA3-DN40••	0.580
		3 1	CA3-DN31••	0.580
		2 2	CA3-DN22••	0.580
		2 2 inc. 1 N/O and 1 N/C make before break	CA3-DC22••	0.580
Mechanical latch/memory	4	2 2	CA3-DK22••	1.100



CA3-DN31••



CA3-DK22••

Specifications

Protective treatment	"TH" as standard
Fixing	On 35 mm ~ rail or screw fixing
Cabling	By screw clamp terminals
Terminals	Protected against direct finger contact with ready-to-tighten captive screws (1)

Marking and contact positions conforming to CENELEC EN 50005, EN 50011.

(1) Telemecanique patented system which prevents screws from tightening themselves (eg due to vibrations during transport).

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

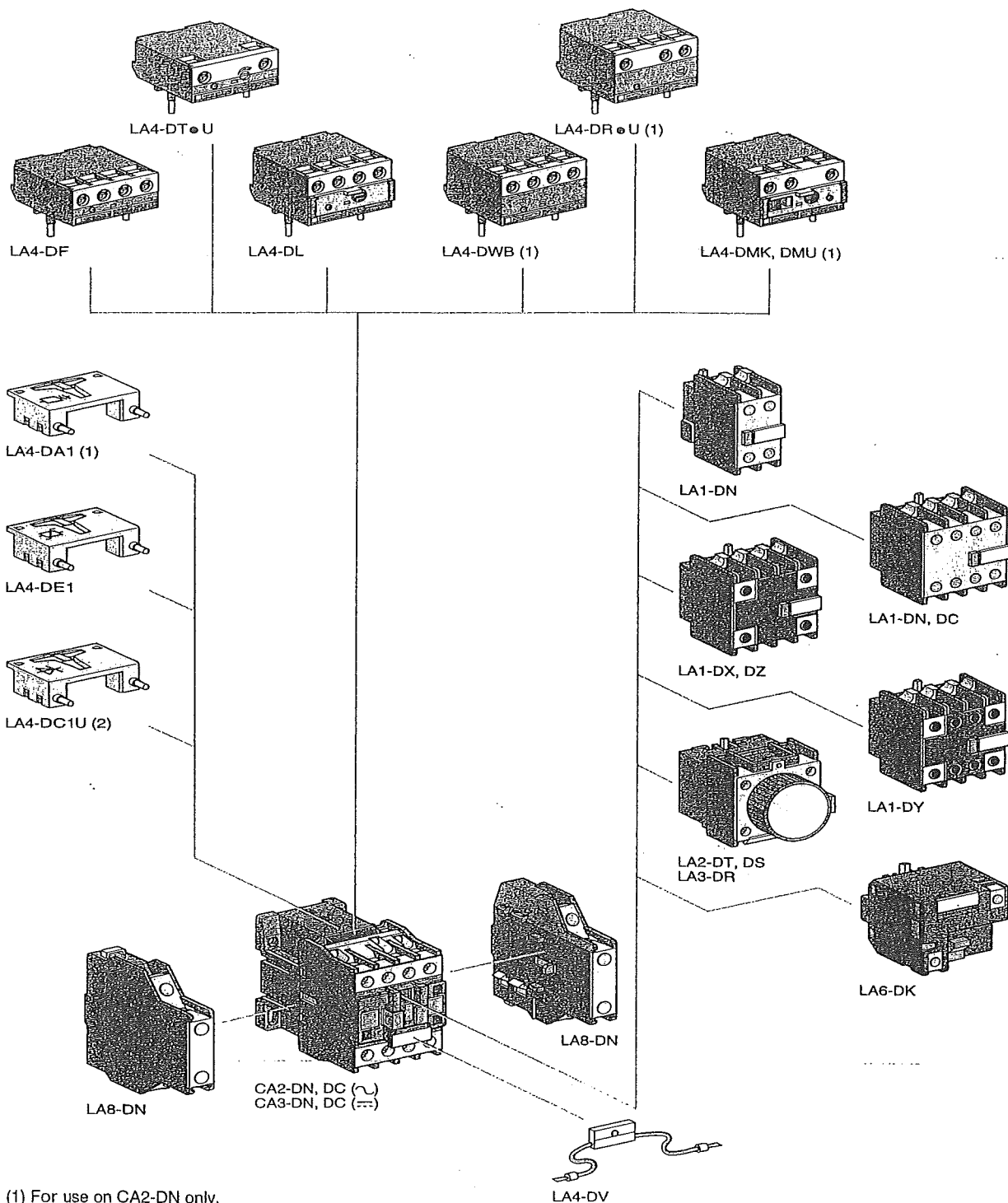
Volts ~	24	42	48	110	220/230	230	240	380/400	400	415	440	500	660
50 Hz	B5	D5	E5	F5	M5	P5	U5	Q5	V5	N5	R5	S5	Y5
60 Hz	B6	—	E6	F6	M6	—	U6	Q6	—	N6	R6	—	—
50/60 Hz	—	—	D7	—	—	—	P7	U7	—	V7	N7	R7	—

Volts =	12	24	36	48	60	72	110	125	220	250	440
U from 0.8 to 1.1 U _c	JD	—	CD	—	ND	SD	—	GD	MD	UD	RD
U from 0.7 to 1.25 U _c	JW	BW	CW	EW	—	SW	FW	—	MW	—	—

(3) For purchase in bulk packs, see page 11/25.

