
Control relays

- k control relays
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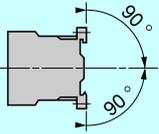
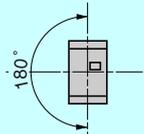
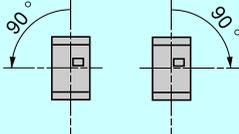
Zelio Time: timing relays

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Zelio Control: measurement and control relays

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Environment

| | | | | | |
|---|---|-----------------|---|-------------------|--------------------------|
| Conforming to standards | | | IEC 60947, NF C 63-140, VDE 0660, BS 5424 | | |
| Product certifications | | | UL, CSA | | |
| Operating positions | | | <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Vertical axis</p>  <p>Without derating</p> </div> <div style="text-align: center;"> <p>Horizontal axis</p>  <p>Without derating</p> </div> <div style="text-align: center;">  <p>Possible positions for CA2 K only, with derating, please consult your Regional Sales Office.</p> </div> </div> | | |
| Connection | | | Min. | Max. | Max. to IEC 60947 |
| Screw clamp connections | Solid cable | mm ² | 1 x 1.5 | 2 x 4 | 1 x 4 + 1 x 2.5 |
| | Flexible cable without cable end | mm ² | 1 x 0.75 | 2 x 4 | 2 x 2.5 |
| Spring terminals | Flexible cable with cable end | mm ² | 1 x 0.34 | 1 x 1.5 + 1 x 2.5 | 1 x 1.5 + 1 x 2.5 |
| | Solid cable | mm ² | 1 x 0.75 | 1 x 1.5 | 2 x 1.5 |
| Faston connectors | Flexible cable without cable end | mm ² | 1 x 0.75 | 1 x 1.5 | 2 x 1.5 |
| | Clip | mm | 2 x 2.8 or 1 x 6.35 | | |
| Solder pins for printed circuit board | With locating device between power and control circuits | | 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 | Conf. to IEC 60068 (DIN 50016) | | "TC" (Klimafest, Climateproof) | | |
| Degree of protection | Conforming to VDE 0106 | | Protection against direct finger contact (devices with screw clamp terminals or pins for printed circuit board) | | |
| Ambient air temperature around the device | Storage | °C | - 50...+ 80 | | |
| | Operation | °C | - 25...+ 50 | | |
| Maximum operating altitude | Without derating | m | 2000 | | |
| Vibration resistance 5...300 Hz | Control relay open | | 2 gn | | |
| | Control relay closed | | 4 gn | | |
| Flame resistance | Conforming to UL 94 | | Self-extinguishing material V1 | | |
| | Conforming to NF F 16-101 and 16-102 | | Conforming to requirement 2 | | |
| Shock resistance (1/2 sine wave, 11 ms) | Control relay open | | 10 gn | | |
| | Control relay closed | | 15 gn | | |
| Safety separation of circuits | Conforming to VDE 0106 and IEC 60536 | | SELV (Safety Extra Low Voltage), up to 400 V | | |

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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 |
| | | ms | 10...20 | 30...40 | 30...40 |
| | Between coil de-energisation and opening of the N/O contacts | ms | 10...20 | 10 | 10...20 |
| | | ms | 15...25 | 15 | 15...25 |
| Maximum immunity to microbreaks | | ms | 2 | 2 | 2 |

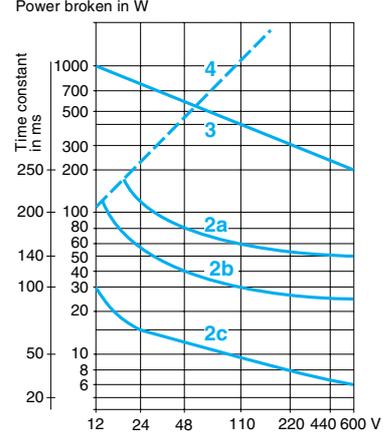
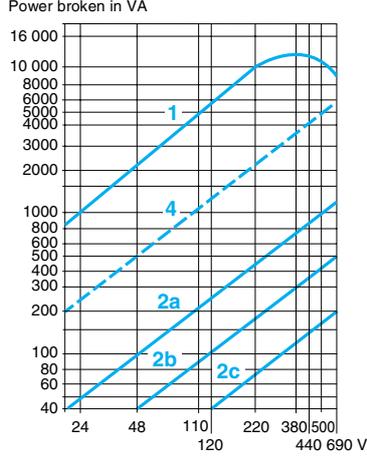
| Contact characteristics of control relays and instantaneous contact blocks | | | |
|--|---|----|---|
| Number of auxiliary contacts | On CA● K | | 4 |
| | On LA1 K | | 2 or 4 for CA2 K and CA3 K, 2 for CA4 K |
| Rated operational voltage (Ue) | Up to | V | 690 |
| Rated insulation voltage (Ui) | Conforming to BS 5424 | V | 690 |
| | Conforming to IEC 60947 | 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 60947 and VDE 0660, gG fuse | A | 10 |
| Rated making capacity | Conforming to IEC 60947 | | |
| | I rms | A | 110 |
| Short-time rating | 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 conforming to INRS, BIA and CNA specifications | mm | 0.5 (see schemes page 7/9) |

