# K-Line Mini - Contactors, Overload Relays and Accessories

## Class 8502

**CONTENTS**




SQUARE D
GROUPE SCHNEIDER

### Introduction

The Telemecanique family of IEC style contactors and starters are the largest selling motor control devices in the world. When the application calls for world class products, select the Telemecanique IEC style contactors and starters for products that are marketed and sold in over 160 countries. Most devices are UL listed, CSA certified, CE marked, meet IEC 947 standards and are approved by most other international approved agencies.

The Telemecanique family of IEC style contactors and starters include the following:

**K-Line mini-contactors and overload relays** are for general purpose starting and protection in a small package for motor loads up to 12 Amps or resistive loads up to 20 Amps.

**D-Line contactors and overload relays** offer the largest offering of accessories for maximum flexibility in customer applications and automated systems up to 150 motor full-load Amps or 200 Amp resistive loads.

**F-Line contactors and solid-state overload relays** are for inductive loads up to 800 Amps or resistive loads up to 1350 Amps and share common accessories with the D-Line.

**GV manual starters** provide manual isolation, manual motor control and overcurrent protection in one compact unit. They are approved for Group Motor Installations when used alone or with D-Line contactors.

**Integral self-protected starters** combine all the functions of a disconnect switch, circuit breaker, contactor and overload relay in one coordinated unit to reduce required panel space by as much as 60% and reduce installation and wiring time.

Selection of Telemecanique K-Line, D-Line and F-Line contactors are based on Utilization Categories, a combination of application and duty cycle rates defined by the following:

- The type of application (inductive motor loads or resistive loads)
- The conditions under which making or breaking current takes place (motor starting or running, reversing, plugging or jogging, locked rotor or stalled motor)
- Number of making and breaking operations (or cycles) required for the life of the contactor

When specifying Telemecanique IEC contactors and starters refer to the following Square D documents:

| | |
|---|---|
| Catalog No. 8502CT9801 | IEC Contactors Selection Guide |
| Catalog No. 8502CT9703 | K-Line Contactors, Overload Relays and Accessories |
| Catalog No. 8502CT9704 | D-Line Contactors, Overload Relays and Accessories |
| Catalog No. 8502CT9702 | F-Line Contactors, Overload Relays and Accessories |
| Catalog No. 2520CT9501 | GV2/GV3 Manual Starters and AK5 Panel Busbar System |
| Catalog No. 8539CT9201 | Integral Self-Protected Starters |

**The K-Line Mini-Contactors and Overload Relays are ideal for general duty applications where small size and reliability are key concerns.**

### Three contactor ratings

The K-Line mini-contactors are available in three ratings for the USA market.

K06 rated for 3 hp motors at 480 VAC or 600 VAC
K09 rated for 5 hp motors at 480 VAC or 600 VAC
K12 rated for 7.5 hp motors at 480 VAC or 10 hp at 600 VAC

### Space savings

The special magnet and armature structure allow for a DC coil-operated device with the same physical size and panel footprint of the AC coil version.

### IP20 rated finger-safe terminals with both North American and International terminal markings

### Mounts on 35mm DIN rail or panel mount with screws

### Available in 3-pole contactor versions with built-in auxiliary contact for holding circuit or 4-pole contactor versions

### Easily installed accessories

2-pole or 4-pole instantaneous auxiliary contact blocks with:

Screw clamp or slip-on terminals,
Transient voltage surge suppressors
Electronic 1 to 30 second On-delay timers

### Three wiring methods to reduce installation time

Captive screw terminals for use with either Phillips or slotted head screwdrivers, slip-on terminals for quick installation of single 1/4" or double 1/8" tabs, or terminal pins for soldering the contactor directly to a printed circuit board.

### Control circuit flexibility

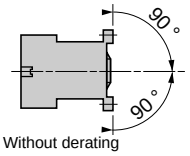
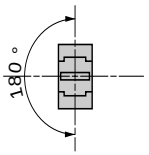
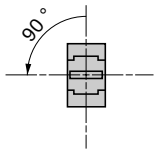
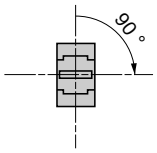
All versions of the K-Line mini-contactors are available with an AC, DC, or low consumption DC operating coil. The low consumption DC coil operating device can be energized by a low level DC signal from a computer or PLC and includes built-in transient suppression and LED “On” indicator.

### Bimetallic overload relays

The K-Line Class 10 bimetallic overload relays are ambient-compensated and include single-phase sensitivity for phase unbalance and phase loss protection. Standard features include isolated N.C. trip contact and N.O. alarm contact, manual or automatic reset function, tamper resistant window for FLA settings and Test trip button. Five pins connect to the contactor load side terminals, three for the power circuit and two for the control circuit which eliminate customer wiring for the 3-wire control holding circuit.

## Type LC●K and LP●K contactors

### Environment

| | | | | | |
|---|---|---|---|---|---|
| **Rated insulation voltage** (Ui) | Conforming to IEC 947 | V | 690 | | |
| | Conforming to VDE 0110 gr C | V | 750 | | |
| | Conforming to BS 5424, NF C 20-040 | V | 690 | | |
| | Conforming to CSA 22-2 No. 14, UL 508 | V | 600 | | |
| **Rated impulse withstand voltage** (Uimp) | | kV | 8 | | |
| **Conforming to standards** | CE Meets the essential requirements of the LV & EMC directives | | IEC 947, NF C 63-110, VDE 0660, BS 5424, UL508, CSA 22-2 No. 14 | | |
| **Approvals** | LC●-K06, LC●-K09, LC●-K12<br>LP●-K06, LP●-K09, LP●-K12 | | UL E164862 NLDX (Screw Clamp) | E164862 NLDX2 (Slip-on & Solder Pin) | LR 43364 3211-04 |
| **Protective treatment** | Conforming to IEC 68 (DIN 50016) | | "TC" (Fungus-proof, tropicalization protection) | | |
| **Degree of protection** | Conforming to VDE 0106 | | Protection against direct finger contact | | |
| **Ambient air temperature** around the device | Storage | | - 50° to + 80°C (-58° to +176°F) | | |
| | Operation | | - 25° to + 50°C (-13° to +122°F) | | |
| **Maximum operating altitude** | Without derating | | 2000 m (6562 ft) | | |
| **Operating position** | **Vertical axis**<br>  <br><br>Without derating | | **Horizontal axis**<br>  <br><br>Without derating |  <br><br>  <br><br>Derate current carrying capability by 15% when not mounted vertically | |
| **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) | Contactor open | | 10 gn | | |
| | Contactor closed | | 15 gn | | |
| **Vibration resistance** 5 to 300 Hz | Contactor open | | 2 gn | | |
| | Contactor closed | | 4 gn | | |
| **Safe circuit separation** | Conforming to VDE 0106 and IEC 536 | | SELV ★, up to 400 V | | |
| **Cabling** | | | Min | Max | Max to IEC 947 |
| Screw-clamp terminals | Solid or stranded cable | AWG | 1 x 18 | 2 x 14 or 1 x 12 | - |
| | Solid cable | $mm^2$ | 1 x 1.5 | 2 x 4 | 1 x 4 + 1 x 2.5 |
| | Stranded cable without cable end | $mm^2$ | 1 x 0.75 | 2 x 4 | 2 x 2.5 |
| | Stranded 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 |
| Slip-on connectors | Clip | | 2 x 2.8mm or 1 x 6.35mm (2 x 0.110 in. or 1 x 0.250 in.) | | |
| Solder pins for printed circuit board | With locating device between power and control circuits | | 4 mm x 35 microns | | |
| **Tightening torque** | Phillips no. 2 or 3/16" slotted head screwdriver | | 0.8 N•m (7lb.-in.) | | |
| **Terminal referencing** | Conforming to standards EN 50005 and EN 50012 | | Up to 5 contacts | | |

★ Safety extra low voltage.

## Type LC●K and LP●K contactors

### Pole characteristics

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Conventional thermal current** (Ith) | For ambient temperature ≤ 50 °C (≤122°F) | | **A** | 20 | | | | | | |
| **Rated operational frequency** | | | **Hz** | 50/60 | | | | | | |
| **Frequency limits of the operational current** | | | **Hz** | Up to 400 | | | | | | |
| **Rated operational voltage** (Ue) | | | **V** | 690 | | | | | | |
| **Rated making capacity** | I rms conforming to NF C 63-110 and IEC 947 LC●-K06, LPI●-K06, LC●-K09, LP●-K09 | | **A** | 110 | | | | | | |
| | LC●-K12, LP●-K12 | | | 144 | | | | | | |
| | LC●-K16 | | | 160 | | | | | | |
| **Rated breaking capacity** | Conforming to NF C 63-110 and IEC 947 | | **V** | 220/ 230 | 380/ 400 | 415 | 440 | 500 | 660/ 690 | |
| | LC●-K06, LP●-K06, LC●-K09, LP●-K09 I rms | | **A** | 110 | 110 | 110 | 110 | 80 | 70 | |
| | LC●-K12, LP●-K12 | | | – | – | – | 110 | 80 | 70 | |
| | LC●-K16 | | | – | – | – | 110 | 80 | 70 | |
| **Permissible short-time rating** | In free air for a time "t" from cold state (θ ≤ 50 °C) | | **A** | 1 s | 5 s | 10 s | 30 s | 1 min | 3 min | ≥ 15 min |
| | LC●-K06, LP●-K06, LC●-K09, LP●-K09 | | | 90 | 85 | 80 | 60 | 45 | 40 | 20 |
| | LC●-K12, LP●-K12 LC●-K16 | | | 115 | 105 | 100 | 75 | 55 | 50 | 25 |
| **Short-circuit protection** | By circuit breaker | | | Select in accordance with NEC and local codes | | | | | | |
| | By fuses | | | Max 400% of motor FLA | | | | | | |
| **Average impedance per pole** | At Ith and 50 Hz | | **mΩ** | 3 | | | | | | |
| **Utilization in category AC-1** resistive circuit, heating, lighting (Ue ≤ 440 V) | Maximum rated operational current for a temperature ≤ 50 °C | | **A** | 20 | | | | | | |
| | Maximum rated operational current for a temperature ≤ 70 °C | | **A** | 16 for Ue only | | | | | | |
| | Rated operational current limits in relation to on-load factor and operating frequency | | **A** | On-load factor | | | 90% | 60% | 30% | |
| | | | | 300 op. cycles/hour | | | 13 | 15 | 18 | |
| | | | | 120 op. cycles/hour | | | 15 | 18 | 19 | |
| | | | | 30 op. cycles/hour | | | 19 | 20 | 20 | |
| | Increase in operational current by paralleling of poles | | | Apply the following coefficients to the current values given above. These take into account the often unbalanced current distribution between poles | | | | | | |
| | | | | 2 poles in parallel: K = 1.60 | | | | | | |
| | | | | 3 poles in parallel: K = 2.25 | | | | | | |
| | | | | 4 poles in parallel: K = 2.80 | | | | | | |
| **Utilization in category AC-3** Squirrel cage motors | Operational power according to the voltage | Voltage 50 or 60 Hz | **V** | 115 | 220 | 220/ 240 | 380/ 415 | 440/ 480 | 500/ 600 | 660/ 690 |
| | | | | 1-ph | 1-ph | 3-ph | 3-ph | 3-ph | 3-ph | 3-ph |
| | LC●-K06, LP●-K06 | Motor ratings | **kW** | 0.37 | 0.75 | 1.5 | 2.2 | 3 | 3 | 3 |
| | LC●-K09, LP●-K09 | Motor ratings | **kW** | 0.55 | 1.1 | 2.2 | 4 | 4 | 4 | 4 |
| | LC●-K12, LP●-K12 | Motor ratings | **kW** | – | – | 3 | 5.5 | 5.5/4 (480) | 4 | 4 |
| | LC●-K16 | Motor ratings | **kW** | – | – | 4 | 7.5 | 5.5/4 (480) | 4 | 4 |
| | Maximum operating rate (in operating cycles/ hour in relation to % of rated power) | | | Op. cycles/hour | | | | 600 | 900 | 1200 |
| | | | | Power | | | | 100% | 75% | 50% |
| **Utilization in category AC-3** Squirrel cage motors | Operational power according to the voltage | Voltage 50 or 60 Hz | **V** | 115 | 220 | 220/ 208 | 220/ 240 | 460/ 480 | 575/ 600 | |
| | | | | 1-ph | 1-ph | 3-ph | 3-ph | 3-ph | 3-ph | |
| | LC●-K06, LP●-K06 | Motor ratings | **hp** | 0.5 | 1 | 1.5 | 3 | 3 | 3 | |
| | LC●-K09, LP●-K09 | Motor ratings | **hp** | 0.5 | 1.5 | 2 | 3 | 5 | 5 | |
| | LC●-K12, LP●-K12 | Motor ratings | **hp** | 1 | 2 | 3 | 3 | 7.5 | 10 | |
| | LC●-K16, LP●-K12 | Not for North American Applications. Not UL Listed or CSA Certified. | | | | | | | | |

## Type LC●K and LP●K contactors

### Control circuit characteristics

| Type | | | LC1 | LC2 | LC7 | LC8 | LP1 | LP2 |
|---|---|---|---|---|---|---|---|---|
| **Rated control circuit voltage** (Uc) | | V | AC 12 to 690 ■ | | AC 24 to 230 | | DC 12 to 250 ■ | |
| **Control voltage limits** (≤ 50 °C) single voltage coil | For operation ★ | | 0.8 to 1.15 Uc | | 0.85 to 1.1 Uc | | 0.8 to 1.15 Uc | |
| | For drop-out | | ≥ 0.20 Uc | | ≥ 0.10 Uc | | ≥ 0.10 Uc | |
| **Average consumption** at 20 °C and at Uc | Inrush | | 30 VA | | 3 VA | | 3 W | |
| | Sealed | | 4.5 VA | | 3 VA | | 3 W | |
| **Heat dissipation** | | W | 1.3 | | 3 | | 3 | |
| **Operating time** at 20 °C and at Uc | Between coil energization and: | | | | | | | |
| | - opening of the N.C. contacts | ms | 5 to 15 | | 25 to 35 | | 25 to 35 | |
| | - closing of the N.O. contacts | ms | 10 to 20 | | 30 to 40 | | 30 to 40 | |
| | Between coil de-energization and: | | | | | | | |
| | - opening of the N.O. contacts | ms | 10 to 20 | | 30 | | 10 | |
| | - closing of the N.C. contacts | ms | 15 to 25 | | 40 | | 15 | |
| **Maximum immunity to micro-breaks** | | ms | 2 | | 2 | | 2 | |
| **Maximum operating rate** | In operating cycles per hour | | 3600 | | 3600 | | 3600 | |
| **Mechanical durability at Uc** In millions of operating cycles | 50/60 Hz coil | | 10 | 5 | 10 | 5 | – | – |
| | DC coil | | – | – | – | – | 10 | 5 |

■ For mains supplies with a high level of interference (voltage surge > 800 V), use a suppressor module LA4-KE1FC (50 to 129 V) or LAF-KE1UG (130 to 250 V), see page 22.
★ LC1-K16: 0.85 to 1.15 Uc.

## Types LCkK and LPkK contactors

### Auxiliary contact characteristics of contactors and instantaneous contact blocks

| | | | | |
|---|---|---|---|---|
| **Number of contacts** | On **LC●-K** or **LP●-K** | | | 1 |
| | On **LA1-K** | | | 2 or 4 |
| **Rated operational voltage** (Ue) | Up to | | V | 690 |
| **Rated insulation voltage** (Ui) | Conforming to BS 5424 | | V | 690 |
| | Conforming to IEC 947 | | V | 690 |
| | Conforming to VDE 0110 group C | | V | 750 |
| | Conforming to CSA C 22.2 No.14, UL 508 | | V | 600 |
| **Conventional thermal current** (Ith) | For ambient temperature ≤ 50 °C | | A | 10 |
| **Frequency of operational current** | | | Hz | Up to 400 |
| **Minimum switching capacity** | U min (DIN 19 240) | | V | 17 |
| | I min | | mA | 5 |
| **Short-circuit protection** | Conforming to IEC 947 and VDE 0660, gl fuse | | A | 10 |
| **Rated making capacity** | Conforming to IEC 947 | I rms | A | 110 |
| **Overload current** | Permissible for | 1 s | A | 80 |
| | | 500 ms | A | 90 |
| | | 100 ms | A | 110 |
| **Insulation resistance** | | | MΩ | > 10 |
| **Non-overlap distance** | Linked contacts conforming to INRS and BIA spec. | | mm | 0.5 |

**Operational power of contacts** conforming to IEC 947

**AC 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 (power factor 0.7) = 10 times the breaking current (power factor 0.4).

| **V** | **24** | **48** | **110/ 127** | **220/ 230** | **440** | **600/ 690** |
|---|---|---|---|---|---|---|
| 1 million operating cycles | **VA** | 48 | 96 | 240 | 440 | 880 | 1200 |
| 2 million operating cycles | **VA** | 17 | 34 | 86 | 158 | 317 | 500 |
| 10 million operating cycles | **VA** | 7 | 14 | 36 | 66 | 132 | 200 |
| Occasional making capacity | **VA** | 1000 | 2050 | 5000 | 10000 | 13000 | 9000 |

**DC supply, category DC-13**

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

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

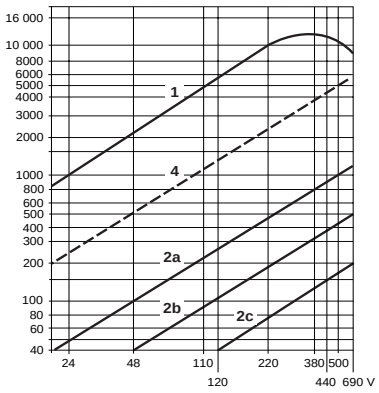
**1** Breaking limit of contacts valid for:
- maximum of 50 operating cycles at 10 s intervals (breaking current = making current x power factor 0.7).

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

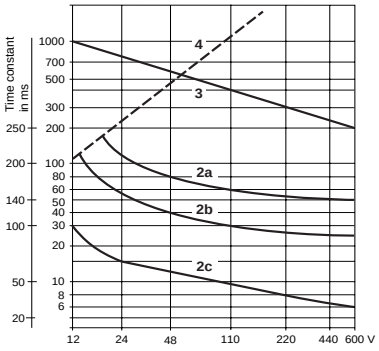
**3** Breaking limit of contacts valid for:
- maximum of 20 operating cycles at 10 s intervals with current passing for 0.5 s per operating cycle.