Other versions

Control relays CA2-D or CA3-D for other ~ voltages between 24 and 660 V or = between 12 and 660 V.
Please consult your Regional Sales Office



(1) For use on CA2-DN only.
(2) For use on CA3-DN only.



Auxiliary contact blocks

Add-on mechanical latch blocks





for control relays CA2-D and CA3-D

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Instantaneous auxiliary contact blocks

Number of contacts	Maximum number per relay (1)		Composition		Reference	Weight
	Clip-on mounting front	side				
For standard applications						
2	1	—	1	1	LA1-DN11 (7)	0.030
	—	2	1	1	LA8-DN11	0.030
	1	—	2	—	LA1-DN20 (7)	0.030
	—	2	2	—	LA8-DN20	0.030
4	1	—	—	2	LA1-DN02 (7)	0.030
	1	—	2	2	LA1-DN22 (7)	0.050
	—	—	1	3	LA1-DN13	0.050
	—	—	4	—	LA1-DN40 (7)	0.050
	—	—	—	4	LA1-DN04 (7)	0.050
	3	1	—	—	LA1-DN31	0.050
	2	2 (3)	—	—	LA1-DC22 (7)	0.050

Instantaneous auxiliary contact blocks (with dust and damp protected contacts)

For use in particularly harsh industrial environments							
Number of contacts	Maximum number per relay (1)	Composition				Reference	Weight
		Front mounting					
							
		protected (4)					kg
2	1	2	—	—	—	LA1-DX20	0.040
		2	2	—	—	LA1-DY20	0.040
4	1	2	—	2	—	LA1-DZ40	0.050
		2	—	1	1	LA1-DZ31	0.050

Time delay auxiliary contact blocks

Number and type of contacts	Maximum number per relay (1) Front mounting	Time delay		Reference	Weight kg
		Type	Range		
1 N/C + 1 N/O	1	On-delay	0.1...3 s (5)	LA2-DT0	0.060
			0.1...30 s	LA2-DT2	0.060
			10...180 s	LA2-DT4	0.060
		Off-delay	1...30 s (6)	LA2-DS2	0.060
			0.1...3 s (5)	LA3-DR0	0.060
			0.1...30 s	LA3-DR2	0.060
			10...180 s	LA3-DR4	0.060

(Sealing kit : see page 4/23)

Mechanical latch blocks

Tripping control	Maximum number per relay (1) Front mounting	Contact for automatic cut-out of relay coil	Basic reference. Complete with voltage code (2)	Weight kg
Manual or electric	1	Without	LA6-DK1	0.070
		With	LA6-DK2	0.090

(1) Maximum mounting possibility (see below).

Type of device	Type of coil	For guaranteed operation from	Maximum number of add-on blocks			
			Clip-on mounting front	side		
CA2-D	50 or 60 Hz	0.8...1.1 Uc	1	+	2	
		0.8...1.1 Uc	1	or	2	
CA3-D	—	0.85...1.1 Uc	1	+	2	
		0.8...1.1 Uc	1	or	2	
	— (wide range)	0.7...1.25 Uc	1	or	2	

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

Volts ~ 50/60 Hz	24	32	—	48	—	—	110/115	120/127	208	220
Volts —	24	—	36	48	60	72	100	110	125	200
Code letters	B	C	CD	E	ND	SD	K	F	G	L
Volts ~ 50/60 Hz	230/240	256	277	380	400	415	440	480	500	575/600
Code letters	U	W5	W6	Q	V	N	R	T	S	X

(3) Including 1 N/O and 1 N/C make before break.

(4) Device fitted with 4 screening continuity terminals.

(5) With extended scale from 0.1 to 0.6 s.

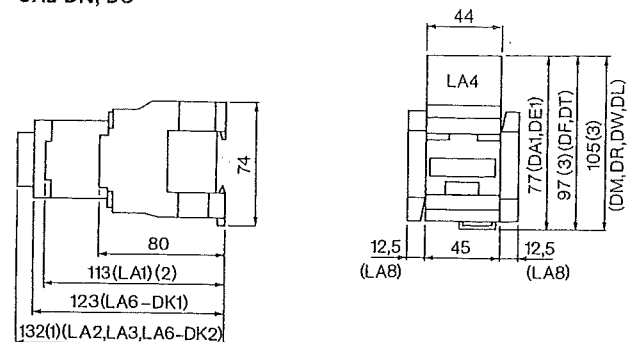
(6) With switching time of 40 ms ± 15 ms between opening of the N/C contact and closing of the N/O contact.

(7) For purchase in bulk packs, see page 11/25.