Operational power of contacts conforming to IEC 60947

| | | | |
|------------------------------------|--|------------------------------------|---|
| 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) | 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 load. |
|------------------------------------|--|------------------------------------|---|

| | V | 24 | 48 | 110/127 | 220/230 | 380/400 | 440 | 600/690 | V | 24 | 48 | 110 | 220 | 440 | 600 |
|-----------------------------|----|------|------|---------|---------|---------|--------|---------|---|-----|-----|-----|-----|-----|-----|
| 1 million operating cycles | VA | 48 | 96 | 240 | 440 | 800 | 880 | 1200 | W | 120 | 80 | 60 | 52 | 51 | 50 |
| 3 million operating cycles | VA | 17 | 34 | 86 | 158 | 288 | 317 | 500 | W | 55 | 38 | 30 | 28 | 26 | 25 |
| 10 million operating cycles | VA | 7 | 14 | 36 | 66 | 120 | 132 | 200 | W | 15 | 11 | 9 | 8 | 7 | 6 |
| Occasional making capacity | VA | 1000 | 2050 | 5000 | 10 000 | 14 000 | 13 000 | 9000 | 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



Control relays

k control relays

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

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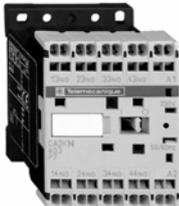
CA2 KN40●●

Control relays for a.c. control circuit

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

| Control circuit Consumption | Auxiliary contacts | | Basic reference, to be completed by adding the voltage code (1) | 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 |

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CA2 KN403●●

Control relays for d.c. control circuit

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

| Control circuit Consumption | Auxiliary contacts | | Basic reference, to be completed by adding the voltage code (1) | Weight kg |
|---|--------------------|---|---|--------------|
| 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 |

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CA3 KN407●●

(1) 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 ~ | 12 | 20 | 24(2) | 36 | 42 | 48 | 110 | 115 | 127 | 220/ | 230 | 230/ | 380/ | 400 | 400/ | 440 | 500 | 660/ |
|----------|----|----|-------|----|----|----|-----|-----|-----|------|-----|------|------|-----|------|-----|-----|------|
| 50/60 Hz | | | | | | | | | | 230 | | 240 | 400 | | 415 | | | 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(2) | 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.

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

Control relays

k control relays

For d.c. control circuit



CA4 KN40●●●

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

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

| Control circuit Consumption | Auxiliary contacts | | Basic reference, to be completed by adding the voltage code (1) | 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 |

(1) 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 $\overline{\text{---}}$ | 12 | 20 | 24 | 48 | 72 | 110 | 120 |
|-------------------------------|-----|-----|-----|-----|-----|-----|-----|
| Code | JW3 | ZW3 | BW3 | EW3 | SW3 | FW3 | GW3 |

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 clamp 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 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, \sim or \equiv 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 |
|----------------------------|----------|--------------|---|-----------|--------|
| | | |  | | kg |
| V | | s | | | |
| \sim or \equiv 24...48 | On-delay | 1...30 | 1 | LA2 KT2E | 0.040 |
| \sim 110...240 | On-delay | 1...30 | 1 | LA2 KT2U | 0.040 |

Other versions

Electronic timers type RE4.
Please consult your Regional Sales Office.

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

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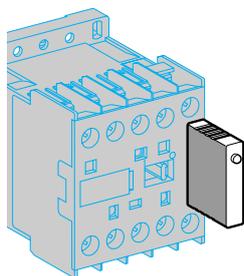


LA2 KT2

Control relays

k control relays

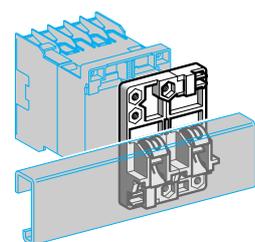
Mounting and marking accessories



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. | Varistor (1) | \sim and \equiv 12...24 V | 5 | LA4 KE1B | 0.010 |
| | | \sim and \equiv 32...48 V | 5 | LA4 KE1E | 0.010 |
| | | \sim and \equiv 50...129 V | 5 | LA4 KE1FC | 0.010 |
| | | \sim and \equiv 130...250 V | 5 | LA4 KE1UG | 0.010 |
| | Diode + Zener diode (2) | \equiv 12...24 V | 5 | LA4 KC1B | 0.010 |
| | | \equiv 32...48 V | 5 | LA4 KC1E | 0.010 |
| | RC (3) | \sim 220...250 V | 5 | LA4 KA1U | 0.010 |



LA9 D973

Mounting accessories

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

Marking accessories

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

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

(2) No overvoltage or oscillating frequency.
Polarised component.

Slight increase in drop-out time (1.1 to 1.5 times the normal time).

(3) Protection by limiting the transient voltage to 3 U_c max. and limitation of the oscillating frequency.

Slight increase in drop-out time (1.2 to 2 times the normal time).

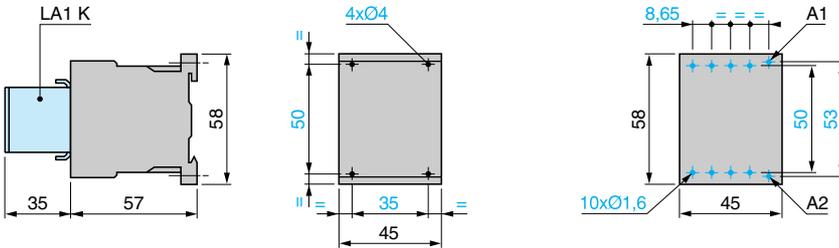
(4) Complete the reference by replacing the dot with the required character.