**4** Thermal limit.

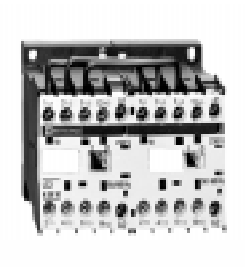
Power in broken VA




Power in broken W



### Control circuit: AC
### Kilowatt ratings for International applications



LC1-KO610●●

LC1-KO6107●●

LC7-KO6105●●

### General purpose contactors ■

- Mounting on 35 mm ⎓ DIN rail or 4mm (#6) screws.
- Screws in open "ready-to-tighten" position.

| Standard power ratings of 3-phase motors 50/60 Hz in category AC-3 | | | Rated operational current in AC-3 440V up to | Type of connection | Auxiliary contacts | | Basic catalog number. Complete with code indicating control circuit voltage catalog number ★ ▲ | Weight |
|---|---|---|---|---|---|---|---|---|
| 220 V 230 V | 380 V 415 V | 440/500 V 660/690 V | | | N.O. | N.C. | | |
| **kW** | **kW** | **kW** | **A** | | | | | **kg (lb.)** |
| 1.5 | 2.2 | 3 | 6 | Screw clamp | 1 | – | **LC1-K0610●●** | 0.180 (0.40) |
| | | | | | – | 1 | **LC1-K0601●●** | 0.180 (0.40) |
| | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LC1-K06107●●** | 0.180 (0.40) |
| | | | | | – | 1 | **LC1-K06017●●** | 0.180 (0.40) |
| | | | | Solder pins for printed circuit board | 1 | – | **LC1-K06105●●** | 0.210 (0.46) |
| | | | | | – | 1 | **LC1-K06015●●** | 0.210 (0.46) |
| 2.2 | 4 | 4 | 9 | Screw clamp | 1 | – | **LC1-K0910●●** | 0.180 (0.40) |
| | | | | | – | 1 | **LC1-K0901●●** | 0.180 (0.40) |
| | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LC1-K09107●●** | 0.180 (0.40) |
| | | | | | – | 1 | **LC1-K09017●●** | 0.180 (0.40) |
| | | | | Solder pins for printed circuit board | 1 | – | **LC1-K09105●●** | 0.210 (0.46) |
| | | | | | – | 1 | **LC1-K09015●●** | 0.210 (0.46) |
| 3 | 5.5 | 4 (> 440) 5.5 (440) | 12 | Screw clamp | 1 | – | **LC1-K1210●●** | 0.180 (0.40) |
| | | | | | – | 1 | **LC1-K1201●●** | 0.180 (0.40) |
| | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LC1-K12107●●** | 0.180 (0.40) |
| | | | | | – | 1 | **LC1-K12017●●** | 0.180 (0.40) |
| | | | | Solder pins for printed circuit board | 1 | – | **LC1-K12105●●** | 0.210 (0.46) |
| | | | | | – | 1 | **LC1-K12015●●** | 0.210 (0.46) |
| 3 | 7.5 | 4 (440) 5.5 (440) | 16 | Screw clamp | 1 | – | **LC1-K1610●● ♦** | 0.180 (0.40) |
| | | | | | – | 1 | **LC1-K1601●● ♦** | 0.180 (0.40) |
| | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LC1-K16107●● ♦** | 0.180 (0.40) |
| | | | | | – | 1 | **LC1-K16017●● ♦** | 0.180 (0.40) |
| | | | | Solder pins for printed circuit board | 1 | – | **LC1-K16105●● ♦** | 0.210 (0.46) |
| | | | | | – | 1 | **LC1-K16015●● ♦** | 0.210 (0.46) |

### Contactors for use in sensitive environments ■

**Recommended for use in areas sensitive to noise, high interference mains supplies, etc.**

- Coil with built-in rectifier and suppressor.
- Mounting on 35 mm ⎓ DIN rail or 4 mm (#6) screws
- Screws in the open "ready-to-tighten" position.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1.5 | 2.2 | 3 | 6 | Screw clamp | 1 | – | **LC7-K0610●●** | 0.225 (0.50) |
| | | | | | – | 1 | **LC7-K0601●●** | 0.225 (0.50) |
| | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LC7-K06107●●** | 0.225 (0.50) |
| | | | | | – | 1 | **LC7-K06017●●** | 0.225 (0.50) |
| | | | | Solder pins for printed circuit board | 1 | – | **LC7-K06105●●** | 0.255 (0.56) |
| | | | | | – | 1 | **LC7-K06015●●** | 0.255 (0.56) |
| 2.2 | 4 | 4 | 9 | Screw clamp | 1 | – | **LC7-K0910●●** | 0.225 (0.50) |
| | | | | | – | 1 | **LC7-K0901●●** | 0.225 (0.50) |
| | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LC7-K09107●●** | 0.225 (0.50) |
| | | | | | – | 1 | **LC7-K09017●●** | 0.255 (0.56) |
| | | | | Solder pins for printed circuit board | 1 | – | **LC7-K09105●●** | 0.255 (0.56) |
| | | | | | – | 1 | **LC7-K09015●●** | 0.225 (0.50) |
| 3 | 5.5 | 4 (> 440) 5.5 (440) | 12 | Screw clamp | 1 | – | **LC7-K1210●●** | 0.225 (0.50) |
| | | | | | – | 1 | **LC7-K1201●●** | 0.225 (0.50) |
| | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LC7-K12107●●** | 0.225 (0.50) |
| | | | | | – | 1 | **LC7-K12017●●** | 0.225 (0.50) |
| | | | | Solder pins for printed circuit board | 1 | – | **LC7-K12105●●** | 0.255 (0.56) |
| | | | | | – | 1 | **LC7-K12015●●** | 0.255 (0.56) |

■ Add-on auxiliary contact blocks and accessories, see page 20.

★ Standard control circuit voltages, see page 10.

▲ For mains supplies with a high level of interference (voltage surge > 800 V), use a suppressor module LA4-KE1FC (50 to 129 V) or LA4-KE1UG (130 to 250 V), see page 22.

♦ For International applications only - not UL Listed or CSA Certified.

## Control circuit: AC
## Horsepower ratings for North American applications

LC1-KO610●●

### General purpose contactors ■

- Mounting on 35 mm ⎓ DIN rail or 4mm (#6) screws.
- Screws in open “ready-to-tighten” position.

| Maximum Horsepower Rating | | | | | | Maximum inductive current in AC-3 category | Type of Connection | Auxiliary contacts | | Basic catalog number. Complete with code indicating control circuit voltage ★ ▲ | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - Phase 50/60 Hz | | 3 - Phase 50/60 Hz | | | | | | | | | |
| 115/ 120 V | 230/ 240 V | 200/ 208 V | 220/ 240 V | 460/ 480 V | 575/ 600 V | | | | | | |
| **hp** | **hp** | **hp** | **hp** | **hp** | **hp** | **A** | | **N.O.** | **N.C.** | | **kg (lb.)** |
| 0.5 | 1 | 1.5 | 1.5 | 3 | 3 | 6 | Screw clamp | 1 | – | **LC1-K0610●●** | 0.180 (0.40) |
| | | | | | | | | – | 1 | **LC1-K0601●●** | 0.180 (0.40) |
| | | | | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LC1-K06107●●** | 0.180 (0.40) |
| | | | | | | | | – | 1 | **LC1-K06017●●** | 0.180 (0.40) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LC1-K06105●●** | 0.210 (0.46) |
| | | | | | | | | – | 1 | **LC1-K06015●●** | 0.210 (0.46) |
| 0.5 | 1.5 | 2 | 3 | 5 | 5 | 9 | Screw clamp | 1 | – | **LC1-K0910●●** | 0.180 (0.40) |
| | | | | | | | | – | 1 | **LC1-K0901●●** | 0.180 (0.40) |
| | | | | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LC1-K09107●●** | 0.180 (0.40) |
| | | | | | | | | – | 1 | **LC1-K09017●●** | 0.180 (0.40) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LC1-K09105●●** | 0.210 (0.46) |
| | | | | | | | | – | 1 | **LC1-K09015●●** | 0.210 (0.46) |
| 1 | 2 | 3 | 3 | 7.5 | 10 | 12 | Screw clamp | 1 | – | **LC1-K1210●●** | 0.180 (0.40) |
| | | | | | | | | – | 1 | **LC1-K1201●●** | 0.180 (0.40) |
| | | | | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LC1-K12107●●** | 0.180 (0.40) |
| | | | | | | | | – | 1 | **LC1-K12017●●** | 0.180 (0.40) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LC1-K12105●●** | 0.210 (0.46) |
| | | | | | | | | – | 1 | **LC1-K12015●●** | 0.210 (0.46) |
| Not for North American applications Not UL Listed or CSA Certified | | | | | | | Screw clamp | 1 | – | **LC1-K1610●● ♦** | 0.180 (0.40) |
| | | | | | | | | – | 1 | **LC1-K1601●● ♦** | 0.180 (0.40) |
| | | | | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LC1-K16107●● ♦** | 0.180 (0.40) |
| | | | | | | | | – | 1 | **LC1-K16017●● ♦** | 0.180 (0.40) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LC1-K16105●● ♦** | 0.210 (0.46) |
| | | | | | | | | – | 1 | **LC1-K16015●● ♦** | 0.210 (0.46) |

LC1-KO6107●●

LC7-KO6105●●

### Contactors for use in sensitive environments ■

**Recommended for use in areas sensitive to noise, high interference mains supplies, etc.**

- Coil with built-in rectifier and suppressor.
- Mounting on 35 mm ⎓ DIN rail or 4mm (#6) screws
- Screws in the open “ready-to-tighten” position.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 1 | 1.5 | 3 | 3 | 6 | 6 | Screw clamp | 1 | – | **LC7-K0610●●** | 0.225 (0.50) |
| | | | | | | | | – | 1 | **LC7-K0601●●** | 0.225 (0.50) |
| | | | | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LC7-K06107●●** | 0.225 (0.50) |
| | | | | | | | | – | 1 | **LC7-K06017●●** | 0.225 (0.50) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LC7-K06105●●** | 0.255 (0.56) |
| | | | | | | | | – | 1 | **LC7-K06015●●** | 0.255 (0.56) |
| 0.5 | 1.5 | 2 | 3 | 5 | 5 | 9 | Screw clamp | 1 | – | **LC7-K0910●●** | 0.225 (0.50) |
| | | | | | | | | – | 1 | **LC7-K0901●●** | 0.225 (0.50) |
| | | | | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LC7-K09107●●** | 0.225 (0.50) |
| | | | | | | | | – | 1 | **LC7-K09017●●** | 0.255 (0.56) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LC7-K09105●●** | 0.255 (0.56) |
| | | | | | | | | – | 1 | **LC7-K09015●●** | 0.225 (0.50) |
| 1 | 2 | 3 | 3 | 7.5 | 10 | 12 | Screw clamp | 1 | – | **LC7-K1210●●** | 0.225 (0.50) |
| | | | | | | | | – | 1 | **LC7-K12101●●** | 0.225 (0.50) |
| | | | | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LC7-K12107●●** | 0.225 (0.50) |
| | | | | | | | | – | 1 | **LC7-K121017●●** | 0.225 (0.50) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LC7-K12005●●** | 0.255 (0.56) |
| | | | | | | | | – | 1 | **LC7-K12015●●** | 0.255 (0.56) |

■ Add-on auxiliary contact blocks and accessories, see page 20.
★ Standard control circuit voltages (variable delivery times, please consult your Regional Sales Office).
▲ For mains supplies with a high level of interference (voltage surge > 800 V), use a suppressor module LA4-KE1FC (50 to 129 V) or LA4-KE1UG (130 to 250 V), see page 22.
♦ For International applications only - not UL Listed or CSA Certified.

### Control circuit: DC
### Kilowatt ratings for International applications

LP1-K0610●●

### 3-pole contactors ■

- Mounting on 35 mm ⎓ DIN rail or 4 mm (#6) screws.
- Screws in open “ready-to-tighten” position.

| Standard power ratings of 3-phase motors 50/60 Hz in category AC-3 | | | Rated operational current in AC-3 440 V up to | Type of connection | Auxiliary contacts | | Basic catalog number. Complete with code indicating control circuit voltage ★ ▲ | Weight |
|---|---|---|---|---|---|---|---|---|
| 220 V 230 V | 380 V 415 V | 440/500 V 660/690 V | | | | | | |
| **kW** | **kW** | **kW** | **A** | | **N.O.** | **N.C.** | | **kg (lb.)** |
| 1.5 | 2.2 | 3 | 6 | Screw clamp | 1 | – | **LP1-K0610●●** | 0.225 (0.50) |
| | | | | | – | 1 | **LP1-K0601●●** | 0.225 (0.50) |
| | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LP1-K06107●●** | 0.225 (0.50) |
| | | | | | – | 1 | **LP1-K06017●●** | 0.225 (0.50) |
| | | | | Solder pins for printed circuit board | 1 | – | **LP1-K06105●●** | 0.225 (0.56) |
| | | | | | – | 1 | **LP1-K06015●●** | 0.225 (0.56) |
| 2.2 | 4 | 4 | 9 | Screw clamp | 1 | – | **LP1-K0910●●** | 0.225 (0.50) |
| | | | | | – | 1 | **LP1-K0901●●** | 0.225 (0.50) |
| | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LP1-K09107●●** | 0.225 (0.50) |
| | | | | | – | 1 | **LP1-K09017●●** | 0.225 (0.50) |
| | | | | Solder pins for printed circuit board | 1 | – | **LP1-K09105●●** | 0.255 (0.56) |
| | | | | | – | 1 | **LP1-K09015●●** | 0.255 (0.56) |
| 3 | 5.5 | 4 (>440 V) 5.5 (440 V) | 12 | Screw clamp | 1 | – | **LP1-K1210●●** | 0.225 (0.50) |
| | | | | | – | 1 | **LP1-K1201●●** | 0.225 (0.50) |
| | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LP1-K12107●●** | 0.225 (0.50) |
| | | | | | – | 1 | **LP1-K12017●●** | 0.225 (0.50) |
| | | | | Solder pins for printed circuit board | 1 | – | **LP1-K12105●●** | 0.255 (0.56) |
| | | | | | – | 1 | **LP1-K12015●●** | 0.255 (0.56) |

■ Add on auxiliary contact blocks and accessories, see pages 20.
★ Standard control circuit voltages (variable delivery times, please consult your Regional Sales Office)

LP1-K06107●●

### Coil Selection

**Contactor LC1-K** (0.8 to 1.15 Uc) *(0.85 to 1.1 Uc)*

| Volts AC 50/60 Hz | **12** | **20** | **24 ▲** | **36** | **42** | **48** | **110** | **127** | **200/ 208** | ***220/ 230*** | **230** | ***230/ 240*** | **256** | **277** | ***380/ 400*** | **400** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | J7 | Z7 | B7 | C7 | D7 | E7 | F7 | FC7 | L7 | *M7* | P7 | *U7* | W7 | UE7 | *Q7* | V7 |
| Volts AC 50/60 Hz | ***400/ 415*** | **480 T7** | **500** | **575** | **600** | ***660/ 690*** | | | | | | | | | | |
| Code | *N7* | R7 | S7 | SC7 | X7 | *Y7* | | | | | | | | | | |

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

**Contactor LC7-K** (0.85 to 1.1 Uc)

| Volts AC 50/60 Hz | **24** | **42** | **48** | **110** | **220** | **230/ 240** |
|---|---|---|---|---|---|---|
| Code | B7 | D7 | E7 | F7 | M7 | U7 |

**Contactor LP1-K** (0.8 to 1.15 Uc)

| Volts DC | **12** | **20** | **24 ▲** | **36** | **48** | **60** | **72** | **100** | **110** | **125** | **155** | **174** | **200** | **220** | **230** | **240** | **250** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | JD | ZD | BD | CD | ED | ND | SD | KD | FD | GD | PD | QD | LD | MD | MPD | MUD | UD |

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

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

## Control circuit: DC
## Horsepower ratings for North American applications

LP1-K0610●●

LP1-K06107●●

### 3-pole contactors ■

- Mounting on 35 mm ⌓ DIN rail or 4mm (#6) screws.
- Screws in open “ready-to-tighten” position.

| Maximum Horsepower ratings | | | | | | Maximum inductive current in AC-3 category | Type of connection | Auxiliary contacts | | Basic catalog number. Complete with code indicating control circuit voltage ★ ▲ | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1- phase 50/60 HZ | | 3- phase 50/60 HZ | | | | | | | | | |
| 115/ 120 V | 230/ 240 V | 200/ 208 V | 220/ 240 V | 460/ 480 V | 575/ 600 V | | | | | | |
| **hp** | **hp** | **hp** | **hp** | **hp** | **hp** | **A** | | **N.O.** | **N.C.** | | **kg (lb.)** |
| 0.5 | 1 | 1.5 | 1.5 | 3 | 3 | 6 | Screw clamp | 1 | – | **LP1-K0610●●** | 0.225 (0.50) |
| | | | | | | | | – | 1 | **LP1-K0601●●** | 0.225 (0.50) |
| | | | | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LP1-K06107●●** | 0.225 (0.50) |
| | | | | | | | | – | 1 | **LP1-K06017●●** | 0.225 (0.50) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LP1-K06105●●** | 0.255 (0.56) |
| | | | | | | | | – | 1 | **LP1-K06015●●** | 0.255 (0.56) |
| 0.5 | 1.5 | 2 | 3 | 5 | 5 | 9 | Screw clamp | 1 | – | **LP1-K0910●●** | 0.225 (0.50) |
| | | | | | | | | – | 1 | **LP1-K0901●●** | 0.225 (0.50) |
| | | | | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LP1-K09107●●** | 0.225 (0.50) |
| | | | | | | | | – | 1 | **LP1-K09017●●** | 0.225 (0.50) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LP1-K09105●●** | 0.255 (0.56) |
| | | | | | | | | – | 1 | **LP1-K09015●●** | 0.255 (0.56) |
| 1 | 2 | 3 | 3 | 7.5 | 10 | 12 | Screw clamp | 1 | – | **LP1-K1210●●** | 0.225 (0.50) |
| | | | | | | | | – | 1 | **LP1-K1201●●** | 0.225 (0.50) |
| | | | | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LP1-K12107●●** | 0.225 (0.50) |
| | | | | | | | | – | 1 | **LP1-K12017●●** | 0.225 (0.50) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LP1-K12105●●** | 0.255 (0.56) |
| | | | | | | | | – | 1 | **LP1-K12015●●** | 0.255 (0.56) |

■ Add on auxiliary contact blocks and accessories, see page 20.
★Standard control circuit voltages (variable delivery times, please consult your Regional Sales Office)

### Coil Selection

**Contactor LC1-K** (0.8 to 1.15 Uc) *(0.85 to 1.1 Uc)*

| Volts AC 50/60 Hz | **12** | **20** | **24 ▲** | **36** | **42** | **48** | **110** | **127** | **200/ 208** | ***220/ 230*** | **230** | ***230/ 240*** | **256** | **277** | ***380/ 400*** | **400** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | J7 | Z7 | B7 | C7 | D7 | E7 | F7 | FC7 | L7 | *M7* | P7 | *U7* | W7 | UE7 | *Q7* | V7 |
| Volts AC 50/60 Hz | ***400/ 415*** | **480 T7** | **500** | **575** | **600** | ***660/ 690*** | | | | | | | | | | |
| Code | *N7* | R7 | S7 | SC7 | X7 | *Y7* | | | | | | | | | | |

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

**Contactor LC7-K** (0.85 to 1.1 Uc)

| Volts AC 50/60 Hz | **24** | **42** | **48** | **110** | **220** | **230/ 240** |
|---|---|---|---|---|---|---|
| Code | B7 | D7 | E7 | F7 | M7 | U7 |

**Contactor LP1-K** (0.8 to 1.15 Uc)

| Volts DC | **12** | **20** | **24 ▲** | **36** | **48** | **60** | **72** | **100** | **110** | **125** | **155** | **174** | **200** | **220** | **230** | **240** | **250** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | JD | ZD | BD | CD | ED | ND | SD | KD | FD | GD | PD | QD | LD | MD | MPD | MUD | UD |

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

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

### Control circuit: AC

LC1-K09004●●

LC1-K090047●●

### 3- and 4-pole contactors ■

- Mounting on 35 mm ⎓ DIN rail or by 4mm (#6) screws.
- Screws in open “ready-to-tighten” position.

| Non inductive loads Category AC-1 Maximum current at ≤ 50 °C | Type of connection | Power poles | | Auxiliary contacts | | Basic catalog number. Complete with code indicating control circuit voltage ★ ▲ | Weight |
|---|---|---|---|---|---|---|---|
| **A** | | **N.O.** | **N.C.** | **N.O.** | **N.C.** | | **kg (lb.)** |
| 20 | Screw clamp | 3 | – | 1 | – | **LC1-K0910●●** | 0.255 (0.50) |
| | | 3 | – | – | 1 | **LC1-K0901●●** | 0.255 (0.50) |
| | | 4 | – | – | – | **LC1-K09004●●** | 0.180 (0.40) |
| | | 2 | 2 | – | – | **LC1-K09008●●** | 0.180 (0.40) |
| | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 3 | – | 1 | – | **LC1-K09107●●** | 0.255 (0.50) |
| | | 3 | – | – | 1 | **LC1-K09017●●** | 0.255 (0.50) |
| | | 4 | – | – | – | **LC1-K090047●●** | 0.180 (0.40) |
| | | 2 | 2 | – | – | **LC1-K090087●●** | 0.180 (0.40) |
| | Solder pins for printed circuit board | 3 | – | 1 | – | **LC1-K09105●●** | 0.255 (0.56) |
| | | 3 | – | – | 1 | **LC1-K09015●●** | 0.255 (0.56) |
| | | 4 | – | – | – | **LC1-K090045●●** | 0.210 (0.46) |
| | | 2 | 2 | – | – | **LC1-K090085●●** | 0.210 (0.46) |

### Contactors for use in sensitive environments ■

**Recommended for use in areas sensitive to noise, high interference mains supplies, etc.**

- Coil with built-in rectifier suppressor fitted standard.
- Mounting on 35 mm ⎓ DIN rail or 4mm (#6) screws
- Screws in open “ready-to-tighten” position.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 20 | Screw clamp | 3 | – | 1 | – | **LC7-K0910●●** | 0.255 (0.50) |
| | | 3 | – | – | 1 | **LC7-K0901●●** | 0.255 (0.50) |
| | | 4 | – | – | – | **LC7-K09004●●** | 0.255 (0.50) |
| | | 2 | 2 | – | – | **LC7-K09008●●** | 0.255 (0.50) |
| | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 3 | – | 1 | – | **LC7-K09107●●** | 0.255 (0.50) |
| | | 3 | – | – | | **LC7-K09017●●** | 0.255 (0.50) |
| | | 4 | – | – | 1 | **LC7-K090047●●** | 0.255 (0.50) |
| | | 2 | 2 | – | – | **LC7-K090087●●** | 0.255 (0.50) |
| | Solder pins for printed circuit board | 3 | – | 1 | – | **LC7-K09105●●** | 0.255 (0.56) |
| | | 3 | – | – | | **LC7-K09015●●** | 0.255 (0.56) |
| | | 4 | – | – | 1 | **LC7-K090045●●** | 0.255 (0.56) |
| | | 2 | – | – | – | **LC7-K090085●●** | 0.255 (0.56) |

■ Add-on auxiliary contact blocks and accessories, see page 20.