Control relays CA2-D and CA3-D

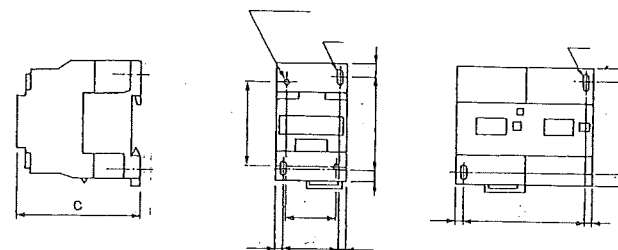
Dimensions, mounting

CA2-DN, DC



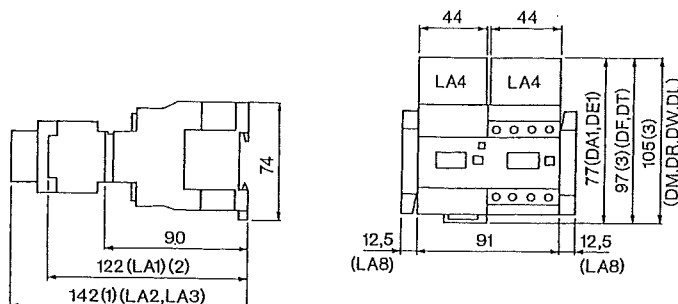
- (1) + 4 mm with lead sealing kit LA9-D901
 - (2) With 2 or 4 contacts
 - (3) With or without combined use of coil suppressor module : LA4-DA1, DE1
- CA2-DK22

CA2, CA3-DN, DC, DK
Panel mounting



	CA2-DN	DC	DK	CA3-DN	DC	DK
c	80	80	90	115	115	125

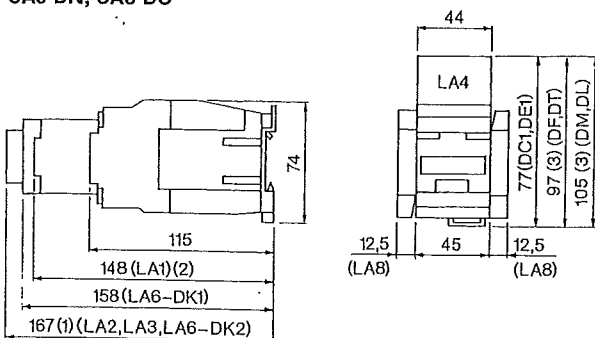
CA2, CA3-DN, DC, DK
Mounting on rail AM1-DP200 or DE200



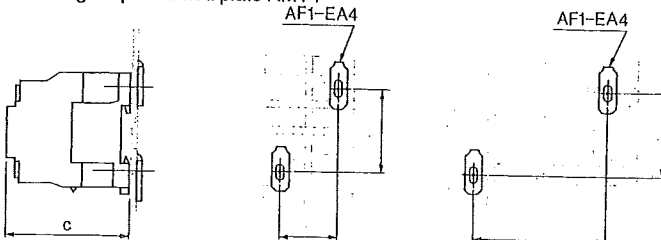
- (1) + 4 mm with lead sealing kit LA9-D901
 - (2) With 2 or 4 contacts
 - (3) With or without combined use of coil suppressor module : LA4-DA1, DE1
- CA3-DN, CA3-DC

	CA2-DN	DC	DK	CA3-DN	DC	DK
c (AM1-DP200)	82	82	91	117	117	127
c (AM1-DE200)	89	89	98	124	124	134

CA2, CA3-DN, DC, DK
Mounting on pre-slotted plate AM1-P

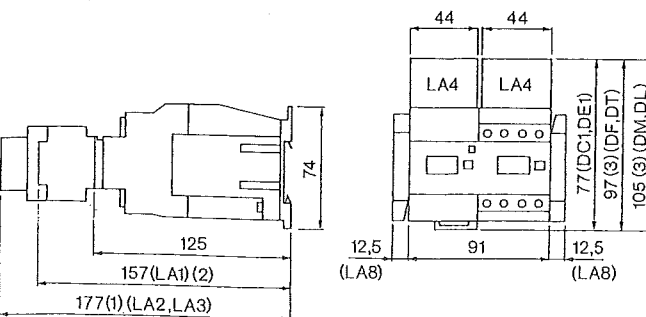


- (1) + 4 mm with lead sealing kit LA9-D901
 - (2) With 2 or 4 contacts
 - (3) With or without combined use of coil suppressor module : LA4-DA1, DE1
- CA3-DK22

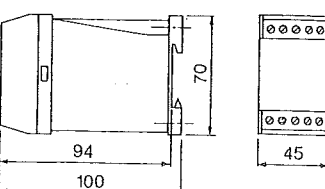


	CA2-DN	DC	DK	CA3-DN	DC	DK
c (AM1-P)	80	80	90	115	115	125

Delayed capacitive opening devices
LA9-Z90



- (1) + 4 mm with lead sealing kit LA9-D901
- (2) With 2 or 4 contacts
- (3) With or without combined use of coil suppressor module : LA4-DA1, DE1

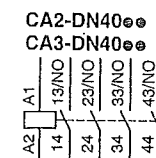


Control relays CA2-D and CA3-D

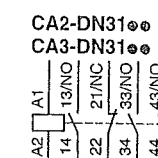
Auxiliary contact blocks

Schemes

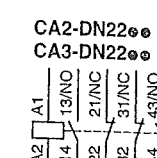
Control relays
instantaneous
4 N/O



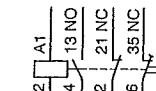
3 N/O + 1 N/C



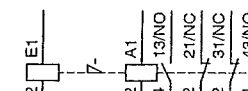
2 N/O + 2 N/C



2 N/O + 2 N/C including
1 N/O + 1 N/C make before break
CA2-DC22, CA3-DC22

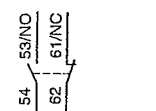


Mechanical latch
2 N/O + 2 N/C
CA2-DK22, CA3-DK22

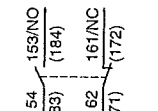


Instantaneous auxiliary contact blocks

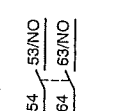
1 N/O + 1 N/C
LA1-DN11



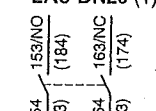
LA8-DN11 (1)