Control relays

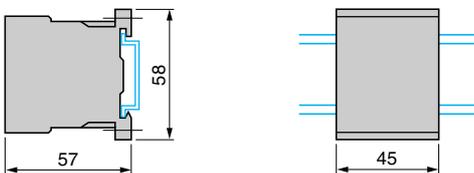
CA2 K, CA3 K, CA4 K

On panel

On printed circuit board



On mounting rail AM1 DP200 or AM1 DE200 (L 35 mm)

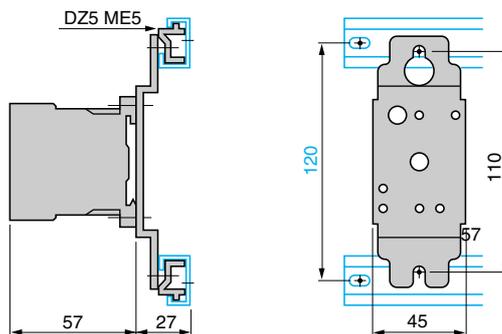
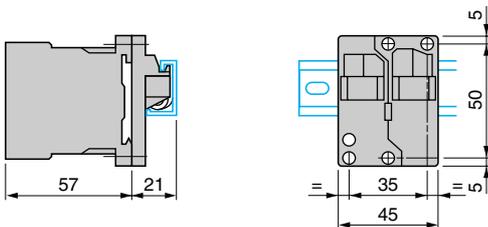


LA9 D973

On asymmetrical rail with clip-on mounting plates

DX1 AP25

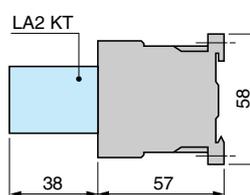
On asymmetrical rail with clip-on mounting plates



Electronic time delay contact blocks

LA2 KT

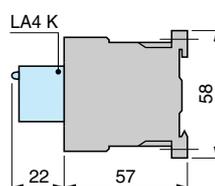
On control relay



Suppressor modules

LA4 K

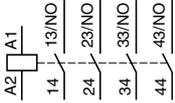
On control relay



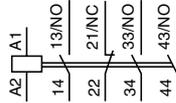
Control relays

CA2 K, CA3 K, CA4 K

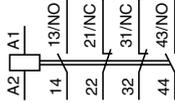
4 N/O



3 N/O + 1 N/C

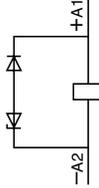


2 N/O + 2 N/C

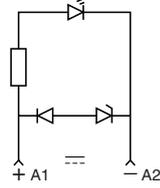


With integral suppression device

CA3 K



CA4 K



Instantaneous auxiliary contact blocks LA1 K

For CA2 K, CA3 K, CA4 K

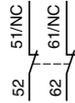
2 N/O

LA1 KN20,
LA1 KN207



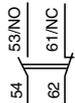
2 N/C

LA1 KN02,
LA1 KN027



1 N/O + 1 N/C

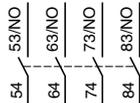
LA1 KN11,
LA1 KN117



For CA2 K, CA3 K

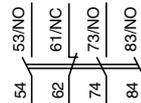
4 N/O

LA1 KN40,
LA1 KN407



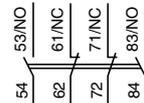
3 N/O + 1 N/C

LA1 KN31,
LA1 KN317



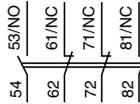
2 N/O + 2 N/C

LA1 KN22,
LA1 KN227



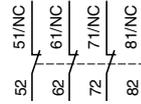
1 N/O + 3 N/C

LA1 KN13, LA1 KN137



4 N/C

LA1 KN04, LA1 KN047

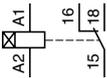


Electronic time delay contact blocks LA2 KT

For CA2 K, CA3 K, CA4 K

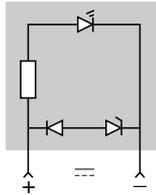
1 C/O

LA2 KT2

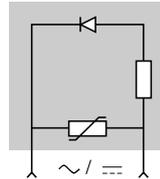


Suppressor modules

LA4 KC

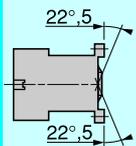
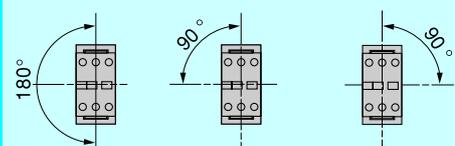


LA4 KE



Environment

| | | | |
|--|---|-----------|---|
| Rated insulation voltage (Ui) | Conforming to IEC 60947, VDE 0110 gr C, BS 5424, CSA 22-2 n° 14, UL 508 | V | 690 |
| Conforming to standards | | | IEC 60947, NF C 63-110, VDE 0660, BS 5424 |
| Product certifications | | | UL, CSA |
| Protective treatment | Conforming to IEC 60068 (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 |
| |  <p>Without derating</p> |  <p>Without derating</p> |

| | | | | | | |
|---------------------------------|---|-----------------------|-------------|----------------------|-------------|------------------|
| Connection by connectors | Solid cable | mm² | Min. | 1 x 1.5 or 2 x 1.5 | Max. | 1 x 6 or 2 x 4 |
| | Flexible cable without cable end | mm² | | 1 x 0.5 or 2 x 0.35 | | 1 x 6 or 2 x 2.5 |
| | Flexible cable 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) | For 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 |

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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 96047, BS 5424, VDE 0110 group C, CSA C 22-2 n° 14 | V | 690 |
| Conventional rated thermal current (Ith) | For ambient temperature ≤ 55 °C | A | 10 |
| Frequency of the operational current | | Hz | Up to 400 |
| Short-circuit protection | Conforming to IEC 60947 and VDE 0660, gl fuse | A | 10 |