★ Standard control circuit voltages, see page 13.

▲ For mains supplies with a high level of interference (voltage surge > 800 V), use a suppressor module LA4-KE1FC (50 to 129 V) or LAF-KE1UG (130 to 250 V), see page 22.

LC7-K090047●●

## Control circuit: DC

### 3- and 4-pole contactors C

- Mounting on 35 mm ⎓ DIN rail or 4mm (#6) screws.
- Screws in open “ready-to-tighten” position.

| Non-inductive loads Category AC-1 Maximum current at ≤ 50 °C | Type of connection | Power poles | | Auxiliary contacts | | Basic catalog number. Complete with code indicating control circuit voltage ★ | Weight |
|---|---|---|---|---|---|---|---|
| **A** | | **N.O.** | **N.C.** | **N.O.** | **N.C.** | | **kg (lb.)** |
| 20 | Screw clamp | 3 | – | 1 | – | **LP1-K0910●●** | 0.225 (0.50) |
| | | 3 | – | – | 1 | **LP1-K0901●●** | 0.225 (0.50) |
| | | 4 | – | – | – | **LP1-K09004●●** | 0.225 (0.50) |
| | | 2 | 2 | – | – | **LP1-K09008●●** | 0.225 (0.50) |
| | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 3 | – | 1 | – | **LP1-K09107●●** | 0.225 (0.50) |
| | | 3 | – | – | 1 | **LP1-K09017●●** | 0.225 (0.50) |
| | | 4 | – | – | – | **LP1-K090047●●** | 0.225 (0.50) |
| | | 2 | 2 | – | – | **LP1-K090087●●** | 0.225 (0.50) |
| | Solder pins | 3 | – | 1 | – | **LP1-K09105●●** | 0.255 (0.56) |
| | | 3 | – | – | 1 | **LP1-K09015●●** | 0.255 (0.56) |
| | | 4 | – | – | – | **LP1-K090045●●** | 0.255 (0.56) |
| | | 2 | 2 | – | – | **LP1-K090085●●** | 0.255 (0.56) |

■ Add-on auxiliary contact blocks and accessories, see page 20.
★ Standard control circuit voltages (variable delivery times, please consult your Regional Sales Office).

## Coil Selection

**Contactor LC1-K** (0.8 to 1.15 Uc) *(0.85 to 1.1 Uc)*

| Volts AC 50/60 Hz | **12** | **20** | **24 ▲** | **36** | **42** | **48** | **110** | **127** | **200/ 208** | ***220/ 230*** | **230** | ***230/ 240*** | **256** | **277** | ***380/ 400*** | **400** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | J7 | Z7 | B7 | C7 | D7 | E7 | F7 | FC7 | L7 | *M7* | P7 | *U7* | W7 | UE7 | *Q7* | V7 |
| Volts AC 50/60 Hz | ***400/ 415*** | **480 T7** | **500** | **575** | **600** | ***660/ 690*** | | | | | | | | | | |
| Code | *N7* | R7 | S7 | SC7 | X7 | *Y7* | | | | | | | | | | |

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

**Contactor LC7-K** (0.85 to 1.1 Uc)

| Volts AC 50/60 Hz | **24** | **42** | **48** | **110** | **220** | **230/ 240** |
|---|---|---|---|---|---|---|
| Code | B7 | D7 | E7 | F7 | M7 | U7 |

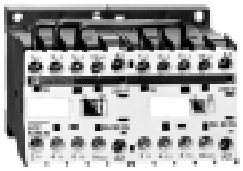
**Contactor LP1-K** (0.8 to 1.15 Uc)

| Volts DC | **12** | **20** | **24 ▲** | **36** | **48** | **60** | **72** | **100** | **110** | **125** | **155** | **174** | **200** | **220** | **230** | **240** | **250** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | JD | ZD | BD | CD | ED | ND | SD | KD | FD | GD | PD | QD | LD | MD | MPD | MUD | UD |

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

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

### Control circuit: AC
### Kilowatt ratings for International applications



LC2-K0610●●

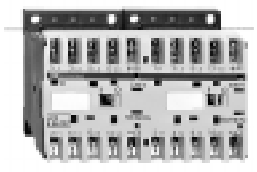
## 3-pole reversing contactors ■

- Integrated mechanical interlock.

**Customer wiring required to connect coil terminations to electrical interlock. See page 27.**

- Pre-wired power circuit connections standard on screw clamp versions.
- Mounting on 35 mm ⎓ DIN rail or 4mm (#6) screws
- Screws in open “ready-to-tighten” position.

| Standard power ratings of 3-phase motors 50/60 Hz in category AC-3 | | | Rated operational current in AC-3 up to 400 V | Connection | Auxiliary contacts | | Basic catalog number. Complete with code indicating control circuit voltage ★ ▲ | Weight |
|---|---|---|---|---|---|---|---|---|
| 220 V 230 V | 380 V 415 V | 440/500 V 660/690 V | | | | | | |
| **kW** | **kW** | **kW** | **A** | | **N.O.** | **N.C.** | | **kg (lb.)** |
| 1.5 | 2.2 | 3 | 6 | Screw clamp | 1 | – | **LC2-K0610●●** | 0.390 (0.86) |
| | | | | | – | 1 | **LC2-K0601●●** | 0.390 (0.86) |
| | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 1 | – | **LC2-K06107●●** | 0.370 (0.81) |
| | | | | | – | 1 | **LC2-K06017●●** | 0.370 (0.81) |
| | | | | Solder pins for printed circuit board | 1 | – | **LC2-K06105●●** | 0.430 (0.95) |
| | | | | | – | 1 | **LC2-K06015●●** | 0.430 (0.95) |
| 2.2 | 4 | 4 | 9 | Screw clamp | 1 | – | **LC2-K0910●●** | 0.390 (0.86) |
| | | | | | – | 1 | **LC2-K0901●●** | 0.390 (0.86) |
| | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 1 | – | **LC2-K09107●●** | 0.370 (0.81) |
| | | | | | – | 1 | **LC2-K09017●●** | 0.370 (0.81) |
| | | | | Solder pins for printed circuit board | 1 | – | **LC2-K09105●●** | 0.430 (0.95) |
| | | | | | – | 1 | **LC2-K09015●●** | 0.430 (0.95) |
| 3 | 5.5 | 4 (> 440) 5.5 (440) | 12 | Screw clamp | 1 | – | **LC2-K1210●●** | 0.390 (0.86) |
| | | | | | – | 1 | **LC2-K1201●●** | 0.390 (0.86) |
| | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 1 | – | **LC2-K12107●●** | 0.370 (0.81) |
| | | | | | – | 1 | **LC2-K12017●●** | 0.370 (0.81) |
| | | | | Solder pins for printed circuit board | 1 | – | **LC2-K12105●●** | 0.430 (0.95) |
| | | | | | – | 1 | **LC2-K12015●●** | 0.430 (0.95) |
| **3** | 7.5 | 4 (> 440) 5.5 (440) | 16 | Screw clamp | 1 | – | **LC2-K1610●● ♦** | 0.390 (0.86) |
| | | | | | – | 1 | **LC2-K1601●● ♦** | 0.390 (0.86) |
| | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 1 | – | **LC2-K16107●● ♦** | 0.370 (0.81) |
| | | | | | – | 1 | **LC2-K16017●● ♦** | 0.370 (0.81) |
| | | | | Solder pins for printed circuit board | 1 | – | **LC2-K16105●● ♦** | 0.430 (0.95) |
| | | | | | – | 1 | **LC2-K16015●● ♦** | 0.430 (0.95) |



LC2-K06107●●

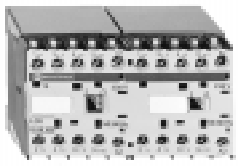
## Reversing contactors for use in sensitive environments ■

**Recommended for use in areas sensitive to noise, high interference mains supplies, etc.**

- Coil with rectifier incorporated, suppressor fitted as standard.
- Integral mechanical interlock.

**Customer wiring required to connect coil terminations to electrical interlock. See page 27.**

- Pre-wired power circuit connections standard on screw clamp versions.
- Mounting on 35 mm ⎓ DIN rail or 4mm (#6) screws.
- Screws in open, “ready-to-tighten” position.



LC8-K06105●●

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1.5 | 2.2 | 3 | 6 | Screw clamp | 1 | – | **LC8-K0610●●** | 0.480 (1.05) |
| | | | | | – | 1 | **LC8-K0601●●** | 0.480 (1.05) |
| | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 1 | – | **LC8-K06107●●** | 0.460 (1.00) |
| | | | | | – | 1 | **LC8-K06017●●** | 0.460 (1.00) |
| | | | | Solder pins for printed circuit board | | | **LC8-K06105●●** | 0.520 (1.14) |
| | | | | | 1 | – | **LC8-K06015●●** | 0.520 (1.14) |
| 2.2 | 4 | 4 | 9 | Screw clamp | – | 1 | **LC8-K0910●●** | 0.480 (1.05) |
| | | | | | 1 | – | **LC8-K0901●●** | 0.480 (1.05) |
| | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | – | 1 | **LC8-K09107●●** | 0.460 (1.00) |
| | | | | | 1 | – | **LC8-K09017●●** | 0.460 (1.00) |
| | | | | Solder pins for printed circuit board | – | 1 | **LC8-K09105●●** | 0.520 (1.14) |
| | | | | | | | **LC8-K09015●●** | 0.520 (1.14) |
| 3 | 5.5 | 4 (> 440) 5.5 (440) | 12 | Screw clamp | 1 | – | **LC8-K1210●●** | 0.480 (1.05) |
| | | | | | – | 1 | **LC8-K1201●●** | 0.480 (1.05) |
| | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 1 | – | **LC8-K12107●●** | 0.460 (1.00) |
| | | | | | – | 1 | **LC8-K12017●●** | 0.460 (1.00) |
| | | | | Solder pins for printed circuit board | 1 | – | **LC8-K12105●●** | 0.520 (1.14) |
| | | | | | – | 1 | **LC8-K12015●●** | 0.520 (1.14) |

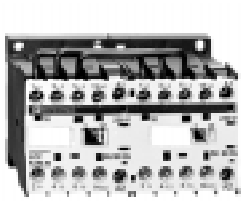
■ Auxiliary contact blocks and accessories, see page 20.

★ Control circuit voltage codes, see page 16.

▲ For mains supplies with a high level of interference (voltage surge > 800 V), use a suppressor module LA4-KE1FC (50 to 129 V) or LA4-KE1UG (130 to 250 V), see page 22.

♦ For International applications only - not UL Listed or CSA Certified.

## Control circuit: AC
## Horsepower ratings for North American applications

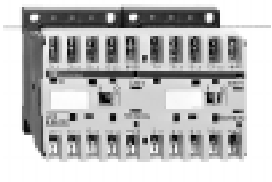


LC2-K0610●●

### 3-pole reversing contactors ■

**Customer wiring required to connect coil terminations to electrical interlock. See page 27.**
- Pre-wired power circuit connections standard on screw clamp versions.
- Mounting on 35 mm ⎓ DIN rail or 4mm (#6) screws.
- Screws in open "ready-to-tighten" position.

| Maximum Horsepower ratings | | | | | | Maximum Inductive current in AC-3 category | Type of connection | Auxiliary contacts | | Basic catalog number. Complete with code indicating control circuit voltage ★ ▲ | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1- phase 50/60 HZ | | 3 - phase50/60 HZ | | | | | | | | | |
| 115/ 120 V | 230/ 240 V | 200/ 208 V | 220/ 240 V | 460/ 480 V | 575/ 600 V | | | | | | |
| **hp** | **hp** | **hp** | **hp** | **hp** | **hp** | **A** | | **N.O.** | **N.C.** | | **kg (lb.)** |
| 0.5 | 1 | 1.5 | 1.5 | 3 | 3 | 6 | Screw clamp | 1 | – | **LC2-K0610●●** | 0.390 (0.86) |
| | | | | | | | | – | 1 | **LC2-K0601●●** | 0.390 (0.86) |
| | | | | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LC2-K06107●●** | 0.370 (0.81) |
| | | | | | | | | – | 1 | **LC2-K06017●●** | 0.370 (0.81) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LC2-K06105●●** | 0.430 (0.95) |
| | | | | | | | | – | 1 | **LC2-K06015●●** | 0.430 (0.95) |
| 0.5 | 1.5 | 2 | 3 | 5 | 5 | 9 | Screw clamp | 1 | – | **LC2-K0910●●** | 0.390 (0.86) |
| | | | | | | | | – | 1 | **LC2-K0901●●** | 0.390 (0.86) |
| | | | | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LC2-K09107●●** | 0.370 (0.81) |
| | | | | | | | | – | 1 | **LC2-K09017●●** | 0.370 (0.81) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LC2-K09105●●** | 0.430 (0.95) |
| | | | | | | | | – | 1 | **LC2-K09015●●** | 0.430 (0.95) |
| 1 | 2 | 3 | 3 | 7.5 | 10 | 12 | Screw clamp | 1 | – | **LC2-K1210●●** | 0.390 (0.86) |
| | | | | | | | | – | 1 | **LC2-K1201●●** | 0.390 (0.86) |
| | | | | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LC2-K12107●●** | 0.370 (0.81) |
| | | | | | | | | – | 1 | **LC2-K12017●●** | 0.370 (0.81) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LC2-K12105●●** | 0.430 (0.95) |
| | | | | | | | | – | 1 | **LC2-K12015●●** | 0.430 (0.95) |
| Not for North American applications Not UL Listed or CSA Certified | | | | | | | Screw clamp | 1 | – | **LC2-K1610●● ♦** | 0.390 (0.86) |
| | | | | | | | | – | 1 | **LC2-K1601●● ♦** | 0.390 (0.86) |
| | | | | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LC2-K16107●● ♦** | 0.370 (0.81) |
| | | | | | | | | – | 1 | **LC2-K16017●● ♦** | 0.370 (0.81) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LC2-K16105●● ♦** | 0.430 (0.95) |
| | | | | | | | | – | 1 | **LC2-K16015●● ♦** | 0.430 (0.95) |

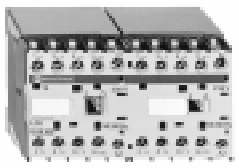


LC2-K06107●●

### Reversing contactors for use in sensitive environments ■

**Recommended for use in areas sensitive to noise, high interference mains supplies, etc.**
- Coil with rectifier incorporated, suppressor included as standard.
- Integrated mechanical interlock.

**Customer wiring required to connect coil terminations to electrical interlock. See page 27.**
- Pre-wired power circuit connections standard on screw clamp versions.
- Mounting on 35 mm ⎓ DIN rail or 4mm (#6) screws.
- Screws in open, "ready-to-tighten" position.

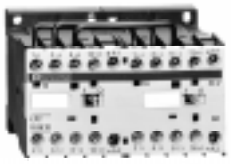


LC8-K06105●●

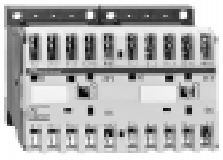
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 1 | 1.5 | 1.5 | 3 | 3 | 6 | Screw clamp | 1 | – | **LC8-K0610●●** | 0.480 (1.05) |
| | | | | | | | | – | 1 | **LC8-K0601●●** | 0.480 (1.05) |
| | | | | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 1 | – | **LC8-K06107●●** | 0.460 (1.00) |
| | | | | | | | | – | 1 | **LC8-K06017●●** | 0.460 (1.00) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LC8-K06105●●** | 0.520 (1.14) |
| | | | | | | | | – | 1 | **LC8-K06015●●** | 0.520 (1.14) |
| 0.5 | 1.5 | 2 | 3 | 5 | 5 | 9 | Screw clamp | 1 | – | **LC8-K0910●●** | 0.480 (1.05) |
| | | | | | | | | – | 1 | **LC8-K0901●●** | 0.480 (1.05) |
| | | | | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 1 | – | **LC8-K09107●●** | 0.460 (1.00) |
| | | | | | | | | – | 1 | **LC8-K09017●●** | 0.460 (1.00) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LC8-K09105●●** | 0.520 (1.14) |
| | | | | | | | | – | 1 | **LC8-K09015●●** | 0.520 (1.14) |
| 1 | 2 | 3 | 3 | 7.5 | 10 | 12 | Screw clamp | 1 | – | **LC8-K1210●●** | 0.480 (1.05) |
| | | | | | | | | – | 1 | **LC8-K1201●●** | 0.480 (1.05) |
| | | | | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 1 | – | **LC8-K12107●●** | 0.460 (1.00) |
| | | | | | | | | – | 1 | **LC8-K12017●●** | 0.460 (1.00) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LC8-K12105●●** | 0.520 (1.14) |
| | | | | | | | | – | 1 | **LC8-K12015●●** | 0.520 (1.14) |

■ Auxiliary contact blocks and accessories, see page 20.
★ Control circuit voltage codes, see page 17.
▲ For mains supplies with a high level of interference (voltage surge > 800 V), use a suppressor module LA4-KE1FC (50 to 129 V) or LA4-KE1UG (130 to 250 V), see page 22.
♦ For International applications only - not UL Listed or CSA Certified.

### Control circuit: DC
### Kilowatt ratings for International applications



LP2-K0610●●



LP2-K06107●●

### 3-pole reversing contactors ■

- Integrated mechanical interlock.
**Customer wiring required to connect coil terminations to electrical interlock. See page 27.**
- Pre-wired power circuit connections standard on screw clamp versions.
- Mounting on 35 mm ⎓ DIN rail or 4mm (#6) screws
- Screws in open “ready-to-tighten” position.

| Standard power ratings of 3-phase motors 50/60 Hz in category AC-3 | | | Rated operational current in AC-3 up to 400 V | Type of connection | Auxiliary contacts | | Basic catalog number. complete with code indicating control circuit voltage★ | Weight |
|---|---|---|---|---|---|---|---|---|
| 220 V 230 V | 380 V 415 V | 440/500 V 660/690 V | | | | | | |
| **kW** | **kW** | **kW** | **A** | | **N.O.** | **N.C.** | | **kg (lb.)** |
| 1.5 | 2.2 | 3 | 6 | Screw clamp | 1 | – | **LP2-K0610●●** | 0.480 (1.05) |
| | | | | | – | 1 | **LP2-K0601●●** | 0.480 (1.05) |
| | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 1 | – | **LP2-K06107●●** | 0.460 (1.00) |
| | | | | | | | **LP2-K06017●●** | 0.460 (1.00) |
| | | | | Solder pins for printed circuit board | – | 1 | **LP2-K06105●●** | 0.520 (1.14) |
| | | | | | 1 | – | **LP2-K06015●●** | 0.520 (1.14) |
| 2.2 | 4 | 4 | 9 | Screwclamp | – | 1 | **LP2-K0910●●** | 0.480 (1.05) |
| | | | | | 1 | – | **LP2-K0901●●** | 0.480 (1.05) |
| | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | – | 1 | **LP2-K09107●●** | 0.460 (1.00) |
| | | | | | 1 | – | **LP2-K09017●●** | 0.460 (1.00) |
| | | | | Solder pins for printed circuit board | – | 1 | **LP2-K09105●●** | 0.520 (1.14) |
| | | | | | 1 | – | **LP2-K09015●●** | 0.520 (1.14) |
| 3 | 5.5 | 4 (> 440) 5.5 (440) | 12 | Screwclamp | – | 1 | **LP2-K1210●●** | 0.480 (1.05) |
| | | | | | 1 | – | **LP2-K1201●●** | 0.480 (1.05) |
| | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | – | 1 | **LP2-K12107●●** | 0.460 (1.00) |
| | | | | | 1 | – | **LP2-K12017●●** | 0.460 (1.00) |
| | | | | Solder pins for printed circuit board | – | 1 | **LP2-K12105●●** | 0.520 (1.14) |
| | | | | | 1 | – | **LP2-K12015●●** | 0.520 (1.14) |

■ Auxiliary contact blocks and accessories, see page 20.
★ Standard control circuit voltages (variable delivery times, please consult you Regional Sales Office).