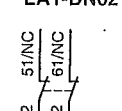
2 N/O
LA1-DN20



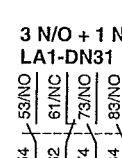
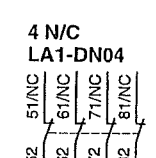
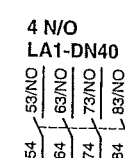
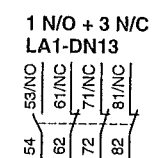
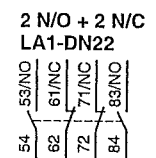
LA8-DN20 (1)



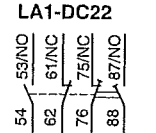
2 N/C
LA1-DN02



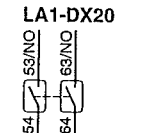
(1) The figures in brackets are for the device mounted on the RH side of the contactor.



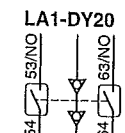
2 N/O + 2 N/C including
1 N/O + 1 N/C make before break
LA1-DC22



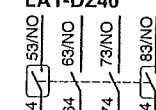
With protected contacts
2 N/O protected
LA1-DX20



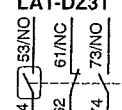
2 N/O protected (2)
LA1-DY20



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



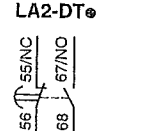
2 N/O protected +
1 N/O + 1 N/C non protected
LA1-DZ31



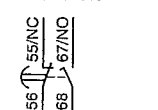
(2) Device fitted with 4 screening continuity terminals.

Time delay auxiliary contact blocks

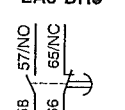
On-delay 1 N/O + 1 N/C
LA2-DT



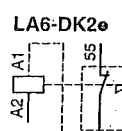
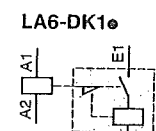
LA2-DS2



Off-delay 1 N/O + 1 N/C
LA3-DR

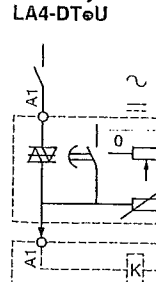


Mechanical latch blocks

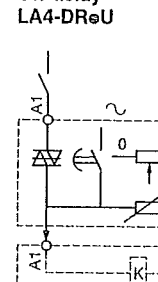


Electronic serial timer modules

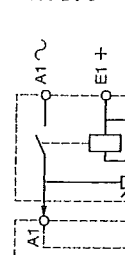
On-delay
LA4-DT



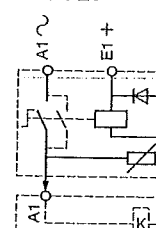
Off-delay
LA4-DR



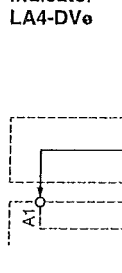
Interface modules
Relay interface
LA4-DF



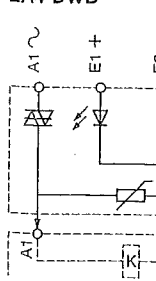
Relay interface and manual
override switch "Auto-I"
LA4-DL



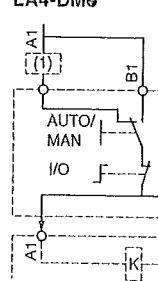
Indicator
LA4-DV



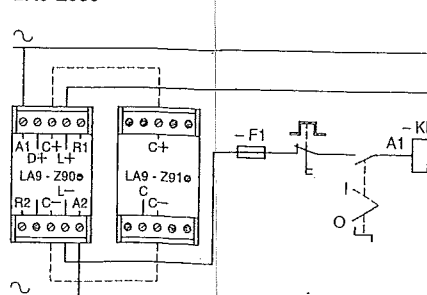
Solid state
interface module
LA4-DWB



"Auto-Stop-Man"
control module
LA4-DM



Delayed capacitive opening devices
LA9-Z90



Terminal C + : ≥ 380 V
Terminal C - : < 380 V

K control relays

Characteristics

References :
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Schemes :
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Environment