Operational power of contacts conforming to IEC 60947

| | a.c. supply, category AC-15 | | | | | | d.c. supply, category DC-13 | | | | | | |
|---|------------------------------------|-----------|-----------|---------------------|---------------------|---------------------|------------------------------------|----------|-----------|-----------|------------|------------|------------|
| | V | 24 | 48 | 110/ 127 | 220/ 230 | 380/ 400 | 440 | V | 24 | 48 | 110 | 220 | 440 |
| 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). | | | | | | | | | | | | | |
| 1 million operating cycles | VA | 48 | 96 | 240 | 440 | 800 | 880 | W | 120 | 80 | 60 | 52 | 51 |
| 3 million operating cycles | VA | 17 | 34 | 86 | 158 | 288 | 317 | W | 55 | 38 | 30 | 28 | 26 |
| 10 million operating cycles | VA | 7 | 14 | 36 | 66 | 120 | 132 | W | 15 | 11 | 9 | 8 | 7 |
| Occasional making capacity | VA | 1000 | 2050 | 5000 | 10000 | 14000 | 13 000 | W | 720 | 600 | 400 | 300 | 230 |

Control relays

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

533664



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 voltage code (1) | 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 |

533665



CA2 SKE20

Mini-control relay with alternating contacts

This mini-control relay with alternating contacts (see function diagram page 7/15) 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 voltage code (1) | Weight kg |
|------------------------|--------------------|---|---|--------------|
| a.c. supply | 2 | – | CA2 SKE20 | 0.175 |

(1) 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 |

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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 | | – | LA1 SK20 | 0.022 |
| | | – | 2 | LA1 SK02 | 0.022 |
| | | 1 | 1 | LA1 SK11 | 0.022 |



LA4 SK1U

Suppressor modules

Connection without need for tools by clipping onto right-hand side of contactor

| 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 provided by limiting the transient voltage to 2 Uc max.
Maximum reduction of transient voltage peaks.

Slight increase in drop-out time (1.1 to 1.5 times the normal time).

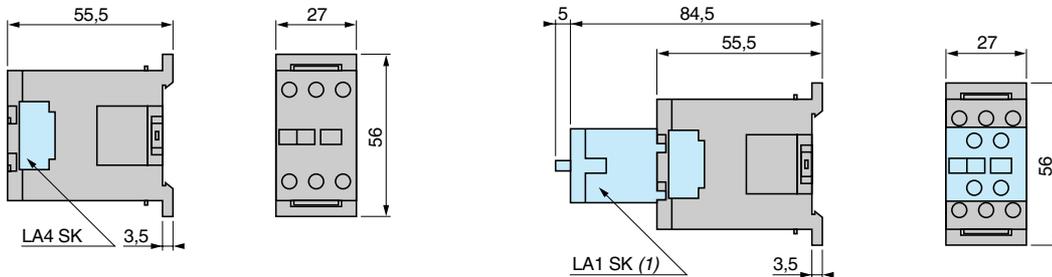
(2) No overvoltage or oscillating frequency.

Slight increase in drop-out time (1.1 to 1.5 times the normal time).

Dimensions

Mini-control relays

CA2 SK and CA3 SK



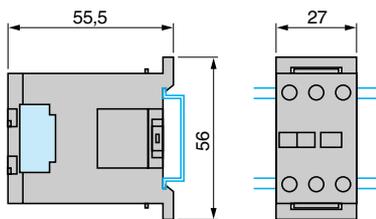
(1) Only on CA2 SK20.

Mounting

Mini-control relays

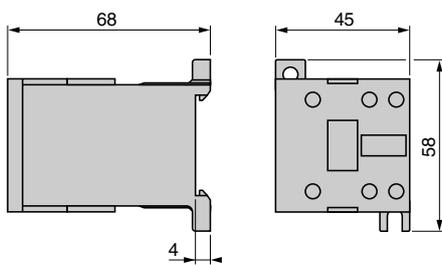
CA2 SK and CA3 SK

On mounting rail AM1 DP200 or AM1 DE200 (└ 35 mm)



Dimensions

CA2 SKE

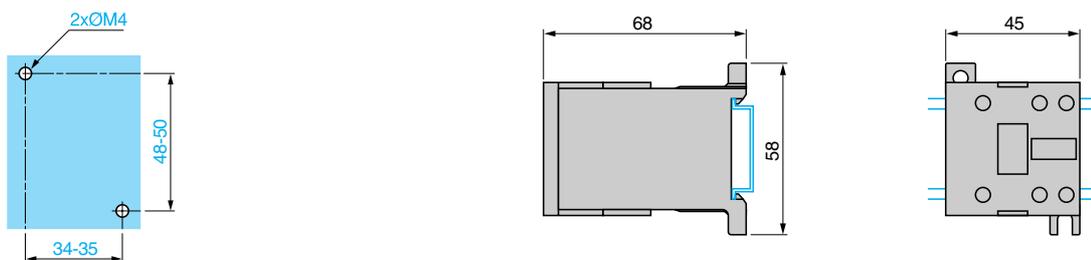


Mounting

CA2 SKE

On panel

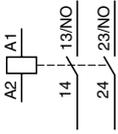
On mounting rail AM1 DP200 or AM1 DE200 (└ 35 mm)