### Coil Selection

**Reversing contactors LC2-K** (0.8 to 1.15 Uc) *(0.85 to 1.1 Uc)*

| Volts AC 50/60 Hz | **12** | **20** | **24 ▲** | **36** | **42** | **48** | **110** | **127** | **200/ 208** | ***220/ 230*** | **230** | ***230/ 240*** | **256** | **277** | ***380/ 400*** | **400** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | J7 | Z7 | B7 | C7 | D7 | E7 | F7 | FC7 | L7 | *M7* | P7 | *U7* | W7 | UE7 | *Q7* | V7 |
| Volts AC 50/60 Hz | ***400/ 415*** | **480 T7** | **500** | **575** | **600** | ***660/ 690*** | | | | | | | | | | |
| Code | *N7* | R7 | S7 | SC7 | X7 | *Y7* | | | | | | | | | | |

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

**Reversing contactors LC8-K** (0.85 to 1.1 Uc)

| Volts AC 50/60 Hz | **24** | **42** | **48** | **110** | **220** | **230/ 240** |
|---|---|---|---|---|---|---|
| Code | B7 | D7 | E7 | F7 | M7 | U7 |

**Reversing contactors LP2-K** (0.8 to 1.15 Uc)

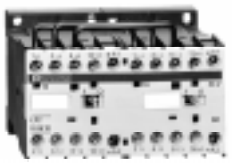
| Volts DC | **12** | **20** | **24 ▲** | **36** | **48** | **60** | **72** | **100** | **110** | **125** | **155** | **174** | **200** | **220** | **230** | **240** | **250** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | JD | ZD | BD | CD | ED | ND | SD | KD | FD | GD | PD | QD | LD | MD | MPD | MUD | UD |

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

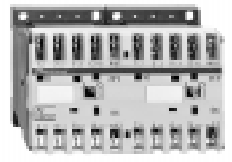
▲ When connecting an electronic sensor or timer in series with the coil of the control relay, select a 20 V coil (AC control circuit voltage code Z7, DC control circuit voltage code ZD) so as to compensate for the incurred voltage drop.

## Control circuit: DC
## Horsepower ratings for North American applications

### 3-pole reversing contactors ■



LP2-K0610●●



LP2-K06107●●

- Integrated mechanical interlock.
**Customer wiring required to connect coil terminations to electrical interlock. See page 27.**
- Pre-wired power circuit connections standard on screw clamp versions.
- Mounting on 35 mm ⎓ DIN rail or 4mm (#6) screws
- Screws in open "ready-to-tighten" position.

| Maximum Horsepower ratings | | | | | | Maximum inductive current in AC-3 category | Type of connection | Auxiliary contacts | | Basic catalog number. Complete with code indicating control circuit voltage ★ ▲ | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1- phase 50/60 HZ | | 3- phase 50/60 HZ | | | | | | | | | |
| 115/ 120 V | 230/ 240 V | 200/ 208 V | 220/ 240 V | 460/ 480 V | 575/ 600 V | | | | | | |
| **hp** | **hp** | **hp** | **hp** | **hp** | **hp** | **A** | | **N.O.** | **N.C.** | | **kg (lb.)** |
| 0.5 | 1 | 1.5 | 1.5 | 3 | 3 | 6 | Screw clamp | 1 | – | **LP2-K0610●●** | 0.480 (1.05) |
| | | | | | | | | – | 1 | **LP2-K0601●●** | 0.480 (1.05) |
| | | | | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LP2-K06107●●** | 0.460 (1.00) |
| | | | | | | | | – | 1 | **LP2-K06017●●** | 0.460 (1.00) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LP2-K06105●●** | 0.520 (1.14) |
| | | | | | | | | – | 1 | **LP2-K06015●●** | 0.520 (1.14) |
| 0.5 | 1.5 | 2 | 3 | 5 | 5 | 9 | Screw clamp | 1 | – | **LP2-K0910●●** | 0.480 (1.05) |
| | | | | | | | | – | 1 | **LP2-K0901●●** | 0.480 (1.05) |
| | | | | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LP2-K09107●●** | 0.460 (1.00) |
| | | | | | | | | – | 1 | **LP2-K09017●●** | 0.460 (1.00) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LP2-K09105●●** | 0.520 (1.14) |
| | | | | | | | | – | 1 | **LP2-K09015●●** | 0.520 (1.14) |
| 1 | 2 | 3 | 3 | 7.5 | 10 | 12 | Screw clamp | 1 | – | **LP2-K1210●●** | 0.480 (1.05) |
| | | | | | | | | – | 1 | **LP2-K1201●●** | 0.480 (1.05) |
| | | | | | | | Slip-on 1 x 0.25 in., or 2 x 0.11 in. | 1 | – | **LP2-K12107●●** | 0.460 (1.00) |
| | | | | | | | | – | 1 | **LP2-K12017●●** | 0.460 (1.00) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LP2-K12105●●** | 0.520 (1.14) |
| | | | | | | | | – | 1 | **LP2-K12015●●** | 0.520 (1.14) |

■ Auxiliary contact blocks and accessories, see page 20.
★ Standard control circuit voltages (variable delivery times, please consult your Regional Sales Office)

### Coil Selection

**Reversing contactors LC2-K** (0.8 to 1.15 Uc) *(0.85 to 1.1 Uc)*

| Volts AC 50/60 Hz | **12** | **20** | **24 ▲** | **36** | **42** | **48** | **110** | **127** | **200/ 208** | ***220/ 230*** | **230** | ***230/ 240*** | **256** | **277** | ***380/ 400*** | **400** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | J7 | Z7 | B7 | C7 | D7 | E7 | F7 | FC7 | L7 | *M7* | P7 | *U7* | W7 | UE7 | *Q7* | V7 |
| Volts AC 50/60 Hz | ***400/ 415*** | **480 T7** | **500** | **575** | **600** | ***660/ 690*** | | | | | | | | | | |
| Code | *N7* | R7 | S7 | SC7 | X7 | *Y7* | | | | | | | | | | |

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

**Reversing contactors LC8-K** (0.85 to 1.1 Uc)

| Volts AC 50/60 Hz | **24** | **42** | **48** | **110** | **220** | **230/ 240** |
|---|---|---|---|---|---|---|
| Code | B7 | D7 | E7 | F7 | M7 | U7 |

**Reversing contactors LP2-K** (0.8 to 1.15 Uc)

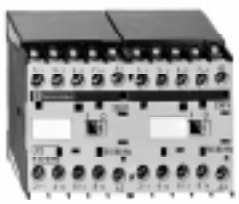
| Volts DC | **12** | **20** | **24 ▲** | **36** | **48** | **60** | **72** | **100** | **110** | **125** | **155** | **174** | **200** | **220** | **230** | **240** | **250** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | JD | ZD | BD | CD | ED | ND | SD | KD | FD | GD | PD | QD | LD | MD | MPD | MUD | UD |

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

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

### Control circuit: AC

### 3 and 4-pole reversing contactors ■



**LC2-K090045●●**

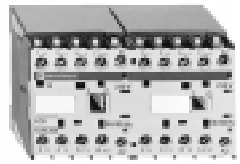
- Integrated mechanical interlock.

**Customer wiring required to connect coil terminations to electrical interlock. See page 27.**

- Pre-wired power circuit connections standard on screw clamp versions.
- Mounting on 35 mm ⎓ DIN rail or 4mm (#6) screws.
- Screws in open “ready-to-tighten” position.

| Non inductive loads Category AC-1 Maximum current at ≤ 50 °C | Type of connection | Power poles | | Auxiliary contacts | | Basic catalog number. Complete with code indicating control circuit voltage ★ ▲ | Weight |
|---|---|---|---|---|---|---|---|
| **A** | | **N.O.** | **N.C.** | **N.O.** | **N.C.** | | **kg. (lb.)** |
| 20 | Screw clamp | 3 | – | 1 | – | **LC2-K0910●● ♦** | 0.390 (0.86) |
| | | 3 | – | – | 1 | **LC2-K0901●● ♦** | 0.390 (0.86) |
| | | 4 | – | – | – | **LC2-K09004●●** | 0.380 (0.84) |
| | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 3 | – | – | 1 | **LC2-K09107●●** | 0.370 (0.81) |
| | | 3 | – | 1 | – | **LC2-K09017●●** | 0.370 (0.81) |
| | | 4 | – | – | – | **LC2-K090047●●** | 0.370 (0.81) |
| | Solder pins for circuit board | 3 | – | 1 | 1 | **LC2-K09105●●** | 0.430 (0.95) |
| | | 3 | – | – | – | **LC2-K09015●●** | 0.430 (0.95) |
| | | 4 | – | – | – | **LC2-K090045●●** | 0.430 (0.95) |

### Reversing contacts for use in sensitive environments ■



**LC8-K09105●●**

**Recommended for use in areas sensitive to noise, high interference mains supplies, etc.**

- Coil with rectifier incorporated, suppressor included as standard.
- Integrated mechanical interlock.

**Customer wiring required to connect coil terminations to electrical interlock. See page 27.**

- Mounting on 35 mm ⎓ DIN rail or 4mm (#6) screws.
- Screws in open, “ready-to-tighten” position.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 20 | Screw clamp | 3 | – | 1 | – | **LC8-K0910●● ♦** | 0.480 (1.05) |
| | | 3 | – | – | 1 | **LC8-K0901●● ♦** | 0.480 (1.05) |
| | | 4 | – | – | – | **LC8-K09004●●** | 0.470 (1.03) |
| | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 3 | – | – | 1 | **LC8-K09107●●** | 0.460 (1.01) |
| | | 3 | – | 1 | – | **LC8-K09017●●** | 0.460 (1.01) |
| | | 4 | – | – | – | **LC8-K090047●●** | 0.460 (1.01) |
| | Solder pins for circuit board | 3 | – | 1 | 1 | **LC8-K09105●●** | 0.520 (1.14) |
| | | 3 | – | – | – | **LC8-K09015●●** | 0.520 (1.14) |
| | | 4 | – | – | – | **LC8-K090045●●** | 0.520 (1.14) |

■ Auxiliary contact blocks and accessories, see page 20.
★ Control circuit voltage codes, see opposite page 19.
▲ For mains supplies with a high level of interference (voltage surge > 800 V), use a suppressor module LA4-KE1FC (50 to 129 V) or LAF-KE1UG (130 to 250 V), see page 22.
♦ Warning: this reversing contactor is pre-wired for reverse motor operation as standard.

### Coil Selection

**Reversing contactors LC2-K** (0.8 to 1.15 Uc) *(0.85 to 1.1 Uc)*

| Volts AC 50/60 Hz | **12** | **20** | **24 ▲** | **36** | **42** | **48** | **110** | **127** | **200/ 208** | ***220/ 230*** | **230** | ***230/ 240*** | **256** | **277** | ***380/ 400*** | **400** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | J7 | Z7 | B7 | C7 | D7 | E7 | F7 | FC7 | L7 | *M7* | P7 | *U7* | W7 | UE7 | *Q7* | V7 |
| Volts AC 50/60 Hz | ***400/ 415*** | **480 T7** | **500** | **575** | **600** | ***660/ 690*** | | | | | | | | | | |
| Code | *N7* | R7 | S7 | SC7 | X7 | *Y7* | | | | | | | | | | |

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

**Reversing contactors LC8-K** (0.85 to 1.1 Uc)

| Volts AC 50/60 Hz | **24** | **42** | **48** | **110** | **220** | **230/ 240** |
|---|---|---|---|---|---|---|
| Code | B7 | D7 | E7 | F7 | M7 | U7 |

**Reversing contactors LP2-K** (0.85 to 1.1 Uc)

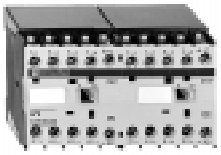
| Volts DC | **12** | **20** | **24 ♦** | **36** | **48** | **60** | **72** | **100** | **110** | **125** | **155** | **174** | **200** | **220** | **230** | **240** | **250** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | JD | ZD | BD | CD | ED | ND | SD | KD | FD | GD | PD | QD | LD | MD | MPD | MUD | UD |

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

▲ Warning: this reversing contactor is pre-wired for reverse motor operation as standard.
♦ When connecting an electronic sensor or timer in series with the coil of the control relay, select a 20 V coil (AC control circuit voltage code Z7, DC control circuit voltage code ZD) so as to compensate for the incurred voltage drop

## Control circuit: DC

### 3- and 4-pole reversing contactors ■



**LP2-K0045●●**

- Integrated mechanical interlock.
**Customer wiring required to connect coil terminations to electrical interlock. See page 27.**
- Pre-wired power circuit connections standard on screw clamp versions.
- Mounting on 35 mm ⎓ DIN rail or 4mm (#6) screws.
- Screws in open “ready-to-tighten” position.

| Non inductive loads Category AC-1 Maximum current at ≤ 50 °C | Type of connection | Power poles | | Auxiliary contacts | | Basic catalog number. Complete with code indicating control circuit voltage ★ ▲ | Weight |
|---|---|---|---|---|---|---|---|
| **A** | | **N.O.** | **N.C.** | **N.O.** | **N.C.** | | **kg. (lb.)** |
| 20 | Screw clamp | 3 | – | 1 | – | **LP2-K0910●● ▲** | 0.480 (1.05) |
| | | 3 | – | – | 1 | **LP2-K0901●● ▲** | 0.480 (1.05) |
| | | 4 | – | – | – | **LP2-K09004●●** | 0.480 (1.05) |
| | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 3 | – | – | 1 | **LP2-K09107●●** | 0.460 (1.01) |
| | | 3 | – | 1 | – | **LP2-K09017●●** | 0.460 (1.01) |
| | | 4 | – | – | – | **LP2-K090047●●** | 0.460 (1.01) |
| | Solder pins for circuit board | 3 | – | 1 | 1 | **LP2-K09105●●** | 0.520 (1.14) |
| | | 3 | – | – | – | **LP2-K09015●●** | 0.520 (1.14) |
| | | 4 | – | – | – | **LP2-K090045●●** | 0.520 (1.14) |

■ Auxiliary contact blocks and accessories, see page 20.
★ Standard control circuit voltages (variable delivery times, please consult you Regional Sales Office).

## Coil Selection

**Reversing contactors LC2-K** (0.8 to 1.15 Uc) *(0.85 to 1.1 Uc)*

| Volts AC 50/60 Hz | **12** | **20** | **24 ▲** | **36** | **42** | **48** | **110** | **127** | **200/ 208** | ***220/ 230*** | **230** | ***230/ 240*** | **256** | **277** | ***380/ 400*** | **400** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | J7 | Z7 | B7 | C7 | D7 | E7 | F7 | FC7 | L7 | *M7* | P7 | *U7* | W7 | UE7 | *Q7* | V7 |
| Volts AC 50/60 Hz | ***400/ 415*** | **480 T7** | **500** | **575** | **600** | ***660/ 690*** | | | | | | | | | | |
| Code | *N7* | R7 | S7 | SC7 | X7 | *Y7* | | | | | | | | | | |

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

**Reversing contactors LC8-K** (0.85 to 1.1 Uc)

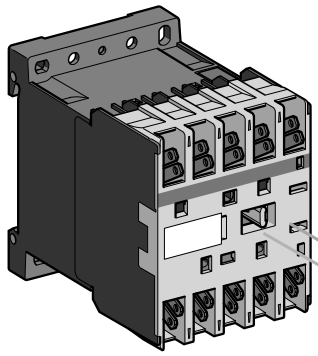
| Volts AC 50/60 Hz | **24** | **42** | **48** | **110** | **220** | **230/ 240** |
|---|---|---|---|---|---|---|
| Code | B7 | D7 | E7 | F7 | M7 | U7 |

**Reversing contactors LP2-K** (0.85 to 1.1 Uc)

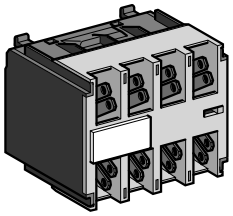
| Volts DC | **12** | **20** | **24 ♦** | **36** | **48** | **60** | **72** | **100** | **110** | **125** | **155** | **174** | **200** | **220** | **230** | **240** | **250** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | JD | ZD | BD | CD | ED | ND | SD | KD | FD | GD | PD | QD | LD | MD | MPD | MUD | UD |

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

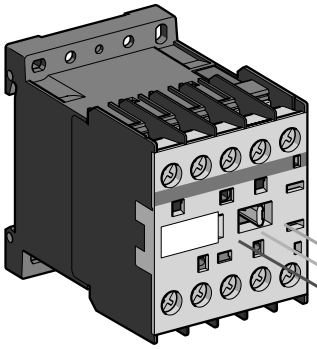
▲ Warning: this reversing contactor is pre-wired for reverse motor operation as standard.
♦ When connecting an electronic sensor or timer in series with the coil of the control relay, select a 20 V coil (AC control circuit voltage code Z7, DC control circuit voltage code ZD) so as to compensate for the incurred voltage drop



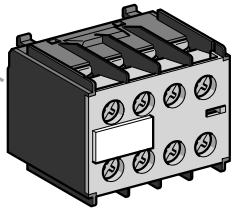
LC1, LC7, LP1-K



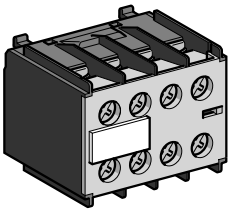
LA1-KN●●●



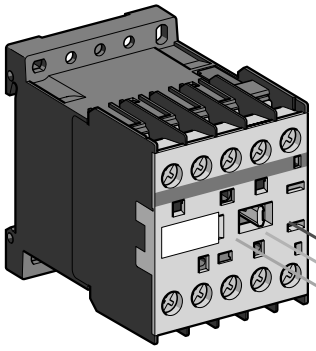
LC1, LC7, LP1-K



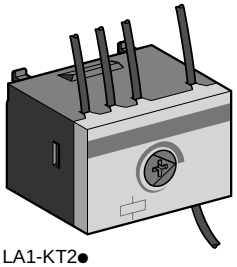
LA1-KN●●M



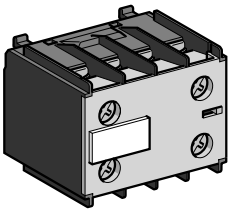
LA1-KN●●



LC1, LC7, LP1-K



LA1-KT2●



LA1-KN●●P

## For type LC●K and LP●K contactors

### Instantaneous auxiliary contact blocks

**Recommended for standard applications. Clip-on front mounting, 1 block per contactor**

| Type of connection | Type of contactor | Auxiliary Contacts N.O. | Auxiliary Contacts N.C. | Catalog number | Weight kg (lb.) |
|---|---|---|---|---|---|
| Screw clamp | LC1, LC2 LC7, LC8 LP1, LP2 3 or 4-pole | 2 | – | **LA1-KN20** | 0.045 (0.10) |
| | | – | 2 | **LA1-KN02** | 0.045 (0.10) |
| | | 1 | 1 | **LA1-KN11** | 0.045 (0.10) |
| | | 4 | – | **LA1-KN40** | 0.045 (0.10) |
| | | 3 | 1 | **LA1-KN31** | 0.045 (0.10) |
| | | 2 | 2 | **LA1-KN22** | 0.045 (0.10) |
| | | 1 | 3 | **LA1-KN13** | 0.045 (0.10) |
| | | – | 4 | **LA1-KN04** | 0.045 (0.10) |
| Slip-on 1 x 0.25 in. or 2 x 0.11 in. | LC1, LC2 LC7, LC8 LP1, LP2 3 or 4-pole | 2 | – | **LA1-KN207** | 0.045 (0.10) |
| | | – | 2 | **LA1-KN027** | 0.045 (0.10) |
| | | 1 | 1 | **LA1-KN117** | 0.045 (0.10) |
| | | 4 | – | **LA1-KN407** | 0.045 (0.10) |
| | | 3 | 1 | **LA1-KN317** | 0.045 (0.10) |
| | | 2 | 2 | **LA1-KN227** | 0.045 (0.10) |
| | | 1 | 3 | **LA1-KN137** | 0.045 (0.10) |
| | | – | 4 | **LA1-KN047** | 0.045 (0.10) |

**With terminal referencing conforming to standard EN 50012. Clip-on front mounting, 1 block per contactor**

| | | | | | |
|---|---|---|---|---|---|
| Screw clamp with terminal referencing conforming to standard EN 50012 | LC1, LC2 LC7, LC8 LP1, LP2 3-pole + N.O. | – | 2 | **LA1-KN02M** | 0.045 (0.10) |
| | | 1 | 1 | **LA1-KN11M** | 0.045 (0.10) |
| | | 3 | 1 | **LA1-KN31M** | 0.045 (0.10) |
| | | 2 | 2 | **LA1-KN22M** | 0.045 (0.10) |
| | | 1 | 3 | **LA1-KN13M** | 0.045 (0.10) |
| | LC1, LC2 LC7, LC8 LP1, LP2 4-pole | 1 | 1 | **LA1-KN11P** | 0.045 (0.10) |
| | | 2 | 2 | **LA1-KN22P** | 0.045 (0.10) |

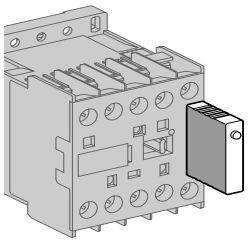
### Electronic time delay auxiliary contact blocks

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

**Clip-on front mounting, 1 block per contactor**

| Voltage | Type | Timing range | Auxiliary Contacts SPDT | Catalog number | Weight kg (lb.) |
|---|---|---|---|---|---|
| **AC or DC 24 to 48** | On-delay | 1 to 30 | 1 | **LA2-KT2E** | 0.040 (0.09) |
| **AC 110 to 240** | On-delay | 1 to 30 | 1 | **LA2-KT2U** | 0.040 (0.09) |

## For LCkK and LPkK contactors



LA4-K●●●

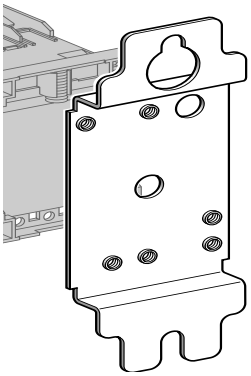
### Coil suppressor modules incorporating LED indicator

| Mounting and connection | Type | For voltages: | Sold in lots of | Catalog number | Weight kg (lb.) |
|---|---|---|---|---|---|
| **Clip-on mounting on the front of LC1 and LP1 contactors No tools required.** | Varistor ■ | AC and DC 12 to 24 V | 5 | **LA4-KE1B** | 0.010 (0.02) |
| | | AC and DC 32 to 48 V | 5 | **LA4-KE1E** | 0.010 (0.02) |
| | | AC and DC 50 to 129 V | 5 | **LA4-KE1FC** | 0.010 (0.02) |
| | | AC and DC 201 to 250 V | 5 | **LA4-KE1UG** | 0.010 (0.02) |
| | Diode + Zener diode ★ | DC 12 to 24 V | 5 | **LA4-KC1B** | 0.010 (0.02) |
| | | DC 32 to 48 V | 5 | **LA4-KC1E** | 0.010 (0.02) |
| | RC ▲ | AC 220 to 250 V | 5 | **LA4-KA1U** | 0.010 (0.02) |

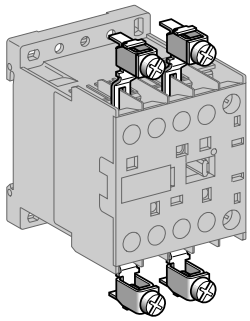
■ Protection by limitation of the transient voltage up to 2 Uc maximum. Maximum reduction of transient voltage peaks. Slight time delay on drop-out (1.1 to 1.5 times the normal time).