Conforming to standards		IEC 947, NF C 63-140, VDE 0660, BS 5424
Approvals	Pending	UL, CSA, DEMKO, NEMKO, SEMKO, FI
Protective treatment	Conforming to IEC 68 (DIN 50016)	"TC" (Klimafest, Climateproof)
Degree of protection	Conforming to VDE 0106	Protection against direct finger contact
Ambient air temperature around the device	Storage Operation	°C - 50...+ 80 °C - 25...+ 50
Maximum operating altitude	Without derating	m 2000
Operating position	Vertical axis Horizontal axis	
Flame resistance	Conforming to UL 94 Conforming to NF F 16-101 and 16-102	Self-extinguishing V1 Conforming to requirement 2
Shock resistance (1/2 sine wave, 11 ms)	Control relay open Control relay closed	10 g 15 g
Vibration resistance 5...300 Hz	Control relay open Control relay closed	2 g 4 g
Safe circuit separation	Conforming to VDE 0106 and IEC 536	VLSV (2), up to 400 V
Cabling Screw clamp terminals	Solid cable Flexible cable without cable end Flexible cable with cable end Clip	mm² Min Max Max to IEC 947 1 x 1.5 2 x 4 1 x 4 + 1 x 2.5 1 x 0.75 2 x 4 2 x 2.5 1 x 0.34 1 x 1.5 + 1 x 2.5 1 x 1.5 + 1 x 2.5 mm 2 x 2.8 or 1 x 6.35
Faston connectors		
Solder pins for printed circuit board	With locating device between power circuit and control circuit	4 mm x 35 microns
Tightening torque	Phillips head n° 2 and Ø 6	N.m 0.8
Electrical referencing	Conforming to standards EN 50005 and EN 50011 (1) Please consult your Regional Sales Office.	Up to 8 contacts (2) Very low safety voltage.

Control circuit characteristics

Type		CA2-K	CA3-K	CA4-K
Rated control circuit voltage (Uc)		V ~ 12...690	~ 12...250	~ 12...72
Control voltage limits ≤ 50 °C) single voltage coil	For operation For drop-out	0.8...1.15 Uc ≤ 0.20 Uc	0.8...1.15 Uc ≤ 0.10 Uc	0.7...1.30 Uc ≤ 0.10 Uc
Average consumption at 20 °C and at Uc	Inrush Sealed	30 VA 4.5 VA	2.4 W 2.4 W	1.5 W 1.5 W
Heat dissipation		W 1.3	2.4	1.5
Operating time at 20 °C and at Uc	Between coil energisation and - opening of the N/C contacts - closing of the N/O contacts Between coil de-energisation and - opening of the N/O contacts - closing of the N/C contacts	ms 5...15 ms 10...20 ms 10...20 ms 15...25	25...35 30...40 10 15	25...35 30...40 10...20 15...25
Maximum immunity to micro breaks		ms 2	2	2
Operating rate	In operating cycles per hour	10 000	10 000	6000
Mechanical durability at Uc millions of operating cycles	50/60 Hz coil Standard --- coil Wide range --- coil	10 - -	- 20 -	- - 30

K control relays

Characteristics

References :
pages 4/6 and 4/8
Dimensions :
page 4/10
Schemes :
page 4/11

Contact characteristics of control relays and instantaneous contact blocks

Number of contacts	On CAe-K On LA1-K		4 2 or 4
Rated operational voltage (Ue)	Up to	V	690
Rated insulation voltage (Ui)	Conforming to BS 5424 Conforming to IEC 947 Conforming to VDE 0110 group C Conforming to CSA C 22-2 n° 14	V V V V	690 690 750 600
Conventional thermal current (Ith)	For ambient temperature ≤ 50 °C	A	10
Frequency limits of operational current		Hz	Up to 400
Minimum switching capacity	U min (DIN 19 240) I min	V mA	17 (λ < 10 ⁻⁸) 5
Short-circuit protection	Conforming to IEC 947 and VDE 0660, gG (gl) fuse	A	10
Rated making capacity	Conforming to IEC 947 1 rms	A	110
Overload current	Permissible for 1 s 500 ms 100 ms	A A A	80 90 110
Impedance		MΩ	> 10
Non-overlap distance	Positively guided contacts (1) as per INRS and BIA spec. (1) Positively guided contacts : CNA approved.	mm	0.5

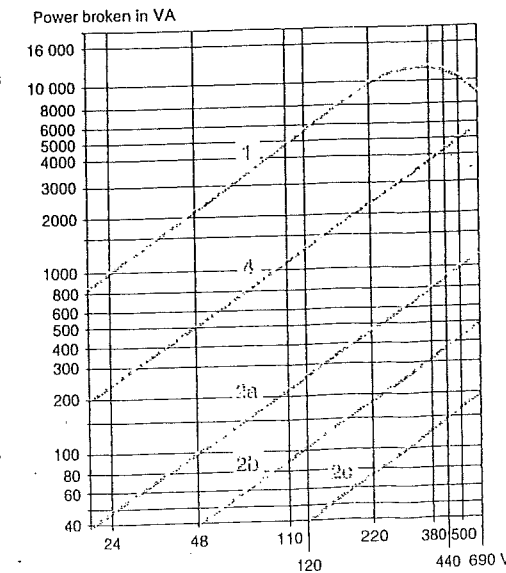
Operational power of contacts
Conforming to IEC 947

1 million operating cycles
3 million operating cycles
10 million operating cycles
Occasional making capacity

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).