Schemes

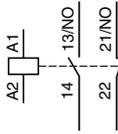
CA2 SK20, CA3 SK20

2 N/O



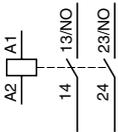
CA2 SK11, CA3 SK11

1 N/O + 1 N/C



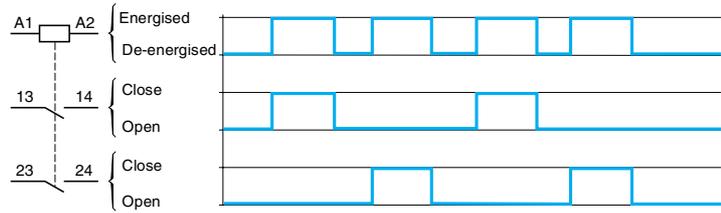
CA2 SKE

2 N/O



CA2 SKE

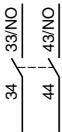
Function diagram



Instantaneous auxiliary contacts

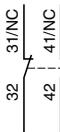
2 N/O

LA1 SK20



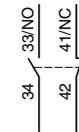
2 N/C

LA1 SK02



1 N/O + 1 N/C

LA1 SK11



| Control relay type | | CAD ~ | CAD ≡ | CAD | | |
|--|--|-----------------------|---|-------------|--|---------|
| Environment | | | | | | |
| Rated insulation voltage (Ui) | Conforming to IEC 60947-5-1 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 60947 | kV | 6 | 6 | 6 | |
| Separation of electrical circuits | Conforming to IEC 60536 and VDE 0106 | | Reinforced insulation up to 400 V | | | |
| Conforming to standards | | | IEC 60947-5-1, N-F C 63-140, VDE 0660, BS 4794, EN 60947-5 | | | |
| Product certifications | | | UL, CSA | | | |
| Protective treatment | Conforming to IEC 60068 | | "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 60255 (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 |
| | | 2 conductors | mm² | 1...4 | 1...4 | 1...4 |
| | Flexible conductor with cable end | 1 conductor | mm² | 1...4 | 1...4 | 1...4 |
| | | 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 |
| | | 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.

7

| 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 | – | – |
| | With standard coil, 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 | – | – |
| | | 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 - closing of the N/O contacts | ms | 4...19 | 35...45 | 45 |
| | | ms | 12...22 | 50...55 | 60...70 |
| | Between coil de-energisation and - opening of the N/O contacts - closing of the N/C contacts | ms | 4...12 | 6...14 | 10...15 |
| | | 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 | – | – |
| | With standard coil == wide range | | – | 30 | 30 |
| Time constant L/R | | ms | – | 28 | 40 |

| Characteristics of instantaneous contacts incorporated in the control relay | | | | |
|---|--|--------|------------|---|
| Number of contacts | | | | 5 |
| Rated operational voltage (U_e) | Up to | | V | 690 |
| Rated insulation voltage (U_i) | Conforming to IEC 60947-5-1 | | V | 690 |
| | Conforming to UL, CSA | | V | 600 |
| Conventional thermal current (I_{th}) | 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 60947-5-1 | | | gG fuse: 10 A |
| Rated making capacity | Conforming to IEC 60947-5-1 | 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 60947-4-5 | | | The 3 N/O contacts and the 2 N/C contacts of CAD N32 are linked mechanically by one mobile contact carrier. |

TeSys control relays

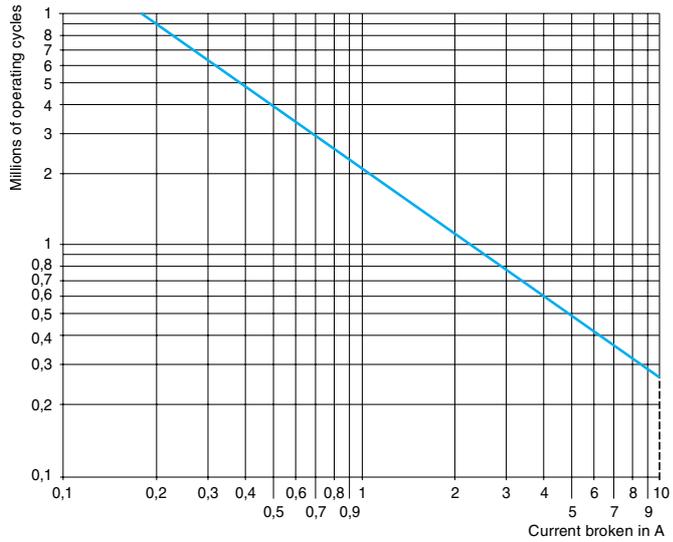
TeSys d control relays

Rated operational power of contacts (conforming to IEC 60947-5-1)

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 ($\cos \varphi 0.7$) = 10 times the power broken ($\cos \varphi 0.4$).

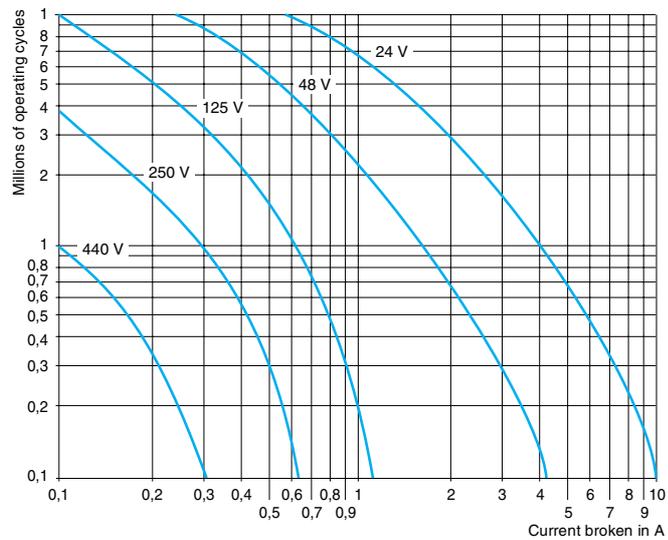
| | V | 24 | 48 | 115 | 230 | 400 | 440 | 600 |
|-----------------------------|----|----|-----|-----|-----|-----|------|------|
| 1 million operating cycles | VA | 60 | 120 | 280 | 560 | 960 | 1050 | 1440 |
| 3 million operating cycles | VA | 16 | 32 | 80 | 160 | 280 | 300 | 420 |
| 10 million operating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