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

▲ Protection by limitation of the transient voltage up to 3 Uc maximum and limitation of the oscillation frequency. Slight time delay on drop-out (1.2 to 2 times the normal time).



DX1-AP25



LA9-E01

## Mounting and marking accessories

| Description | Application | | Sold in lots of | Unit catalog number | Weight kg (lb.) |
|---|---|---|---|---|---|
| **Mounting plates ♦** | For mounting on 1 ⊔ rail | Clip-on | 1 | **LA9-D973** | 0.025 (0.05) |
| | For mounting on 2 ⊔ rails | 110/120 mm mounting centers | 10 | **DX1-AP25** | 0.065 (0.14) |
| **Marker holder** | Clip-on | Onto front of contactor | 100 | **LA9-D90** | 0.001 (0.002) |
| **Clip-in markers** | 4 maximum per contactor | Strips of 10 identical numbers 0 to 9 | 25 | **AB1-R● ∗** | 0.002 (0.004) |
| | | Strips of 10 identical capital letters A to Z | 25 | **AB1-G● ∗** | 0.002 (0.004) |
| **35mm ⊔ DIN rail (7.5mm deep x 2m long)** | | | 10 | **AM1-DP200** | 1.310 (2.88) |
| **35mm ⊔ DIN rail (15mm deep x 2m long)** | | | 10 | **AM1-ED200** | 0.650 (1.44) |

## Cabling accessories

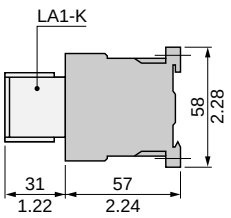
| Description | Application | | Sold in lots of | Unit catalog number | Weight kg (lb.) |
|---|---|---|---|---|---|
| **Paralleling links** | For 2-poles | With screw clamp terminals | 4 | **LA9-E01** | 0.010 (0.02) |
| | For 4-poles | With screw clamp terminals | 2 | **LA9-E02** | 0.015 (0.03) |
| **Set of 6 power connections** | For 3-pole reversing contactors for motor control | For contactors with screw clamp terminals | 100 | **LA9-K0969** | 0.010 (0.02) |
| **Set of 4 power connections** | For 4-pole changeover contactor pairs | For contactors with screw clamp terminals | 100 | **LA9-K0970** | 0.010 (0.02) |

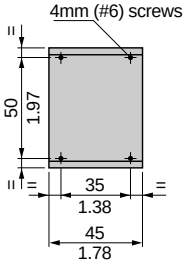
♦ Order 1 mounting plate for a contactor and 2 mounting plates for a reversing contactor.
∗ Complete the catalog number by replacing the ● with the required character.

# K-Line Mini-Contactors, Overload Relays and Accessories
## Dimensions and Mounting

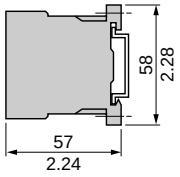
### Type LC●K and LP●K contactors

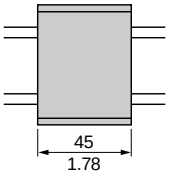
**Contactors**
**LC1-K, LC7-K, LP1-K**
On panel



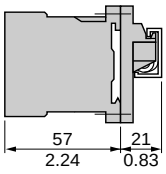

On mounting rail AM1-DP200 or AM1 DE200 (35 mm ⊔ DIN rail)

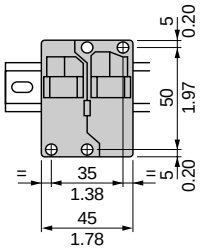


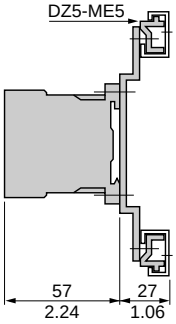

On one asymmetrical rail DZ5-MB with clip-on mounting plate

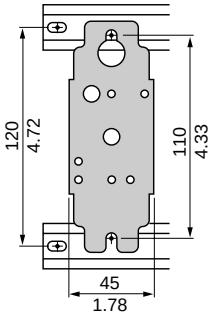
**LA9-D973**



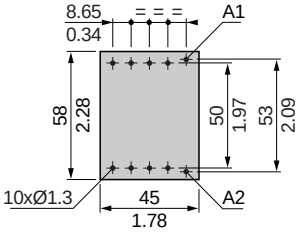




**DX1-AP25**



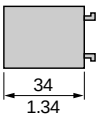



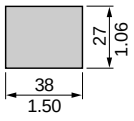

On printed circuit board



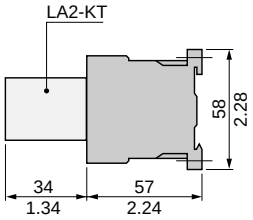

**Electronic time-delay auxiliary contact blocks**

**LA2-KT**



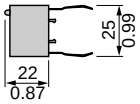



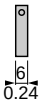

On contactor



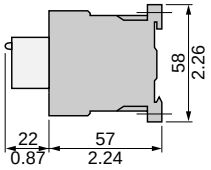

**Suppressor modules**

**LA4-K●**




On contactor

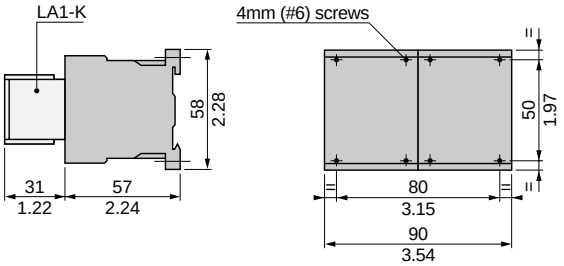



**Dimensions** MM / Inches

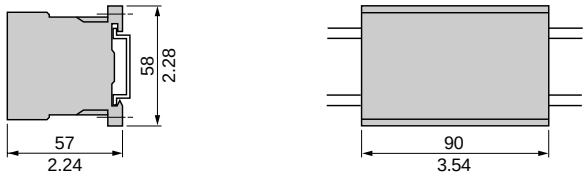
## Type LC●K and LP2●K reversing contactors

**Reversing contactors LC2-K, LC8-K, LP2-K**

On panel

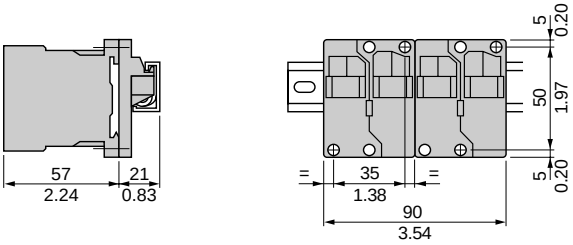



On mounting rail AM1-DP200 or AM1 DE200 (35 mm ⎓ DIN rail)

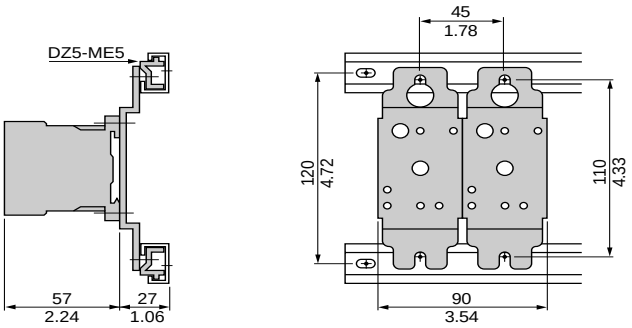



On one asymmetrical rail DZ5-MB with 2 clip-on mounting plates LA9-D973 or on 2 mounting plates DX1-AP25.

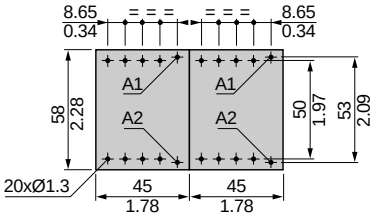
**2 x LA9-D973**




**2 x DX1-AP25**



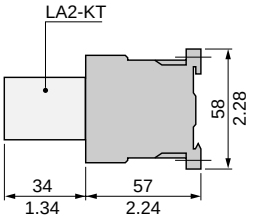

On printed circuit board for reversing contactors or 2 contactors mounted side by side




**Electronic time delay auxiliary contact blocks**

**LA2-KT**

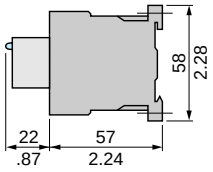

On reversing contactors




**Suppressor modules**

**LA4-K●**


On reversing contactors



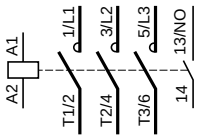

**Dimensions** **MM** / **Inches**

# K-Line Mini-Contactors, Overload Relays and Accessories
## Schematics

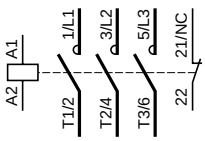
### Type LC●K and LP2●K contactors and accessories

**3-pole contactors**
**LC1-K, LC7-K, LP1-K**

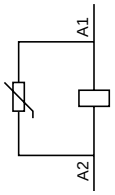
3 P + N.O.




3 P + N.C.

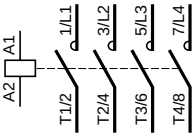



**Integrated coil suppression device**
**LC7-K**

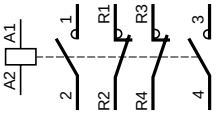



**4-pole contactors**
**LC1-K, LC7-K, LP1-K**

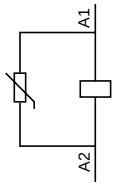
4 P




2 P N.O. + P N.C.

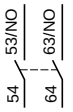



**Integrated coil suppression device**
**LC7-K**

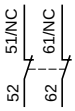



**Instantaneous auxiliary contacts LA1-K**
For contactors **LC●-K** and **LP●-K**

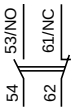
2 N.O.
**LA1-KN20**
**LA1-KN207**



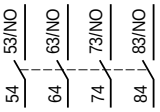

2 N.C.
**LA1-KN02**
**LA1-KN027**



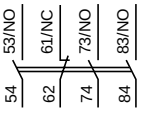

1 N.O. + 1 N.C.
**LA1-KN11**
**LA1-KN117**



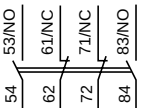

4 N.O.
**LA1-KN40**
**LA1-KN407**



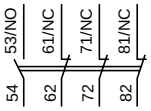

3 N.O. + 1 N.C.
**LA1-KN31**
**LA1-KN317**



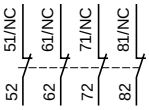

2 N.O. + 2 N.C.
**LA1-KN22**
**LA1-KN227**




1 N.O. + 3 N.C.
**LA1-KN13**
**LA1-KN137**

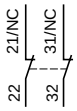



4 N.C.
**LA1-KN04**
**LA1-KN047**

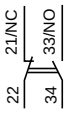



**Terminal referencing conforming to standard EN 50012**
**For 3-pole contactors**

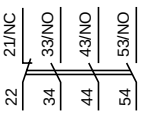
2 N.C.
**LA1-KN02M**



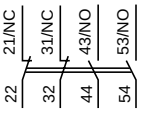

1 N.O. + 1 N.C.
**LA1-KN11M**



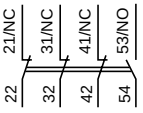

3 N.O. + 1 N.C.
**LA1-KN31M**




2 N.O. + 2 N.C.
**LA1-KN22M**

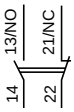



1 N.O. + 3 N.C.
**LA1-KN13M**

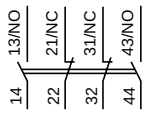



**For 4-pole contactors**

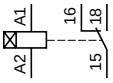
1 N.O. + 1 N.C.
**LA1-KN11P**



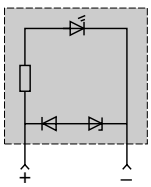

2 N.O. + 2 N.C.
**LA1-KN22P**



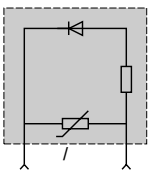

**Electronic time delay auxiliary contact blocks**
**LA2-KT**
For contactors **LC●-K** and **LP●-K**
1 C/O




Suppressor modules
**LA4-KC**



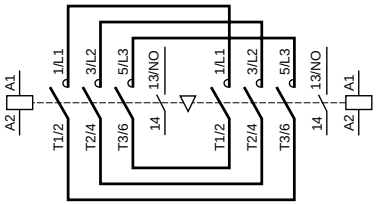

**LA4-KE**



## Type LC●K and LP●K reversing contactors and accessories

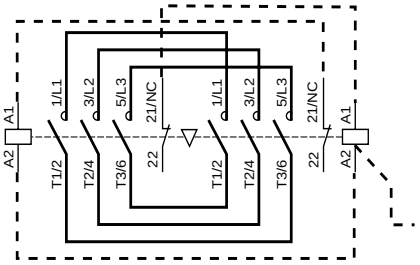
**3-pole reversing contactors**
**LC2-K, LC8-K, LP2-K**
With screw clamp terminals

3 P + N.O.

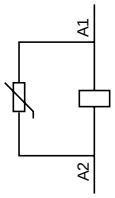



Dashed lines indicate suggested customer wiring to electrically interlock coils

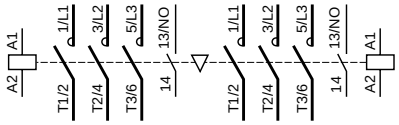
3 P + N.C.



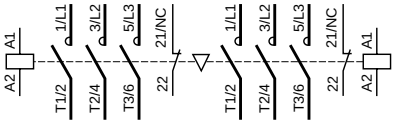

Integrated coil suppression device
**LC8-K**




With Slip-on connectors or solder pins (printed circuit board)
3 P+ N.O.

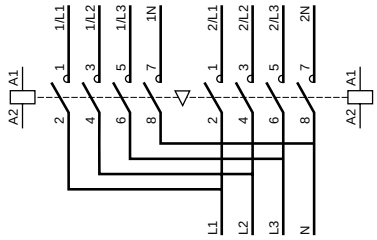



With Slip-on connectors or solder pins (printed circuit board)
3 P + N.C.

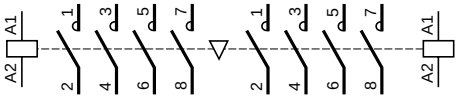



**4-pole reversing contactors**
**LC2-K, LC8-K, LP2-K**

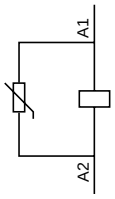
With screw clamp terminals
4 P




With Slip-on connectors or solder pins (printed circuit board)
4 P

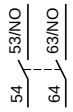



Integrated coil suppression device
**LC8-K**

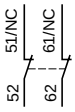



**Instantaneous auxiliary contact blocks LA1-K**
For contactors **LC●-K** and **LP2-K**

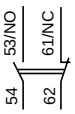
2 N.O.
**LA1-KN20**
**LA1-KN207**




2 N.C.
**LA1-KN02**
**LA1-KN027**



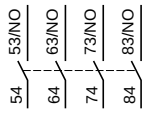

1 N.O. + 1 N.C.
**LA1-KN11**
**LA1-KN117**



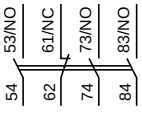

Terminal referencing conforming to standard EN 50012
1 N.O. + 1 N.C.
**LA1-KN11P**

For contactors **LC●-K**, **LP2-K**

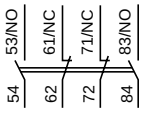
4 N.O.
**LA1-KN40**
**LA1-KN407**



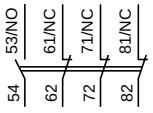

3 N.O. + 1 N.C.
**LA1-KN31**
**LA1-KN317**



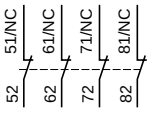

2 N.O. + 2 N.C.
**LA1-KN22**
**LA1-KN227**




1 N.O. + 3 N.C.
**LA1-KN13**
**LA1-KN137**



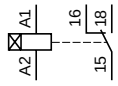

4 N.C.
**LA1-KN04**
**LA1-KN047**



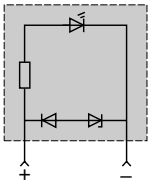

For auxiliary contacts with terminal referencing conforming to standard EN 50012 see page 21.

**Electronic time delay contact blocks**
**LA2-KT**

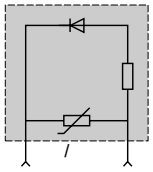
For contactors **LC●-K** and **LP●-K**
1 C/O




Suppressor modules
**LA4-KC**

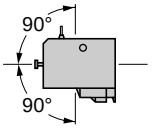
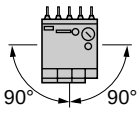



**LA4-KE**



## Type LR●K overload relays

### Environment

| | | | | | |
|---|---|---|---|---|---|
| **Conforming to standards** | CE Meets the essential requirements of the LV & EMC directives | | IEC 947, NF C 63-650, VDE 0660, BS 4941, UL 508, CSA 22.2 No. 14 | | |
| **Product certifications** | | | UL E164353 NKCR | CSA LR43364 3211 - 03 | |
| **Protective treatment** | Conforming to IEC 68 (DIN 50016) | | "TC" (Fungus-proof, tropicalization protection) | | |
| **Degree of protection** | Conforming to VDE 0106 | | Protection against direct finger contact | | |
| **Ambient air temperature around the device** | Storage | | -40° to +70° C (-40 to +158° F) | | |
| | For normal operation (IEC 947) | | -20 to +55° C (-4 to +131° F) without derating | | |
| | Operating limit | | -30 to +60° C (-22 to +140° F) with derating ■ | | |
| **Maximum operating altitude** | Without derating | | 2000 m (6562 ft.) | | |
| **Operating positions** | **Vertical axis** | | **Horizontal axis** | | |
| |  Without derating | |  With derating ■ | | |
| **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, hot state (1/2 sine wave, 11 ms)** | Conforming to IEC 68, N.C. contact | | 10 gn | | |
| | Conforming to IEC 68, N.O. contact | | 10 gn | | |
| **Vibration resistance, hot state 5 to 300 Hz** | Conforming to IEC 68, N.C. contact | | 2 gn | | |
| | Conforming to IEC 68, N.O. contact | | 2 gn | | |
| **Safe separation of circuits** | Conforming to VDE 0106 and IEC 536 | | VLSV ★, up to 400 V | | |
| **Cabling** | | | Minimum | Maximum | Maximum to IEC 947 |
| Screw clamp terminals | Solid or stranded cable | AWG | 1 x 18 | 2 x 14 or 1 x 12 | – |
| | Solid cable | $mm^2$ | 1 x 1.5 | 2 x 4 | 1 x 4 + 1 x 2.5 |
| | Stranded cable without cable end | $mm^2$ | 1 x 0.75 | 2 x 4 | 2 x 2.5 |
| | Stranded 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 |
| Tightening torque | Phillips no. 2 or 3/16" slotted head | | 0.8 N.m (7lb.-in.) | | |
| Mounting | Directly under the contactor or reversing contactor | | | | |
| Connections | Made automatically when mounted under the contactor, as follows:<br>- contactor terminal A2 connected to overload relay terminal 96 on all products,<br>- contactor terminal 14 connected to overload relay terminal 95 on products with 3 P + N.O..<br>When using 3 P + N.C., or 4 P contactors, or the N.O. auxiliary contact marked 13-14, at a voltage other than the coil voltage, break off the link marked 14.<br>(See page 31 for additional information) | | | | |

■ Please consult your Regional Sales Office.
★ Very low safety voltage.