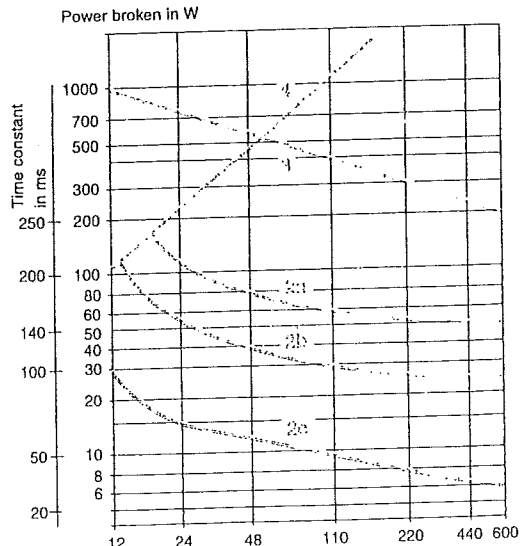
			110/	220/	380/		600/
V	24	48	127	230	400	440	690
VA	48	96	240	440	800	880	1200
VA	17	34	86	158	288	317	500
VA	7	14	36	66	120	132	200
VA	1000	2050	5000	10 000	14 000	13 000	9000

- Breaking limit of contacts valid for :
- maximum of 50 operating cycles at 10 s intervals (breaking current = making current x cos φ 0.7).
- Electrical durability of contacts for :
- 1 million operating cycles (2a)
- 3 million operating cycles (2b)
- 10 million operating cycles (2c)
- 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.
- Thermal limit.



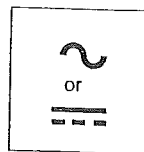
d.c. supply, category DC-13
Electrical durability (valid up to 1200 operating cycles per hour on an inductive load such as the coil of an electromagnet, without economy resistor, the time constant increasing with the load.

	24	48	110	220	440	600
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



K control relays

Control circuit : a.c. or d.c.



Control relays

- Mounting on 35 mm rail or Ø 4 screw fixing.
- Screws in open "ready-to-tighten" position.

Control circuit	Type of connection	Auxiliary contacts	Basic reference. Complete with code indicating control circuit voltage (2)	Weight
Supply	Consumption	N/O	N/C	kg
a.c.	4.5 VA	Screw clamp	4 - CA2-KN40●●	0.180
			3 1 CA2-KN31●●	0.180
			2 2 CA2-KN22●●	0.180
		Faston 1 x 6.35 or 2 x 2.8	4 - CA2-KN407●●	0.180
			3 1 CA2-KN317●●	0.180
			2 2 CA2-KN227●●	0.180
	2.4 W	Solder pins for printed circuit board	4 - CA2-KN405●●	0.210
			3 1 CA2-KN315●●	0.210
			2 2 CA2-KN225●●	0.210
		Screw clamp	4 - CA3-KN40●●	0.225
			3 1 CA3-KN31●●	0.225
			2 2 CA3-KN22●●	0.225
d.c.	2.4 W	Screw clamp	4 - CA3-KN40●●	0.225
			3 1 CA3-KN31●●	0.225
			2 2 CA3-KN22●●	0.225
		Faston 1 x 6.35 or 2 x 2.8	4 - CA3-KN407●●	0.225
			3 1 CA3-KN317●●	0.225
			2 2 CA3-KN227●●	0.225
	2.4 W	Solder pins for printed circuit board	4 - CA3-KN405●●	0.255
			3 1 CA3-KN315●●	0.255
			2 2 CA3-KN225●●	0.255

Low consumption control relays

- Compatible with programmable controller outputs.
- LED Indicator incorporated.
- Wide range coil (0.7...1.30 Uc), suppressor fitted as standard.
- Mounting on 35 mm rail or Ø 4 screw fixing.
- Screws in open "ready-to-tighten" position.

d.c.	1.5 W	Screw clamp	4 - CA4-KN40●●●	0.235
			3 1 CA4-KN31●●●	0.235
			2 2 CA4-KN22●●●	0.235
	Faston 1 x 6.35 or 2 x 2.8	Solder pins for printed circuit board	4 - CA4-KN407●●●	0.235
			3 1 CA4-KN317●●●	0.235
			2 2 CA4-KN227●●●	0.235
	1.5 W	Screw clamp	4 - CA4-KN405●●●	0.265
			3 1 CA4-KN315●●●	0.265
			2 2 CA4-KN225●●●	0.265

(2) Control circuit voltage codes, see (2) page 4/7.

K control relays

Instantaneous and time delay auxiliary contact blocks

Instantaneous auxiliary contact blocks

Clip-on front mounting, 1 block per control relay

Type of connection	Composition	Reference	Weight
	N/O	N/C	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
Faston 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

Electronic time delay contact blocks

- Relay output with common point changeover contact, 240 V ~ or ---, 2 A maximum.
- Control voltage : 0.85...1.1 Uc.
- Maximum switching capacity : 250 VA or 150 W.
- Operating temperature : - 10...+ 60 °C.
- Rest 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	C/O		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, see pages 4/60 to 4/65.

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

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

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

Volts ~	12	24	36	42	48	110	127	220/230	230/240	380/400	400/415	440	500	660/690
50/60 Hz														
Code	J7	B7	C7	D7	E7	F7	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.

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

Volts ---	12	20	24	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.