d.c. supply, category DC-13

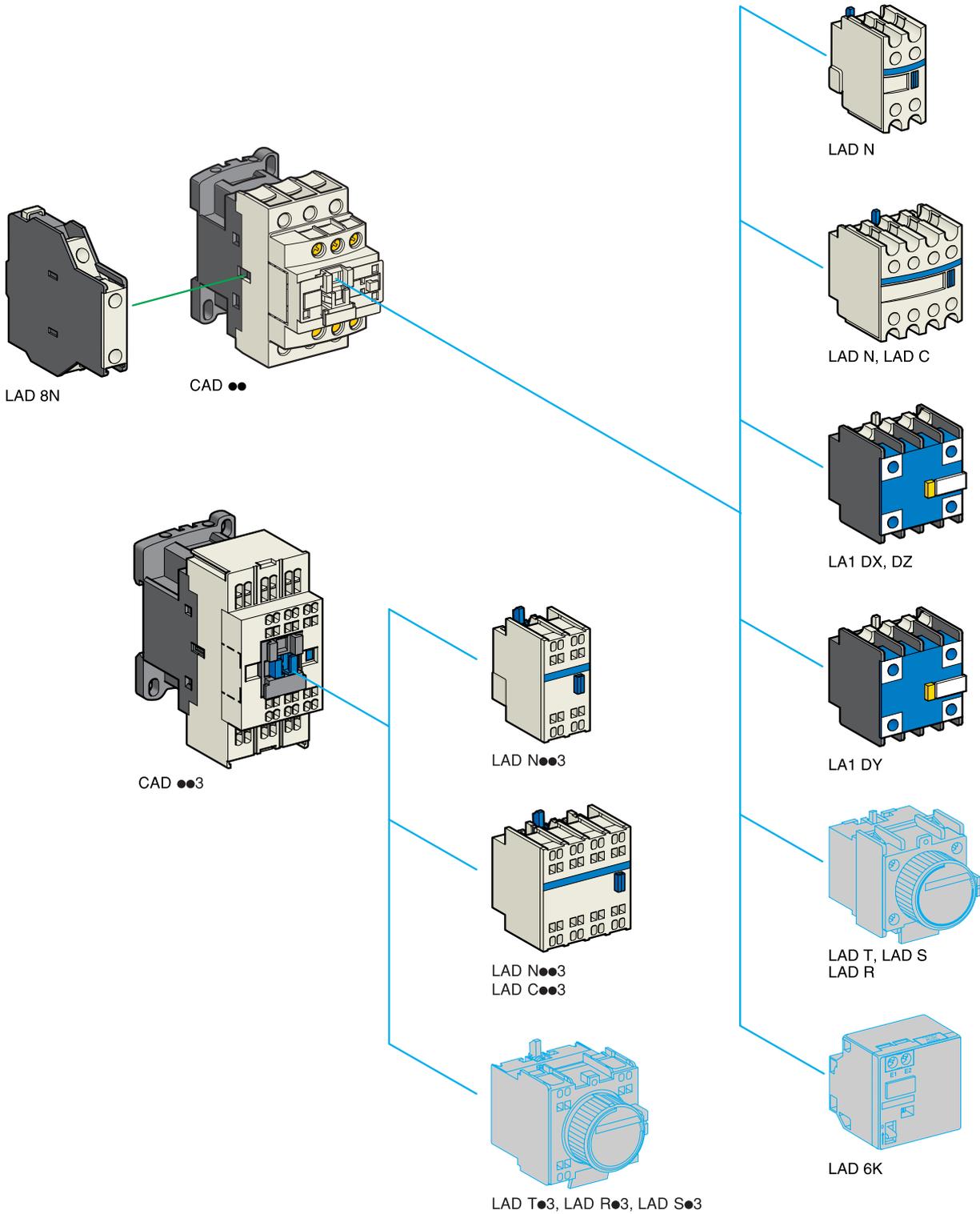
Electrical durability (valid for up to 1200 operating cycles/hour) on an inductive load such as the coil of an electromagnet, without economy resistor, the time constant increasing with the power.

| | 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 |



TeSys control relays

TeSys d control relays and add-on blocks



7

See page opposite for mounting possibilities according to control relay type and rating

TeSys control relays

TeSys 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 | | | | Weight kg |
|---------------|--------------------|-------------|---|-------------------|----|--------|----|--------------|
| | | | | ~ | — | LC (2) | | |
| 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 | | Composition | | Reference | Weight kg |
|--------------------|--|--------------|-------------|---|--------------|--------------|
| | front | side | | | | |
| 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 |
| | | | 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 | | Reference | | Weight kg | |
|--------------------|--|---------------|---|-----------|---|--------------|-------|
| | | protected (5) | | | | | |
| 2 | 1 | 2 | — | — | — | LA1 DX20 | 0.040 |
| | | — | 2 | — | — | LA1 DX02 | 0.040 |
| | | 2 | — | 2 | — | LA1 DY20 | 0.040 |
| 4 (4) | 1 | 2 | — | 2 | — | LA1 DZ40 | 0.050 |
| | | 2 | — | 1 | 1 | LA1 DZ31 | 0.050 |

Instantaneous auxiliary contact blocks for connection by spring terminals

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

Example: LAD N11 becomes LAD N113.