### Auxiliary contact characteristics

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Number of contacts** | | | 1 N.C. + 1 N.O. | | | | | | |
| **Conventional thermal current** | | A | 6 | | | | | | |
| **Short-circuit protection** | Conforming to IEC 947, VDE 0660. gl fuse or supplementary protector GB2-CB●● | A | 6 max. | | | | | | |
| **Maximum power** of the controlled contactor coils (sealed) (Occasional operating cycles of contact 95-96) | AC | V | 24 | 48 | 110 | 220/ 230 | 400 | 415/ 440 | 600/ 690 |
| | | VA | 100 | 200 | 400 | 600 | 600 | 600 | 600 |
| | DC | V | 24 | 48 | 110 | 220 | 250 | – | – |
| | | W | 100 | 100 | 50 | 45 | 35 | – | – |
| Maximum operational voltage | AC, category AC-15 | V | 690 | | | | | | |
| | DC, category DC-13 | V | 250 | | | | | | |

## Type LR●K overload relays

### Electrical characteristics of the power circuit

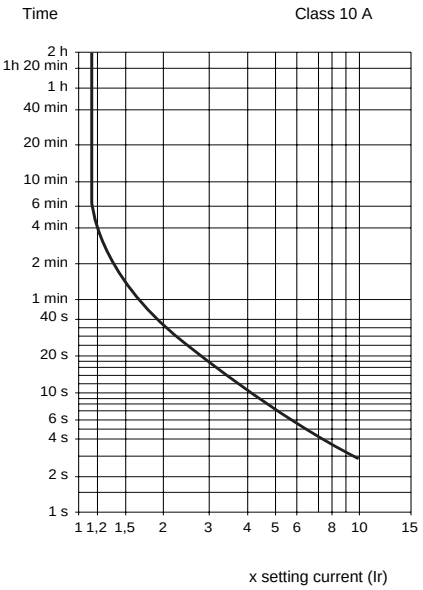
| | | | |
|---|---|---|---|
| **Rated operational voltage** (Ue) | Up to | **V** | 690 |
| **Rated insulation voltage** (Ui) | Conforming to BS 4941 | **V** | 690 |
| | Conforming to IEC 947 | **V** | 690 |
| | Conforming to VDE 0110 group C | **V** | 750 |
| | Conforming to UL 508, CSA 22.2 No. 14 | **V** | 600 |
| **Rated impulse withstand voltage** (Uimp) | | **kV** | 6 |
| **Frequency limits** of the operational current | | **Hz** | Up to 400 |
| **Power dissipated per pole** | | **W** | 2 |
| **Short-circuit protection and coordination** | By circuit breaker | | Select in accordance with NEC and local codes |
| | By fuses | | Maximum 400% of motor FLA |

### Operating characteristics

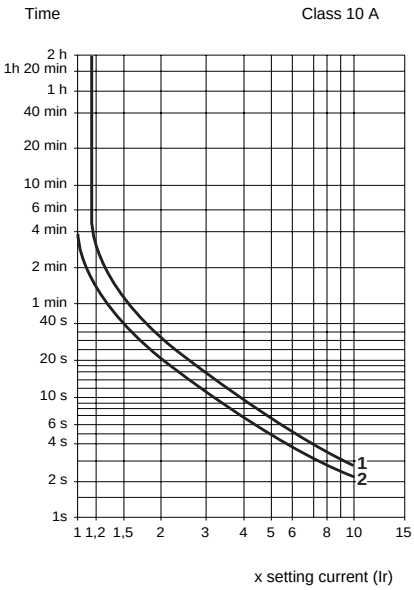
| | | |
|---|---|---|
| **Sensitivity to phase failure** | Conforming to IEC 947 | Yes |
| **Reset** | Manual or automatic | Selected by means of a lockable and sealable switch on the front of the relay |
| **Signalling** | On front of relay | Trip indicator |
| **Reset-Stop function** | | Pressing the Reset-Stop button:<br>- actuates the N.C. contact<br>- has no effect on the N.O. contact |
| **Test function** | By pushbutton | Pressing the Test button enables:<br>- checking of the control circuit wiring<br>- simulation of overload tripping (actuation of both N.C. and N.O. contacts, and of the trip indicator) |

**Tripping curves**

**Average operating time** related to multiples of the current setting Class 10 A




Balanced 3-phase operation, from cold state




Balanced operation with 2-phases only, from cold state
1 Setting: at lower end of scale
2 Setting: at upper end of scale

## Type LR●K overload relays

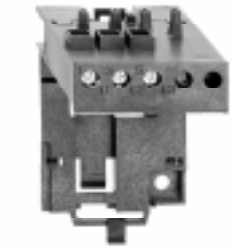
### 3-pole relays with screw clamp terminals

LR2-K0301

These overload relays are designed for the protection of motors. They are ambient-compensated and phase-failure sensitive.
Resetting can either be manual or automatic.

Direct mounting: under the contactors with screw clamp terminals only; pre-wired terminals, see page 31.
Separate mounting: using terminal block LA7-K0064 (see below).
On the front face of the overload relay:
- selection of reset mode: Manual (marked H) or Automatic (marked A),
- red pushbutton: Trip Test function,
- blue pushbutton: Stop and manual Reset,
- yellow trip flag indicator: overload relay tripped.

| **Short-circuit protection for North American applications** | By circuit breaker | | | Select in accordance with NEC and local codes | |
|---|---|---|---|---|---|
| | By fuses | | | Maximum 400% of motor FLA | |
| **Relay setting range** | European type fuses Maximum rating Type | | | Catalog number | Weight |
| | aM | gl | BS88 | | |
| **A** | **A** | **A** | **A** | | **kg (lb.)** |
| **Class 10 A** (the standard specifies a tripping time of between 2 and 10 seconds at 7.2 In) | | | | | |
| 0.11 to 0.16 | 0.25 | 0.5 | – | **LR2-K0301** | 0.145 (0.32) |
| 0.16 to 0.23 | 0.25 | 0.5 | – | **LR2-K0302** | 0.145 (0.32) |
| 0.23 to 0.36 | 0.5 | 1 | – | **LR2-K0303** | 0.145 (0.32) |
| 0.36 to 0.54 | 1 | 1.6 | – | **LR2-K0304** | 0.145 (0.32) |
| 0.54 to 0.8 | 1 | 2 | – | **LR2-K0305** | 0.145 (0.32) |
| 0.8 to 1.2 | 2 | 4 | 6 | **LR2-K0306** | 0.145 (0.32) |
| 1.2 to 1.8 | 2 | 6 | 6 | **LR2-K0307** | 0.145 (0.32) |
| 1.8 to 2.6 | 4 | 8 | 10 | **LR2-K0308** | 0.145 (0.32) |
| 2.6 to 3.7 | 4 | 10 | 16 | **LR2-K0310** | 0.145 (0.32) |
| 3.7 to 5.5 | 6 | 16 | 16 | **LR2-K0312** | 0.145 (0.32) |
| 5.5 to 8 | 8 | 20 | 20 | **LR2-K0314** | 0.145 (0.32) |
| 8 to 11.5 | 10 | 25 | 20 | **LR2-K0316** | 0.145 (0.32) |
| 10 to 14 | 16 | 32 | 25 | **LR2-K0321** | 0.145 (0.32) |
| 12 to 16 | 20 | 40 | 32 | **LR2-K0322** | 0.145 (0.32) |



LA7-K0064

### Overload relays without single phase sensitivity

**Class 10 A:** To order, replace the prefix **LR2** by **LR7** in the catalog numbers selected from above (only applicable to overload relays LR2-K0305 to LR2-K0322). Example: **LR7-K0308**.

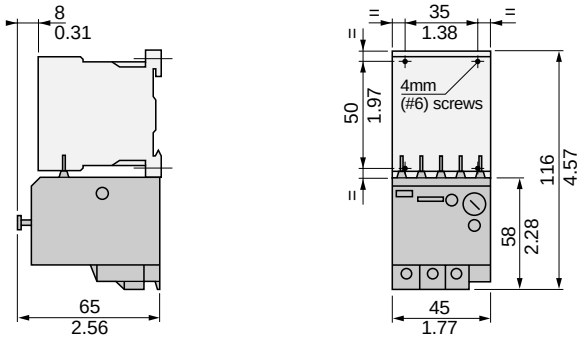
### Accessory

| Description | Type of connection | Catalog number | Weight kg (lb.) |
|---|---|---|---|
| Terminal block for separate clip-on mounting of the overload relay on 35 mm ⎓ DIN rail | Screw clamp | **LA7-K0064** | 0.100 (0.22) |

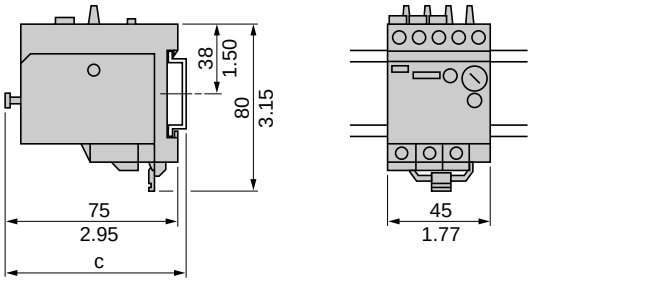
## Type LR●K overload relays

### Protection components

**LR2-K**
Direct mounting beneath the contactor

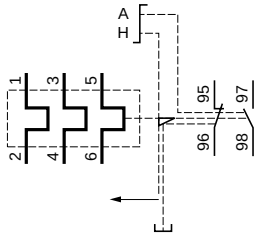



Separate mounting with terminal block LA7-K0064 on 35 mm ⎓ DIN rail
(AM1-DP200 or AM1-DE200)



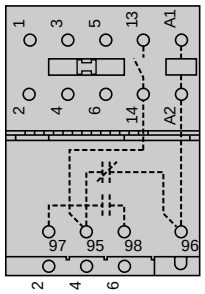

| AM1- | c |
|---|---|
| DP200 | 78.5mm / 3.09 in. |
| DE200 | 86mm / 3.38 in. |

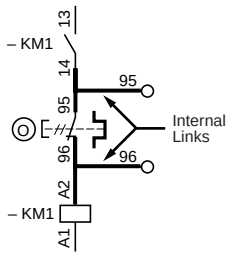
**LR2-K**



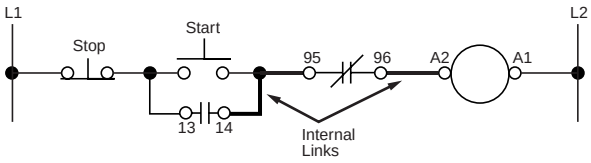

Reset/stop

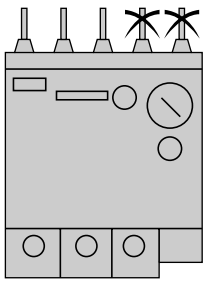
**LR2-K + LC●-K**
Built-in wiring scheme




LR2K Overload Relays feature built-in wiring to save time and materials when all five links of the overload relay are connected to a K-Line contactor with an integrated N.O. (normally-open) auxiliary contact. Terminal 96 of the N.C. (normally-closed) overload relay contact (95-96) will be internally linked in series with terminal A2 of the contactor operating coil. Terminal 95 of the N.C. overload relay contact (95-96) will be internally linked in series with terminal 14 of N.O. coil holding contact (13-14) of the contactor. These internal links help to eliminate additional wiring when using a conventional 3-wire control circuit similar to the diagram shown.



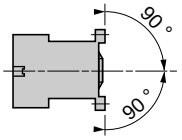
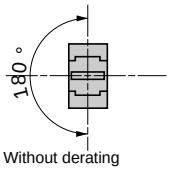
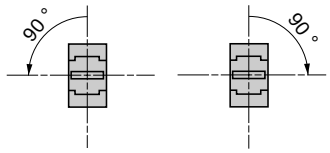



If integrated wiring between contactor and overload relay is not desired, break off the two links on the overload relay as indicated.

**Dimensions** MM / Inches

### Type LP●-K low consumption contactors

### Environment

| | | | | | |
|---|---|---|---|---|---|
| **Rated insulation voltage** (Ui) | Conforming to IEC 947 | **V** | 690 | | |
| | Conforming to VDE 0110 gr C | **V** | 750 | | |
| | Conforming to BS 5424, NF C 20-040 | **V** | 690 | | |
| | Conforming to CSA 22.2 No. 14, UL 508 | **V** | 600 | | |
| **Rated impulse withstand voltage** (Uimp) | | **kV** | 8 | | |
| **Conforming to standards** | CE Meets the essential requirements of the LV & EMC directives | | IEC 947, NF C 63-110, VDE 0660, BS 5424, UL 508, CSA 22.2 No. 14 | | |
| **Approvals** | **LP●-K06, LP●-K09, LP●-K12** | | UL E164862 NLDX (screw clamp) | CSA LR43364 3211-04 | VDE E164862 NLDX2 (Slip-on & solder pin) |
| **Protective treatment** | Conforming to IEC 68 (DIN 50016) | | "TC" (Fungus-proof, Tropicalization protection) | | |
| **Degree of protection** | Conforming to VDE 0106 | | Protection against direct finger contact | | |
| **Ambient air temperature** around the device | Storage | | - 50 to + 80° C (-58 to +176°F) | | |
| | Operation | | - 25 to + 50C (-13 to +122°F) | | |
| **Maximum operating altitude** | Without derating | | 2000 m (6562 ft) | | |
| **Operating positions** | **Vertical axis**   Without derating | | **Horizontal axis**   Without derating   Derate current carrying capability by 15% when not mounted vertically | | |
| **Flame resistance** | Conforming to UL 94 | | Self-extinguishing materials V1 | | |
| | Conforming to NF F 16-101 and 16-102 | | Conforming to requirement 2 | | |
| **Shock resistance** (1/2 sine wave, 11 ms) | Contactor open | | 10 g | | |
| | Contactor closed | | 15 g | | |
| **Vibration resistance** 5 to 300 Hz | Contactor open | | 2 g | | |
| | Contactor closed | | 4 g | | |
| **Safe separation of circuits** | Conforming to VDE 0106 and IEC 536 | | TBTS ■, up to 400 V | | |
| **Cabling** | | | Min | Max | Max to IEC 947 |
| Screw clamp terminals | Solid or stranded cable | AWG | 1 x 18 | 2 x 14 or 1 x 12 | - |
| | Solid cable | $mm^2$ | 1 x 1.5 | 2 x 4 | 1 x 4 + 1 x 2.5 |
| | Stranded cable without cable end | $mm^2$ | 1 x 0.75 | 2 x 4 | 2 x 2.5 |
| | Stranded 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 |
| Slip-on connectors | Clip | | 2 x 2.8mm or 1 x 6.35mm (2 x .110 in. or 1 x .250 in.) | | |
| Solder pins for printed circuit board | With locating device between power and control circuits | | 4 mm x 35 microns | | |
| **Tightening torque** | Phillips no. 2 or 3/16" slotted head screwdriver | | 0.8 to 1.3 N•m (7 to 11.5 lb-in) | | |
| **Terminal referencing** | Conforming to standards EN 50005 and EN 50012 | | Up to 3 contacts | | |

■ Very low safety voltage.

## Type LP●-K low consumption contactors

### Pole characteristics

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Conventional rated thermal current** (Ith) | For ambient temperature ≤ 50 °C (≤122°F) | | **A** | 20 | | | | | | |
| **Rated operational frequency** | | | **Hz** | 50/60 | | | | | | |
| **Frequency limits of the operational current** | | | **Hz** | Up to 400 | | | | | | |
| **Rated operational voltage** (Ue) | | | **V** | 690 | | | | | | |
| **Rated making capacity** | I rms conforming to NF C 63-110 and IEC 947 | | **A** | | | | | | | |
| | LP●-K06, LP●-K09<br>LP●-K12 | | | 110<br>144 | | | | | | |
| **Rated breaking capacity** | Conforming to NF C 63-110 and IEC 947 | | **V** | 220/<br>230 | 380/<br>400 | 415 | 440 | 500 | 660/<br>690 | |
| | LP●-K06, LP●-K09<br>LP●-K12 | I rms | **A** | 110<br>– | 110<br>– | 110<br>– | 110<br>120 | 80<br>80 | 70<br>70 | |
| **Permissible short time rating** | Open mounted, for a time "t" from cold state (θ ≤ 50 °C) | | | 1 s | 5 s | 10 s | 30 s | 1 min | 3 min | ≥15 min |
| | LP●-K06, LP●-K09<br>LP●-K12 | | **A** | 90<br>115 | 85<br>105 | 80<br>100 | 60<br>75 | 45<br>55 | 40<br>50 | 20<br>25 |
| **Short-circuit protection** | By circuit breaker | | | Select in accordance with NEC and local codes | | | | | | |
| | By fuses | | | Max 400% of motor FLA | | | | | | |
| **Average impedance per pole** | At Ith and 50 Hz | | **mΩ** | 3 | | | | | | |
| **Utilization in category AC-1**<br>resistive circuits, heating, lighting (Ue ≤ 440 V) | Maximum rated operational current for a temperature ≤ 50 °C | | **A** | 20 | | | | | | |
| | Rated operational current limits in relation to on-load factor and operating frequency | | **A** | On-load factor | | | 90% | 60% | 30% | |
| | | | | 300 op. cycles/hour | | | 13 | 15 | 18 | |
| | | | | 120 op. cycles/hour | | | 15 | 18 | 19 | |
| | | | | 30 op. cycles/hour | | | 19 | 20 | 20 | |
| | Increase in operational current by paralleling poles | | | Apply the following coefficients to the current values given above. These take into account the often unbalanced current distribution between poles | | | | | | |
| | | | | 2 poles in parallel: K = 1.60 | | | | | | |
| | | | | 3 poles in parallel: K = 2.25 | | | | | | |
| | | | | 4 poles in parallel: K = 2.80 | | | | | | |
| **Utilization in category AC-3**<br>Squirrel cage motors | Operational power according to the voltage | Voltage 50 or 60Hz | **V** | 115 | 220 | 220/<br>240 | 380/<br>415 | 440/<br>480 | 500/<br>600 | 660/<br>690 |
| | | | | 1-ph | 1-ph | 3-ph | 3-ph | 3-ph | 3-ph | 3-ph |
| | LP●-K06 | Motor ratings | **kW** | 0.37 | 0.75 | 1.5 | 2.2 | 3 | 3 | 3 |
| | LP●-K09 | Motor ratings | **kW** | 0.55 | 1.1 | 2.2 | 4 | 4 | 4 | 4 |
| | LP●-K12 | Motor ratings | **kW** | – | – | 3 | 5.5 | 5.5<br>4 (480) | 4 | 4 |
| | % utilization of operational power in relation to the maximum operating rate | | | Op. cycles/h | | 600 | | 900 | | 1200 |
| | | | | Puissance | | 100% | | 75% | | 50% |
| **Utilization in category AC-3**<br>Squirrel cage motors | Operational power according to the voltage | Voltage 50 or 60Hz | **V** | 115 | 220 | 220/<br>208 | 220/<br>240 | 460/<br>480 | 575/<br>600 | |
| | | | | 1-ph | 1-ph | 3-ph | 3-ph | 3-ph | 3-ph | |
| | LC●-K06, LP●-K06 | Motor ratings | **hp** | 0.5 | 1 | 1.5 | 3 | 3 | 3 | |
| | LC●-K09, LP●-K09 | Motor ratings | **hp** | 0.5 | 1.5 | 2 | 3 | 5 | 5 | |
| | LC●-K12, LP●-K12 | Motor ratings | **hp** | 1 | 2 | 3 | 3 | 7.5 | 10 | |
| | LC●-K16, LP●-K12 | Not for North American Applications. Not UL Listed or CSA Certified. | | | | | | | | |