CA4-K, low consumption control relays (wide range coil : 0.7...1.3 Uc)

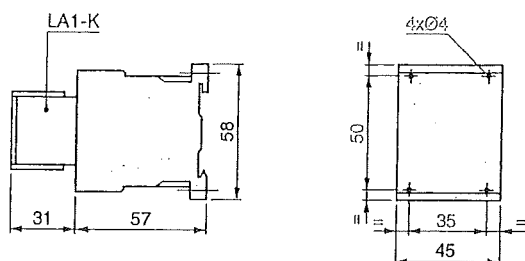
Volts ---	12	24	48	72
Code	JW3	BW3	EW3	SW3

K control relays

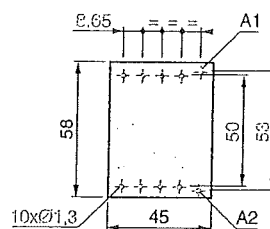
Characteristics :
pages 4/4 and 4/7
References :
pages 4/6 to 4/9
Schemes :
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Dimensions, mounting

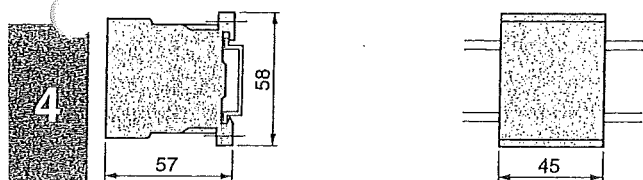
Control relays
CA2-K, CA3-K, CA4-K
On panel



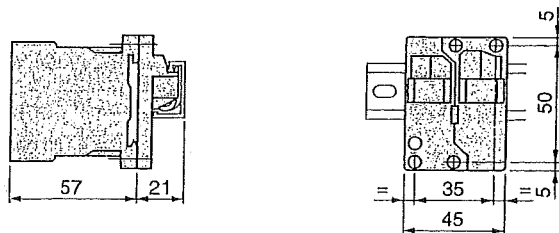
On printed circuit board



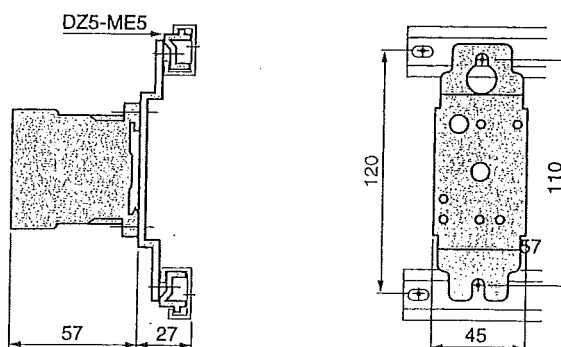
On mounting rail AM1-DP200 or AM1-DE200 (~ 35 mm)



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



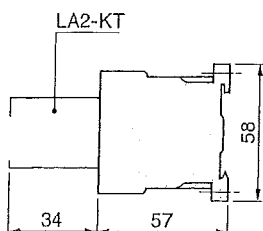
or mounting plates
DX1-AP25



Electronic time delay contact blocks
LA2-KT



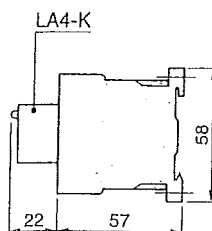
On control relay



Suppressor modules
LA4-K



On control relay



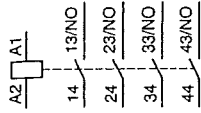
K control relays

Characteristics :
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References :
pages 4/6 to 4/9
Dimensions :
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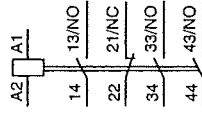
Schemes

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

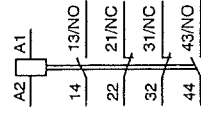
4 N/O



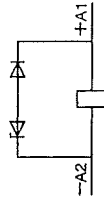
3 N/O + 1 N/C



2 N/O + 2 N/C



With integral suppression device CA4-K

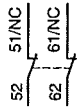


Instantaneous auxiliary contact blocks LA1-K for CA2-K, CA3-K, CA4-K

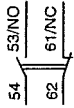
2 N/O
LA1-KN20
LA1-KN207



2 N/C
LA1-KN02
LA1-KN027

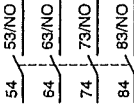


1 N/O + 1 N/C
LA1-KN11
LA1-KN117

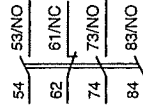


for CA2-K, CA3-K

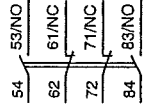
4 N/O
LA1-KN40
LA1-KN407



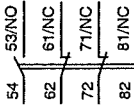
3 N/O + 1 N/C
LA1-KN31
LA1-KN317



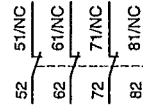
2 N/O + 2 N/C
LA1-KN22
LA1-KN227



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

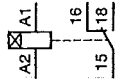


4 N/C
LA1-KN04
LA1-KN047

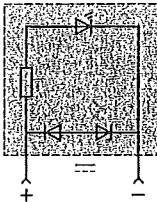


Electronic time delay contact blocks LA2-KT for CA2-K, CA3-K, CA4-K

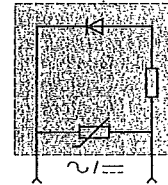
1 C/O
LA2-KT2



Suppressor modules LA4-KC



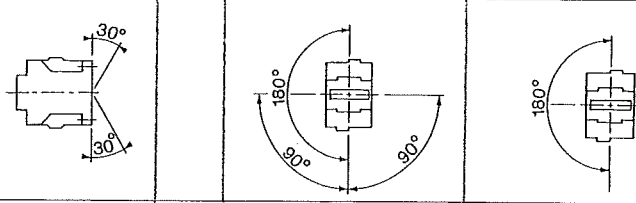
LA4-KE



Control relays CA2-D and CA3-D

References :
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Dimensions :
page 4/26
Schemes :
page 4/27