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

a.c. supply

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

d.c. supply (coils with integral suppression device fitted as standard)

| | | | | | | | | | | | |
|-------------------------|----|----|----|----|----|----|-----|-----|-----|-----|-----|
| Volts — | 12 | 24 | 36 | 48 | 60 | 72 | 110 | 125 | 220 | 250 | 440 |
| U from 0.7 to 1.25 UcJD | 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.

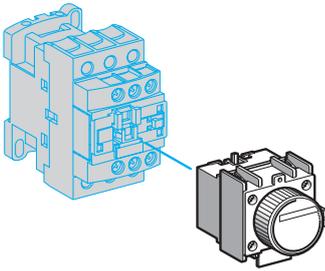
(3) To order control relays with connection by lugs, add the digit 6 to the end of the selected reference.

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.



LAD T

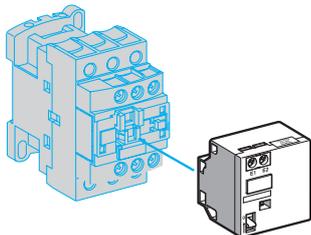
Time delay auxiliary contact blocks for connection by screw clamp terminals (1)

| Number and type of contacts | Maximum number per relay | Time delay | | Reference | Weight kg | |
|-----------------------------|--------------------------|----------------|------------|---------------|-----------|-------|
| | | Front mounting | Type | | | Range |
| 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 |
| | | Off-delay | | 1...30 s (3) | LAD S2 | 0.060 |
| | | | | 0.1...3 s (2) | LAD R0 | 0.060 |
| | | | | 0.1...30 s | LAD R2 | 0.060 |
| | | | 10...180 s | LAD R4 | 0.060 | |

(Sealing cover: see page 5/73)

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 blocks (4)

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

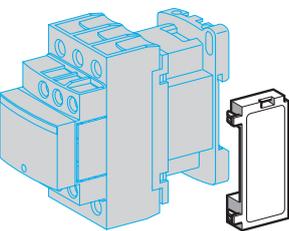
Suppressor modules

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

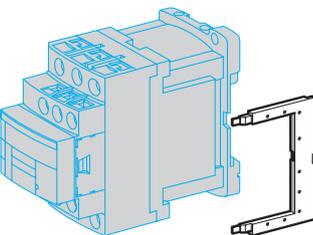
- No overvoltage or oscillating frequency.
- Increase in drop-out time (6 to 10 times the normal time).
- Polarised component.

| | | | |
|--------|---------------|----------|-------|
| 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 4TGD | 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.

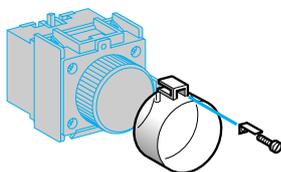
(5) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office):

| 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 |

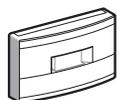
(6) CAD ●● d.c. and low consumption control relays are fitted with a built-in bi-directional peak limiting diode suppressor as standard. On control relays produced after 15th July 2004, this diode is removable. It can therefore be replaced by the user (see references LAD 4T●●● above). It can also be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



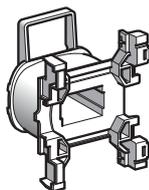
XBY 2U



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 |
| "SJS 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 ($\cos \varphi = 0.75$) 50/60 Hz: 70 VA at 50 Hz,
 - sealed ($\cos \varphi = 0.3$) 50/60 Hz: 8 VA at 60 Hz,
- Operating range ($\theta < 60$ °C): 0.85 to 1.1 U_c

| Control circuit voltage U _c | Average resistance at 20 °C ± 10 % | Inductance of closed circuit | Reference (1) 50/60 Hz | Weight kg |
|--|------------------------------------|------------------------------|------------------------|-----------|
| V | V | H | | |
| 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.

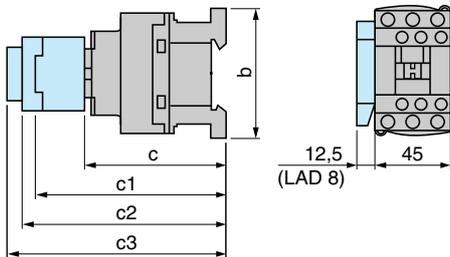
(2) Voltage for special coils fitted in control relays with serial timer module with 24 V supply.

(3) This coil can be used on 240 V at 60 Hz.

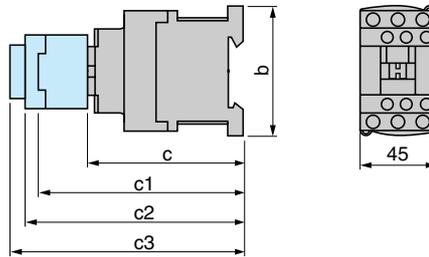
(4) This coil can be used on 230/240 V at 50 Hz and on 240 V only at 60 Hz.