## Type LP●-K low consumption contactors

### Control circuit characteristics

| Type | | | LP4 | LP5 |
|---|---|---|---|---|
| **Rated control circuit voltage** (Uc) | | V | DC 12 to 72 | |
| **Control voltage limits** (≤ 50 °C) single-voltage coil | For operation | | 0.7 to 1.30 Uc | |
| | For drop-out | | ≥ 0.10 Uc | |
| **Average consumption at 20 °C and at Uc** | Inrush | W | 1.8 | |
| | Sealed | W | 1.8 | |
| Heat dissipation | | W | 1.8 | |
| **Operating time** at 20 °C and at Uc | Between coil energization and:<br>- opening of the N.C. contacts<br>- closing of the N.O. contacts | ms<br>ms | 25 to 35<br>30 to 40 | |
| | Between coil de-energization and:<br>- opening of the N.O. contacts<br>- closing of the N.C. contacts | ms<br>ms | 10 to 20<br>15 to 25 | |
| **Maximum immunity to micro breaks** | | ms | 2 | |
| **Maximum operating rate** | In operating cycles per hour | | 3600 | |
| **Mechanical durability at Uc** In millions of operating cycles | Wide range DC coil | | 30 | 5 |

## Type LP●-K low consumption contactors

### Auxiliary contact characteristics of contactors and instantaneous contact blocks

| | | | | |
|---|---|---|---|---|
| **Number of contacts** | On LP4, LP5-K | | | 1 |
| | On LA1-K | | | 2 max. |
| **Rated operational voltage** (Ue) | Up to | | V | 690 |
| **Rated insulation voltage** (Ui) | Conforming to BS 5424 | | V | 690 |
| | Conforming to IEC 947 | | V | 690 |
| | Conforming to VDE 0110 group C | | V | 750 |
| | Conforming to CSA 22.2 No. 14, UL 508 | | V | 600 |
| **Conventional rated thermal current** (Ith) | For ambient temperature≤ 50 °C | | A | 10 |
| **Frequency of operational current** | | | Hz | Up to 400 |
| **Minimum switching capacity** | U min (DIN 19 240) | | V | 17 (reliability <$10^{-8}$ at 24V) |
| | I min | | mA | 5 |
| **Short-circuit protection** | Conforming to IEC 947 and VDE 0660, gl fuse | | A | 10 |
| **Rated making capacity** | Conforming to IEC 947 | I rms | A | 110 |
| **Overload current** | Permissible for | 1 s | A | 80 |
| | | 500 ms | A | 90 |
| | | 100 ms | A | 110 |
| **Insulation resistance** | | | MΩ | > 10 |
| **Non-overlap distance** | Linked contacts conforming to INRS and BIA specs. | | mm | 0.5 |

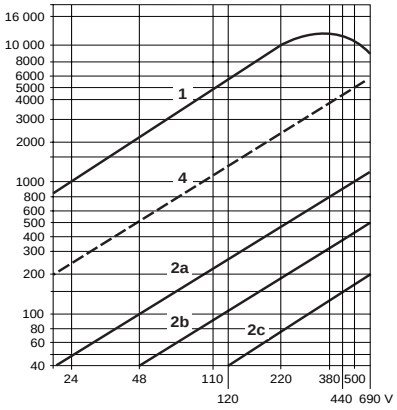
**Operational power of contacts**
conforming to IEC 947

**AC 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 (power factor 0.7) = 10 times the breaking current (power factor 0.4).

| | **V** | **24** | **48** | **110/ 127** | **220/ 230** | **380/ 400** | **400** | **600/ 690** |
|---|---|---|---|---|---|---|---|---|
| 1 million operating cycles | **VA** | 48 | 96 | 240 | 440 | 800 | 880 | 1200 |
| 3 million operating cycles | **VA** | 17 | 34 | 86 | 158 | 288 | 317 | 500 |
| 10 million operating cycles | **VA** | 7 | 14 | 36 | 66 | 120 | 132 | 200 |
| Occasional making capacity | **VA** | 1000 | 2050 | 5000 | 10000 | 14000 | 13000 | 9000 |

Power broken in VA




1 Breaking limit of contacts valid for: maximum of 50 operating cycles at 10 s intervals (breaking current = making current x power factor 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.

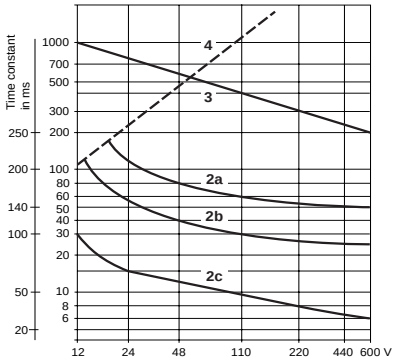
4 Thermal limit.

**DC supply, category DC-13**

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

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

Power broken in W



### Control circuit: DC low consumption coil

### 3-pole contactors ■

**LP4-K06105●●●**

- Compatible with programmable controller outputs.
- LED indicator incorporated.
- Wide range coil (0.7 to 1.30 Uc), suppressor fitted as standard, consumption 1.8 W.
- Mounting on 35 mm ⎓ DIN rail or 4 mm (#6) screws.
- Screws in open “ready-to-tighten” position.

**Kilowatt ratings for International applications**

| Motor control in category AC-3 | | | | Type of connection | Auxiliary contacts | | Basic catalog number. Complete with code indicating control circuit voltage ★ | Weight |
|---|---|---|---|---|---|---|---|---|
| Maximum operational current 440 V | Standard power ratings of 3-phase motors | | | | | | | |
| | 220 V 230 V | 380 V 415 V | 440/500 V 660/690 V | | | | | |
| **A** | **kW** | **kW** | **kW** | | **N.O.** | **N.C.** | | **kg (lb.)** |
| 6 | 1.5 | 2.2 | 3 | Screw clamp | 1 | – | **LP4-K0610●●●** | 0.235 (0.52) |
| | | | | | – | 1 | **LP4-K0601●●●** | 0.235 (0.52) |
| | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 1 | – | **LP4-K06107●●●** | 0.235 (0.52) |
| | | | | | – | 1 | **LP4-K06017●●●** | 0.235 (0.52) |
| | | | | Solder pins for printed circuit board | 1 | – | **LP4-K06105●●●** | 0.265 (0.58) |
| | | | | | – | 1 | **LP4-K06015●●●** | 0.265 (0.58) |
| 9 | 2.2 | 4 | 4 | Screw clamp | 1 | – | **LP4-K0910●●●** | 0.235 (0.52) |
| | | | | | – | 1 | **LP4-K0901●●●** | 0.235 (0.52) |
| | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 1 | – | **LP4-K09107●●●** | 0.235 (0.52) |
| | | | | | – | 1 | **LP4-K09017●●●** | 0.235 (0.52) |
| | | | | Solder pins for printed circuit board | 1 | – | **LP4-K09105●●●** | 0.265 (0.58) |
| | | | | | – | 1 | **LP4-K09015●●●** | 0.265 (0.58) |
| 12 | 3 | 5.5 | 4 (> 440) 5.5 (440) | Screw clamp | 1 | – | **LP4-K1210●●●** | 0.235 (0.52) |
| | | | | | – | 1 | **LP4-K1201●●●** | 0.235 (0.52) |
| | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 1 | – | **LP4-K12107●●●** | 0.235 (0.52) |
| | | | | | – | 1 | **LP4-K12017●●●** | 0.235 (0.52) |
| | | | | Solder pins for printed circuit board | 1 | – | **LP4-K12105●●●** | 0.265 (0.58) |
| | | | | | – | 1 | **LP4-K12015●●●** | 0.265 (0.58) |

**Horsepower ratings for North American applications**

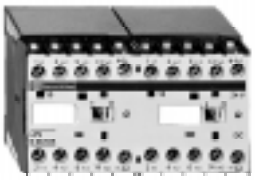
| Maximum inductive current in AC-3 category | Maximum Horsepower Rating | | | | | | Type of connection | Auxiliary contacts | | Basic catalog number. Complete with code indicating control circuit voltage ★ | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 - Phase 50/60 Hz | | 3 - Phase 50/60 Hz | | | | | | | | |
| | 115/ 120 V | 230/ 240 V | 200/ 208 V | 220/ 240 V | 460/ 480 V | 575/ 600 V | | | | | |
| **A** | **hp** | **hp** | **hp** | **hp** | **hp** | **hp** | | **N.O.** | **N.C.** | | **kg (lb.)** |
| 6 | 0.5 | 1 | 1.5 | 1.5 | 3 | 3 | Screw clamp | 1 | – | **LP4-K0610●●●** | 0.235 (0.52) |
| | | | | | | | | – | 1 | **LP4-K0601●●●** | 0.235 (0.52) |
| | | | | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 1 | – | **LP4-K06107●●●** | 0.235 (0.52) |
| | | | | | | | | – | 1 | **LP4-K06017●●●** | 0.235 (0.52) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LP4-K06105●●●** | 0.265 (0.58) |
| | | | | | | | | – | 1 | **LP4-K06015●●●** | 0.265 (0.58) |
| 9 | 0.5 | 1.5 | 2 | 3 | 5 | 5 | Screw clamp | 1 | – | **LP4-K0910●●●** | 0.235 (0.52) |
| | | | | | | | | – | 1 | **LP4-K0901●●●** | 0.235 (0.52) |
| | | | | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 1 | – | **LP4-K09107●●●** | 0.235 (0.52) |
| | | | | | | | | – | 1 | **LP4-K09017●●●** | 0.235 (0.52) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LP4-K09105●●●** | 0.265 (0.58) |
| | | | | | | | | – | 1 | **LP4-K09015●●●** | 0.265 (0.58) |
| 12 | 1 | 2 | 3 | 3 | 7.5 | 10 | Screw clamp | 1 | – | **LP4-K1210●●●** | 0.235 (0.52) |
| | | | | | | | | – | 1 | **LP4-K1201●●●** | 0.235 (0.52) |
| | | | | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 1 | – | **LP4-K12107●●●** | 0.235 (0.52) |
| | | | | | | | | – | 1 | **LP4-K12017●●●** | 0.235 (0.52) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LP4-K12105●●●** | 0.265 (0.58) |
| | | | | | | | | – | 1 | **LP4-K12015●●●** | 0.265 (0.58) |

■ Auxiliary contacts and accessories, see page 39.

★ Standard control circuit voltages (variable delivery times, please consult your Regional Sales Office).

| Volts DC | **12** | **24** | **48** | **72** |
|---|---|---|---|---|
| Code | JW3 | BW3 | EW3 | SW3 |

### Control circuit: DC low consumption coil



LP5-K06105●●●

### 3-pole reversing contactors ■

- Compatible with programmable controller outputs.
- LED indicator incorporated.
- Wide range coil (0.7 to 1.30 Uc), suppressor fitted as standard, consumption 1.8 W.
- Mechanical interlock incorporated.

**Customer wiring required to connect coil terminations to electrical interlock. See page 42.**

- Pre-wired power circuit connections as standard on screw clamp versions.
- Mounting on 35 mm ⎓ DIN rail or 4 mm (#6) screws.
- Screws in open “ready-to-tighten” position.

**Kilowatt ratings for International applications**

| Motor control in category AC-3 | | | | Type of connection | Auxiliary contacts | | Basic catalog number. Complete with code indicating control circuit voltage ★ | Weight |
|---|---|---|---|---|---|---|---|---|
| Maximum operational current 440 V | Standard power ratings of 3-phase motors | | | | | | | |
| | 220 V 230 V | 380 V 415 V | 440/500 V 660/690 V | | | | | |
| **A** | **kW** | **kW** | **kW** | | **N.O.** | **N.C.** | | **kg (lb.)** |
| 6 | 1.5 | 2.2 | 3 | Screw clamp | 1 | – | **LP5-K0610●●●** | 0.490 (1.08) |
| | | | | | – | 1 | **LP5-K0601●●●** | 0.490 (1.08) |
| | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 1 | – | **LP5-K06107●●●** | 0.470 (1.03) |
| | | | | | – | 1 | **LP5-K06017●●●** | 0.470 (1.03) |
| | | | | Solder pins for printed circuit board | 1 | – | **LP5-K06105●●●** | 0.530 (1.17) |
| | | | | | – | 1 | **LP5-K06015●●●** | 0.530 (1.17) |
| 9 | 2.2 | 4 | 4 | Screw clamp | 1 | – | **LP5-K0910●●●** | 0.490 (1.08) |
| | | | | | – | 1 | **LP5-K0901●●●** | 0.490 (1.08) |
| | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 1 | – | **LP5-K09107●●●** | 0.470 (1.03) |
| | | | | | – | 1 | **LP5-K09017●●●** | 0.470 (1.03) |
| | | | | Solder pins for printed circuit board | 1 | – | **LP5-K09105●●●** | 0.530 (1.17) |
| | | | | | – | 1 | **LP5-K09015●●●** | 0.530 (1.17) |
| 12 | 3 | 5.5 | 4 (> 440) 5.5 (440) | Screw clamp | 1 | – | **LP5-K1210●●●** | 0.490 (1.08) |
| | | | | | – | 1 | **LP5-K1201●●●** | 0.490 (1.08) |
| | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 1 | – | **LP5-K12107●●●** | 0.470 (1.03) |
| | | | | | – | 1 | **LP5-K12017●●●** | 0.470 (1.03) |
| | | | | Solder pins for printed circuit board | 1 | – | **LP5-K12105●●●** | 0.530 (1.17) |
| | | | | | – | 1 | **LP5-K12015●●●** | 0.530 (1.17) |

**Horsepower ratings for North American applications**

| Maximum inductive current in AC-3 category | Maximum Horsepower Rating | | | | | | Type of connection | Auxiliary contacts | | Basic catalog number. Complete with code indicating control circuit voltage ★ | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 - Phase 50/60 Hz | | 3 - Phase 50/60 Hz | | | | | | | | |
| | 115/ 120 V | 230/ 240 V | 200/ 208 V | 220/ 240 V | 460/ 480 V | 575/ 600 V | | | | | |
| **A** | **hp** | **hp** | **hp** | **hp** | **hp** | **hp** | | **N.O.** | **N.C.** | | **kg (lb.)** |
| 6 | 0.5 | 1 | 1.5 | 1.5 | 3 | 3 | Screw clamp | 1 | – | **LP5-K0610●●●** | 0.490 (1.08) |
| | | | | | | | | – | 1 | **LP5-K0601●●●** | 0.490 (1.08) |
| | | | | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 1 | – | **LP5-K06107●●●** | 0.470 (1.03) |
| | | | | | | | | – | 1 | **LP5-K06017●●●** | 0.470 (1.03) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LP5-K06105●●●** | 0.530 (1.17) |
| | | | | | | | | – | 1 | **LP5-K06015●●●** | 0.530 (1.17) |
| 9 | 0.5 | 1.5 | 2 | 3 | 5 | 5 | Screw clamp | 1 | – | **LP5-K0910●●●** | 0.490 (1.08) |
| | | | | | | | | – | 1 | **LP5-K0901●●●** | 0.490 (1.08) |
| | | | | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 1 | – | **LP5-K09107●●●** | 0.470 (1.03) |
| | | | | | | | | – | 1 | **LP5-K09017●●●** | 0.470 (1.03) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LP5-K09105●●●** | 0.530 (1.17) |
| | | | | | | | | – | 1 | **LP5-K09015●●●** | 0.530 (1.17) |
| 12 | 1 | 2 | 3 | 3 | 7.5 | 10 | Screw clamp | 1 | – | **LP5-K1210●●●** | 0.490 (1.08) |
| | | | | | | | | – | 1 | **LP5-K1201●●●** | 0.490 (1.08) |
| | | | | | | | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 1 | – | **LP5-K12107●●●** | 0.470 (1.03) |
| | | | | | | | | – | 1 | **LP5-K12017●●●** | 0.470 (1.03) |
| | | | | | | | Solder pins for printed circuit board | 1 | – | **LP5-K12105●●●** | 0.530 (1.17) |
| | | | | | | | | – | 1 | **LP5-K12015●●●** | 0.530 (1.17) |

■ Auxiliary contacts and accessories, see pages 39.

★ Standard control circuit voltages (variable delivery times, please consult your Regional Sales Office).

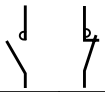
| Volts DC | **12** | **24** | **48** | **72** |
|---|---|---|---|---|
| Code | JW3 | BW3 | EW3 | SW3 |

### Control circuit: DC low consumption coil

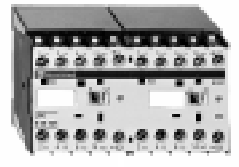
LP4-K090047●●●

### 3- and 4-pole contactors ■

- Compatible with programmable controller outputs.
- LED indicator incorporated as standard.
- Wide range coil (0.7 to 1.30 Uc), suppressor fitted as standard, consumption 1.8 W.
- Mounting on 35 mm ـب DIN rail or 4 mm (#6) screw.
- Screws in open “ready-to-tighten” position.

| Non-inductive loads Category AC-1 Maximum current at q ≤ 50 °C | Type of connection | Power poles | | Auxiliary contacts | | Basic catalog number. Complete with code indicating control circuit voltage ★ | Weight |
|---|---|---|---|---|---|---|---|
| | |  | |  | | | |
| **A** | | **N.O.** | **N.C.** | **N.O.** | **N.C.** | | **kg (lbs.)** |
| 20 | Screw clamp | 3 | – | 1 | – | **LP4-K0910●●●** | 0.235 (0.52) |
| | | | | – | 1 | **LP4-K0901●●●** | 0.235 (0.52) |
| | | 4 | – | – | – | **LP4-K09004●●●** | 0.235 (0.52) |
| | | 2 | 2 | – | – | **LP4-K09008●●●** | 0.235 (0.52) |
| | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 3 | – | 1 | – | **LP4-K09107●●●** | 0.235 (0.52) |
| | | | | – | 1 | **LP4-K09017●●●** | 0.235 (0.52) |
| | | 4 | – | – | – | **LP4-K090047●●●** | 0.235 (0.52) |
| | | 2 | 2 | – | – | **LP4-K090087●●●** | 0.235 (0.52) |
| | Solder pins for printed circuit board | 3 | – | 1 | – | **LP4-K09105●●●** | 0.265 (0.58) |
| | | | | – | 1 | **LP4-K09015●●●** | 0.265 (0.58) |
| | | 4 | – | – | – | **LP4-K090045●●●** | 0.265 (0.58) |
| | | 2 | 2 | – | – | **LP4-K090085●●●** | 0.265 (0.58) |

### 3- and 4-pole reversing contactors ■

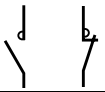


LP5-K0910●●●

- Compatible with programmable controller outputs.
- LED indicator incorporated.
- Wide range coil (0.7 to 1.30 Uc), suppressor fitted as standard, consumption 1.8 W.
- Mechanical interlock incorporated.

**Customer wiring required to connect coil terminations to electrical interlock. See page 42.**

- Pre-wired power circuit connections as standard on screw clamp versions.
- Mounting on 35 mm ـب Din rail or 4mm (#6) screw.
- Screws in open “ready-to-tighten” position.

| Non-inductive loads Category AC-1 Maximum current at q ≤ 50 °C | Type of connection | Power poles | | Auxiliary contacts | | Basic catalog number. Complete with code indicating control circuit voltage ★ | Weight |
|---|---|---|---|---|---|---|---|
| | |  | |  | | | |
| **A** | | **N.O.** | **N.C.** | **N.O.** | **N.C.** | | **kg (lb.)** |
| 20 | Screw clamp | 3 | – | 1 | – | **LP5-K0910●●● ▲** | 0.490 (1.08) |
| | | 3 | – | – | 1 | **LP5-K0901●●● ▲** | 0.490 (1.08) |
| | | 4 | – | – | – | **LP5-K09004●●●** | 0.490 (1.08) |
| | Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 3 | – | 1 | – | **LP5-K09107●●●** | 0.470 (1.03) |
| | | 3 | – | – | 1 | **LP5-K09017●●●** | 0.470 (1.03) |
| | | 4 | – | – | – | **LP5-K090047●●●** | 0.530 (1.17) |
| | Solder pins for printed circuit board | 3 | – | 1 | – | **LP5-K09105●●●** | 0.530 (1.17) |
| | | 3 | – | – | 1 | **LP5-K09015●●●** | 0.530 (1.17) |
| | | 4 | – | – | – | **LP5-K090045●●●** | 0.530 (1.17) |

■ Auxiliary contact blocks and accessories, see pages 39.