Characteristics

Type		CA2-DN, DK, DC	CA3-DN, DK, DC
Environment			
Conforming to standards		IEC 337-1, 947-1, 947-5, NF C 63-140, VDE 0660, BS 4794	
Approvals		ASE, UL, CSA, DEMKO, NEMKO, SEMKO, FI, (1), SNCF approval, CA3-DN	
Protective treatment		"TH"	
Degree of protection	Protection against direct finger contact	Conforming to VDE 0106	Conforming to VDE 0106
Ambient air temperature around the device	Storage	°C	- 60...+ 80
	Operation, Conforming to IEC 255 (0.8...1.1 Uc)	°C	- 5...+ 55
	For operation at Uc	°C	- 40...+ 70
Maximum operating altitude	Without derating	m	3000
Operating positions	Operation without derating in the following positions		
Shock resistance (2) 1/2 sine wave for 11 ms	Control relay open	10 g	8 g
	Control relay closed	15 g	11 g
Vibration resistance (2) 5...300 Hz	Control relay open	2 g	2 g
	Control relay closed	4 g	3 g
Cabling	Flexible or solid cable with or without cable end	mm ²	Min : 1 x 1; max : 2 x 2.5
(1) Conforming to INRS requirements in association with auxiliary contacts LA1-D. (2) In the least favourable direction, without change of contact state, with coil supplied at Uc.			

Control circuit characteristics

Rated insulation voltage (Ui)	Conforming to IEC 337-1, 158-1 and BS 4794	V	660	660
	Conforming to IEC 947-1 and 947-5	V	690	690
	Conforming to VDE 0110 group C	V	750	750
	Conforming to CSA C22-2 n° 14	V	600	600
Rated control circuit voltage (Uc)		V	12...660	12...600
Permissible voltage variation	Operational		With 50 or 60 Hz coil : 0.8...1.1 Uc With 50/60 Hz coil : 0.85...1.1 Uc	With standard coil : 0.8...1.1 Uc With wide range coil : 0.7...1.25 Uc
Voltage limits	Drop-out		0.3...0.6 Uc	0.1...0.65 Uc
Average consumption at 20 °C	~ 50 Hz	VA	Inrush : 60; Sealed : 7	—
	~ 60 Hz	VA	Inrush : 70; Sealed : 7.5	—
	~ 50/60 Hz (at 50 Hz)	VA	Inrush : 70; Sealed : 8	—
	With standard coil	W	—	Inrush or Sealed : 9
Operating time (at rated control circuit voltage and at 20 °C)	Between coil energisation and opening of the N/C contacts	ms	6...20	35...43
	Between coil de-energisation and opening of the N/O contacts	ms	12...22	40...48
	Between coil energisation and closing of the N/O contacts	ms	4...12	6...14
	Between coil de-energisation and closing of the N/C contacts	ms	6...17	11...19
Minimum pulse time	For latching or unlatching of the CA-DK	ms	40	100
Short supply failures	Max. duration without affecting hold-in of device	ms	2	2
Maximum operating rate	In operating cycles per second		3	3
Mechanical life at Uc (mechanical durability)	In millions of operating cycles		CA2-DN, DC	CA2-DK
	With : 50 or 60 Hz coil		20	10
	50/60 Hz coil (at 50 Hz)		30	10
	standard coil		—	30
	wide range coil		—	30
			CA3-DN, DC	CA3-DK
			—	10
			—	10

Control relays CA2-D and CA3-D

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Characteristics

Instantaneous contact characteristics

Number of contacts	On CA-D		4
Rated operational voltage (Ue)	Up to	V	660
Rated insulation voltage (Ui)	Conforming to IEC 337-1, 158-1 and BS 4794	V	660
	Conforming to IEC 947-1 and 947-5	V	690
	Conforming to VDE 0110 group C	V	750
	Conforming to CSA C22-2 n° 14	V	600
Rated 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 337-1 and VDE 0660, gl fuse	A	10
Rated making capacity	Conforming to IEC 337-1, 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 torques		N.m	1.2

Rated operating power of contacts
Conforming to IEC 947-5

a.c. supply, categories AC-14 and AC-15
Electrical life (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).

d.c. supply, category DC-13
Electrical life (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.

1 million operating cycles
3 million operating cycles
10 million operating cycles
Occasional making capacity

	V	24	48	110/ 127	220/ 230	380/ 400	440	600
VA	150	300	400	480	500	500	500	500
VA	80	170	250	290	320	320	320	320
VA	30	65	90	120	130	130	130	130
VA	1200	2600	7000	13 000	15 000	13 000	9000	9000

	V	24	48	110	220	440	600
W	120	90	75	68	61	58	58
W	70	50	38	33	28	27	27
W	25	18	14	12	10	9	9
W	1000	700	400	260	220	170	170

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

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

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

4 : Thermal limit.