Dimensions

CAD ~



CAD ⋮ or LC (low consumption)



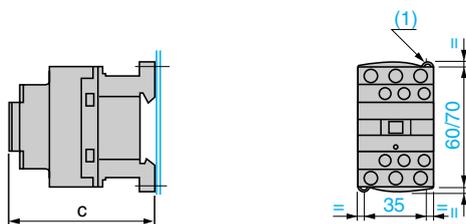
| CAD | 32 | 323 |
|--------------------------------------|-----|-----|
| | 50 | 503 |
| b | 77 | 99 |
| c without cover or add-on blocks | 84 | 84 |
| with cover, without add-on blocks | 86 | 86 |
| c1 with LAD N or C (2 or 4 contacts) | 117 | 117 |
| c2 with LAD 6K10 | 129 | 129 |
| c3 with LAD T, R, S | 137 | 137 |
| with LAD T, R, S and sealing cover | 141 | 141 |

| CAD | 32 | 323 |
|--------------------------------------|-----|-----|
| | 50 | 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 |

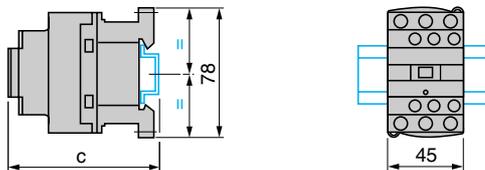
Mounting

CAD

Panel mounted



Mounted on rail AM1 DP200 or DE200



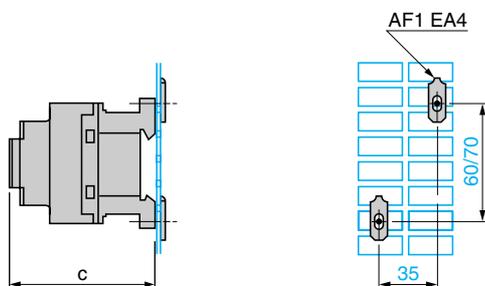
| | CAD ~ | CAD ⋮ or LC |
|--------------|-------|-------------|
| c with cover | 86 | 95 |

(1) 2 elongated holes 4.5 x 9

| | CAD ~ | CAD ⋮ or LC |
|-------------------|-------|-------------|
| c (AM1 DP200) (2) | 88 | 97 |
| c (AM1 DP200) (2) | 96 | 105 |

(2) With cover

Mounted on plate AM1 P

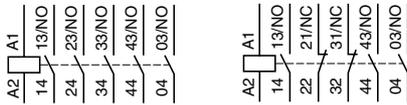


| | CAD ~ | CAD ⋮ or LC |
|--------------|-------|-------------|
| c with cover | 86 | 95 |

Schemes

Instantaneous auxiliary contacts

| | |
|---------------|----------------------|
| 5 N/O | 3 N/O + 2 N/C |
| CAD 50 | CAD 32 |



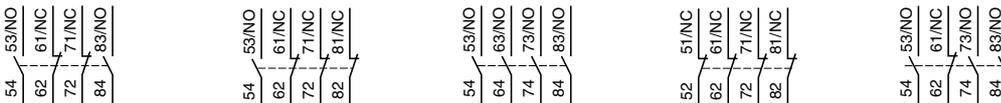
Instantaneous auxiliary contact blocks

| | | |
|----------------------|---------------------|----------------|
| 1 N/O + 1 N/C | 2 N/O | 2 N/C |
| LAD N11 | LAD 8N11 (1) | 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 | 1 N/O + 3 N/C | 4 N/O | 4 N/C | 3 N/O + 1 N/C |
| LAD N22 | LAD N13 | LAD N40 | LAD N04 | LAD N31 |



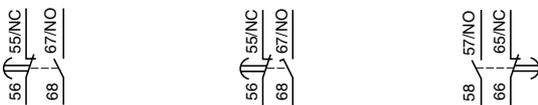
| | | | | | | |
|--|--|------------------------|------------------------|----------------------------|--|--|
| 2 N/O + 2 N/C including 1 N/O + 1 N/C make before break | With dust and damp protected contacts | 2 N/O protected | 2 N/C protected | 2 N/O protected (2) | 2 N/O protected + 2 N/O non protected | 2 N/O protected + 1 N/O + 1 N/C non protected |
| LAD C22 | LA1 DX20 | LA1 DX02 | LA1 DY20 | LA1 DZ40 | LA1 DZ31 | LA1 DZ31 |



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

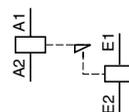
Time delay auxiliary contact blocks

| | |
|-------------------------------|--------------------------------|
| On-delay 1 N/O + 1 N/C | Off-delay 1 N/O + 1 N/C |
| LAD T | LAD R |



Mechanical latch blocks

LAD 6K10



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 out 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 | Please consult our catalogue "Automation and relay functions". | | | |

7

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 |
| 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 range : 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 |
| RE8 | RE 88 867 ●●● | RE XL●TM●● | RE 48A ●●● | RE 88 857 ●●● |

Please consult our catalogue "Automation and relay functions".

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 | |
| 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 | Please consult our catalogue "Automation and relay functions". | | |

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 | | Control : - overvoltage and undervoltage ~ 0.2...60 V ~ 15...600 V | | 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●● | |

Please consult our catalogue "Automation and relay functions".

Applications

Liquid level control relays



| |
|--------------|
| Functions |
| Relay output |
| Width |
| Relay type |
| Pages |

| | |
|--|--|
| Control : - empty | Control : - empty or fill |
| 1 C/O contact | 1 or 2 C/O contacts |
| 22.5 mm | Plug-in 8 or 11-pin |
| RM 84 870 1●1 | RM 84 870 30● RM 84 870 807 |
| Please consult our catalogue "Automation and relay functions". | |

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●

Please consult our catalogue "Automation and relay functions".