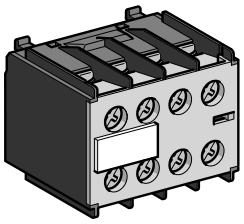
★ Standard control circuit voltages (variable delivery times, please consult your Regional Sales Office).

| Volts DC | **12** | **24** | **48** | **72** | |
|---|---|---|---|---|---|
| Code | JW3 | BW3 | EW3 | SW3 | |

▲ Warning: this reversing contactor is prewired for reverse motor operation

## For type LP●-K low consumption contactors

### Instantaneous auxiliary contact blocks

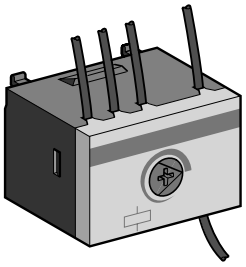


LA1-KN••

**Clip-on front mounting, 1 block per contactor**

| Type of connection | Type of contactor | Auxiliary contacts N.O. | Auxiliary contacts N.C. | Catalog number | Weight kg (lb.) |
|---|---|---|---|---|---|
| Screw clamp | 3- or 4-pole | 2 | – | **LA1-KN20** | 0.045 (0.10) |
| | | – | 2 | **LA1-KN02** | 0.045 (0.10) |
| | | 1 | 1 | **LA1-KN11** | 0.045 (0.10) |
| Slip-on 1 x 0.25 in. or 2 x 0.11 in. | 3- or 4-pole | 2 | – | **LA1-KN207** | 0.045 (0.10) |
| | | – | 2 | **LA1-KN027** | 0.045 (0.10) |
| | | 1 | 1 | **LA1-KN117** | 0.045 (0.10) |

### Instantaneous auxiliary contact blocks (with terminal referencing conforming to EN 50012)



LA1-KT2●

**Clip-on front mounting, 1 block per contactor**

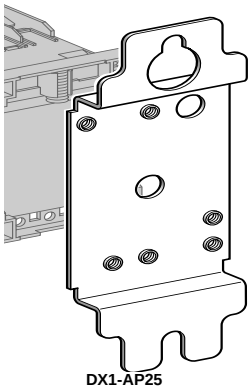
| | | | | | |
|---|---|---|---|---|---|
| Screw clamp with terminal referencing conforming to standard EN 50012 | 3-pole, 6 and 9 A | – | 2 | **LA1-KN02M** | 0.045 (0.10) |
| | | 1 | 1 | **LA1-KN11M** | 0.045 (0.10) |
| | 4-pole, 9 A | 1 | 1 | **LA1-KN11P** | 0.045 (0.10) |

### Electronic time delay auxiliary contact blocks

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

**Clip-on front mounting, 1 block per contactor**

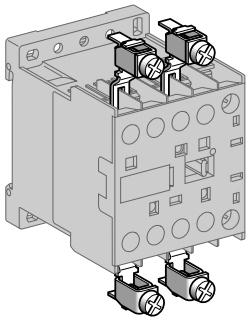
| Voltage | Type | Timing range | Auxiliary contacts SPDT | Catalog number | Weight kg (lb.) |
|---|---|---|---|---|---|
| **V** | | **sec.** | | | **kg (lb.)** |
| **AC or DC 24 to 48** | On-delay | 1 to 30 | 1 | **LA2-KT2E** | 0.040 (0.09) |
| **AC 110 to 240** | On-delay | 1 to 30 | 1 | **LA2-KT2U** | 0.040 (0.09) |



DX1-AP25

### Mounting and marking accessories

| Description | Application | | Sold in lots of | Unit catalog number | Weight kg (lb.) |
|---|---|---|---|---|---|
| **Mounting plates ♦** | For mounting on 1 ⊔ rail | Clip-on | 1 | **LA9-D973** | 0.025 (0.05) |
| | For mounting on 2 ⊔ rails | 110/120 mm mounting centers | 10 | **DX1-AP25** | 0.065 (0.14) |
| **Marker holder** | Clip-on | Onto front of contactor | 100 | **LA9-D90** | 0.001 (0.002) |
| **Clip-in markers** | 4 maximum per contactor | Strips of 10 identical numbers 0 to 9 | 25 | **AB1-R● ∗** | 0.002 (0.004) |
| | | Strips of 10 identical capital letters A to Z | 25 | **AB1-G● ∗** | 0.002 (0.004) |
| **35mm ⎓ DIN rail (7.5 mm deep x 2 m long)** | | | 10 | **AM1-DP200** | 1.310 (2.88) |
| **35mm ⎓ DIN rail (15 mm deep x 2 m long)** | | | 10 | **AM1-ED200** | 0.650 (1.44) |



LA9-E01

### Cabling accessories

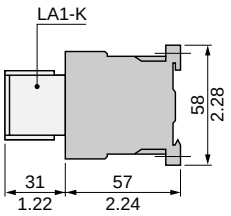
| Description | Application | | Sold in lots of | Unit catalog number | Weight kg (lb.) |
|---|---|---|---|---|---|
| **Paralleling links** | For 2-poles | With screw clamp terminals | 4 | **LA9-E01** | 0.010 (0.02) |
| | For 4-poles | With screw clamp terminals | 2 | **LA9-E02** | 0.015 (0.03) |
| **Set of 6 power connections** | For 3-pole reversing contactors for motor control | For contactors with screw clamp terminals | 100 | **LA9-K0969** | 0.010 (0.02) |
| **Set of 4 power connections** | For 4-pole changeover contactor pairs | For contactors with screw clamp terminals | 100 | **LA9-K0970** | 0.010 (0.02) |

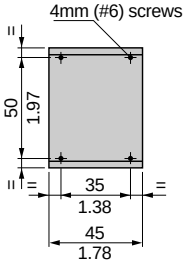
♦ Order 1 mounting plate for a contactor and 2 mounting plates for a reversing contactor.
∗ Complete the catalog number by replacing the ● with the required character.

### Type LP●-K low consumption contactors

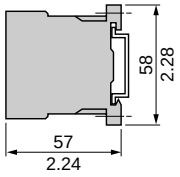
**Reversing Contactors**
**LP4-K**

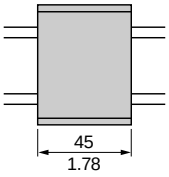
On panel



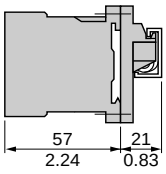

On mounting rail AM1-DP200 or AM1 DE200 (35 mm ⊔ DIN rail)

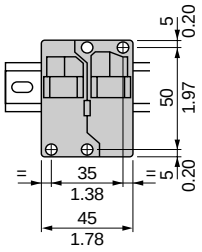


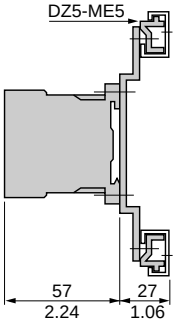

On one asymmetrical rail DZ5-MB with clip-on mounting plate

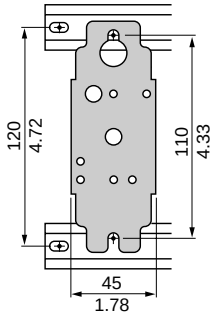
**LA9-D973**



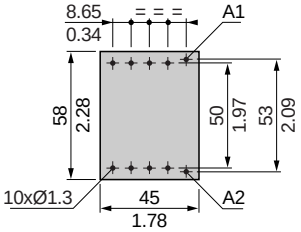




**DX1-AP25**



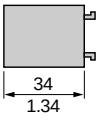



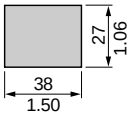

On printed circuit board



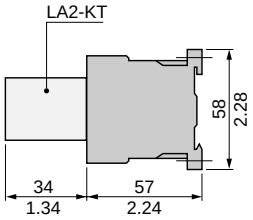

**Electronic time delay contact blocks**

**LA2-KT**




On contactor

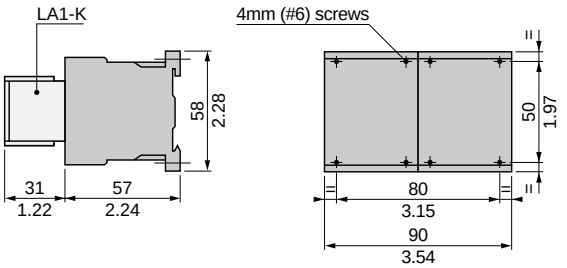



**Dimensions** MM / Inches

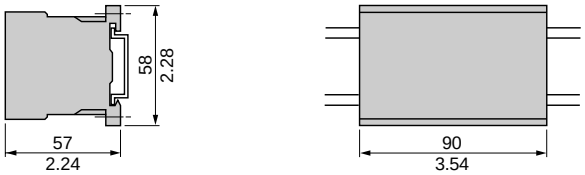
## Type LP●-K low consumption reversing contactors

**Reversing contactors**
**LP5-K**

On panel

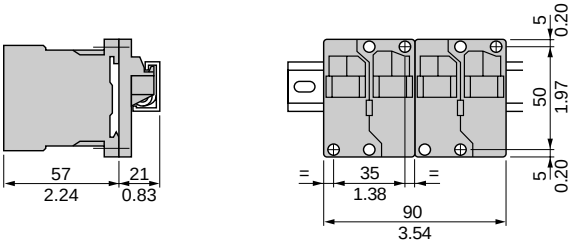



On mounting rail AM1-DP200 or AM1 DE200 (35 mm ⊔ DIN rail)

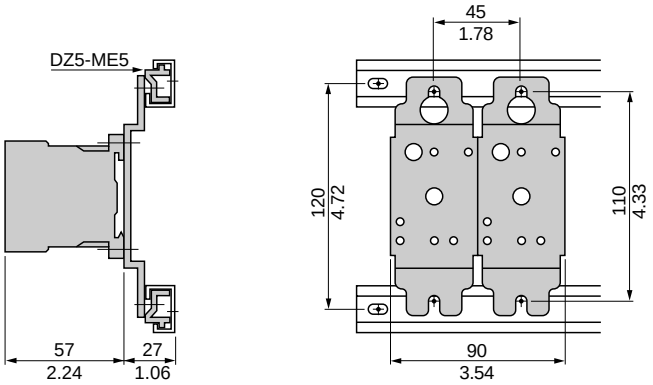



On one asymmetrical rail DZ5-MB with 2 clip-on mounting plates LA9-D973 or on 2 mounting plates DX1-AP25.

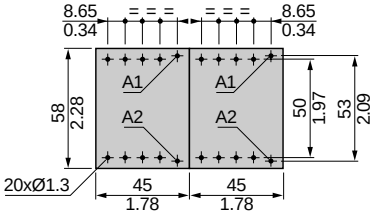
**2 x LA9-D973**




**2 x DX1-AP25**



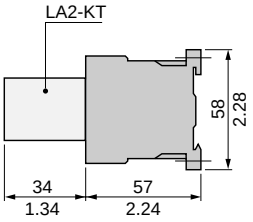

On printed circuit board for reversing contactors or 2 contactors mounted side by side




**Electronic time delay contact blocks**

**LA2-KT**


On reversing contactors



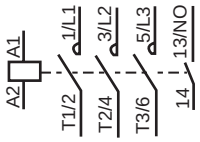

**Dimensions** MM / Inches

# K-Line Mini-Contactors, Overload Relays and Accessories
## Schematics

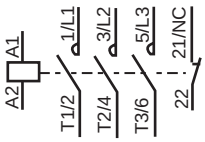
### Type LP●-K 3-pole low consumption contactors and reversing contactors and accessories

**3-pole contactors**
**LP4-K**

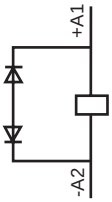
3-pole + N.O.




3-pole + N.C.



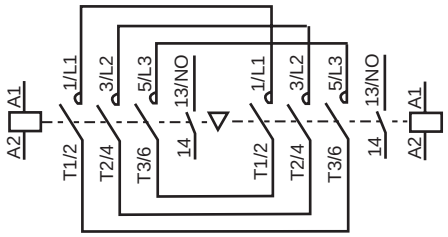

**Integrated coil suppression device**
**LP4-K**




**3-pole reversing contactors**
**LP5-K**

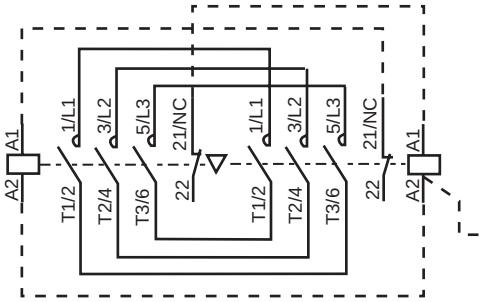
**With screw clamp terminals**

3-pole + N.O.

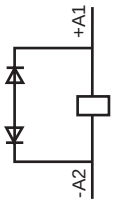



Dashed lines indicate suggested customer wiring to electrically interlock coils.

3-pole + N.C.

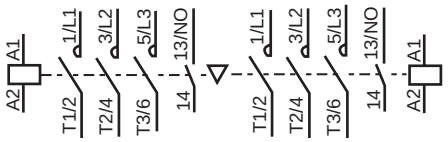



**Integrated coil suppression device**
**LP5-K**

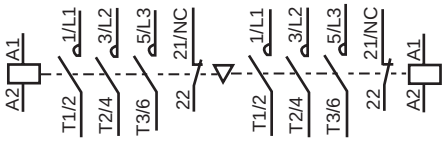



**With Slip-on connectors or solder pins for printed circuit boards**

3-pole + N.O.



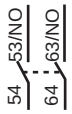

3-pole + N.C.




**Instantaneous auxiliary contact blocks**
**LA1-K**

**For 3-pole contactors LP●-K**

2 N.O.
**LA1-KN20**
**LA1-KN207**

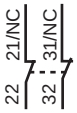



2 N.C.
**LA1-KN02**
**LA1-KN027**


1 N.O. + 1 N.C.
**LA1-KN11**
**LA1-KN117**

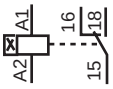

**Terminal referencing conforming to standard EN 50012**

2 N.C.
**LA1-KN02**




1 N.O. + 1 N.C.
**LA1-KN11M**

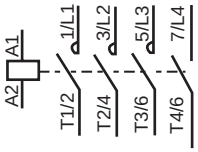

**Electronic time delay auxiliary contact blocks**
**LA2-KT**
For 3-pole contactors **LP●-K**
1 C/O



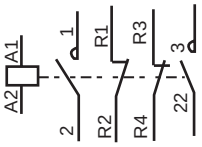
## Type LP●-K low consumption contactors and reversing contactors and accessories

**4-pole contactors**
**LP4-K**

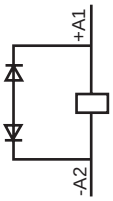
4-pole




2-pole N.O. + 2-pole N.C.

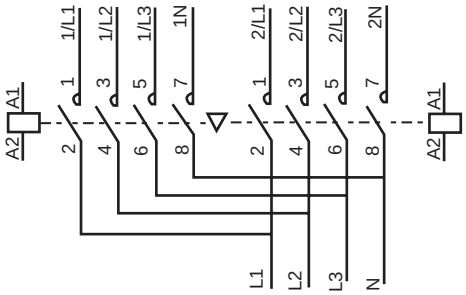



**Integrated coil suppression device**
**LP4-K**

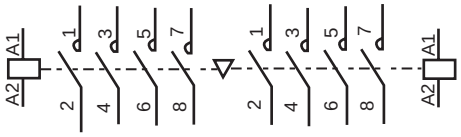



**4-pole reversing contactors**
**LP5-K**

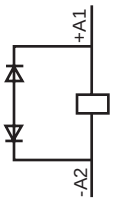
**With screw clamp connections**
4-pole




**With Slip-on connectors or solder pins for printed circuit boards**
4-pole




**Integrated coil suppression device**
**LP5-K**




**Instantaneous auxiliary contact blocks**
**LA1-K**

**For 4-pole contactors LP●-K**

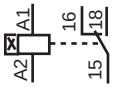
2 N.O.
**LA1-KN20**
**LA1-KN207**


2 N.C.
**LA1-KN02**
**LA1-KN027**


1 N.O. + 1 N.C.
**LA1-KN11**
**LA1-KN117**


Terminal referencing conforming to standard EN 50012
1 N.O. + 1 N.C.
**LA1-KN11P**


**Electronic time delay auxiliary contact blocks**
**LA2-KT**
For 4-pole contactors **LP●-K**
1 C/O



**Altitude**

The low oxygen atmosphere at high altitudes reduces the dielectric strength of the air and hence the rated operational voltage of the contactor. It also reduces the cooling effect of the air and hence the rated operational current of the contactor (unless the temperature drops at the same time).
No derating is necessary up to 3000 m.
Derating factors to be applied above this altitude for main pole operational voltage and current (AC supply) are as follows.

| Altitude | 3500 m | 4000 m | 4500 m | 5000 m |
|---|---|---|---|---|
| Rated operational voltage | 0.90 | 0.80 | 0.70 | 0.60 |
| Rated operational current | 0.92 | 0.90 | 0.88 | 0.86 |

**Ambient air temperature**

The temperature of the air surrounding the device, measured near to the device. The operating characteristics are given:
- with no restriction for temperatures between -5 and +55° C
- with restrictions, if necessary, for temperatures between -50 and +70° C

**Rated operational current** (Ie)

This is defined taking into account the rated operational voltage, operating rate and duty, utilization category and ambient temperature around the device.

**Rated conventional thermal current** (Ith) ■

The current which a closed contactor can sustain for a minimum of 8 hours without its temperature rise exceeding the limits given in the standards.

**Permissible short time rating**

The current which a closed contactor can sustain for a short time after a period of no load, without dangerous overheating.

**Rated operational voltage** (Ue)

This is the voltage value which, in conjunction with the rated operational current, determines the use of the contactor or starter, and on which the corresponding tests and the utilization category are based. For 3-phase circuits it is expressed as the voltage between phases.
Apart from exceptional cases such as rotor short-circuiting, the rated operational voltage Ue is less than or equal to the rated insulation voltage Ui.

**Rated control circuit voltage** (Uc)

The rated value of the control circuit voltage, on which the operating characteristics are based. For AC applications, the values are given for a near sinusoidal wave form (less than 5% total harmonic distortion).

**Rated insulation voltage** (Ui)

This is the voltage value used to define the insulation characteristics of a device and referred to in dielectric tests determining leakage paths and creepage distances. As the specifications are not identical for all standards, the rated value given for each of them is not necessarily the same.

**Rated impulse withstand voltage** (Uimp)

The peak value of a voltage surge which the device is able to withstand without breaking down.

**Rated operational power** (expressed in kW)

The rated power of the standard motor which can be switched by the contactor, at the stated operational voltage.

**Rated breaking capacity** ★

This is the current value which the contactor can break in accordance with the breaking conditions specified in the IEC standard.

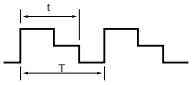
**Rated making capacity** ★

This is the current value which the contactor can make in accordance with the making conditions specified in the IEC standard.

**On-load factor** (m)

This is the ratio between the time the current flows (t) and the duration of the cycle (T)

$$m = \frac{t}{T}$$




Cycle duration: duration of current flow + time at zero current

**Pole impedance**

The impedance of one pole is the sum of the impedance of all the circuit components between the input terminal and the output terminal.
The impedance comprises a resistive component (R) and an inductive component ($X=L\omega$). The total impedance therefore depends on the frequency and is normally given for 50 Hz. This average value is given for the pole at its rated operational current.

**Electrical durability**

This is the average number of on-load operating cycles which the main pole contacts can perform without maintenance. The electrical durability depends on the utilization category, the rated operational current and the rated operational voltage.

**Mechanical durability**

This is the average number of on-load operating cycles (i.e. with zero current flow through the main poles) which the contactor can perform without mechanical failure

c Conventional thermal current, in free air, conforming to IEC standards.
a For AC applications, the breaking and making capacities are expressed by the rms value of the symmetrical component of the short-circuit current. Taking into account the maximum asymmetry which may exist in the circuit, the contacts therefore have to withstand a peak asymmetrical current which may be twice the rms symmetrical component.

*NOTE: these definitions are extracted from standard IEC 947-1.*

Square D Company
8001 Hwy. 64 East
Knightdale, NC 27545
(919) 266-3671



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