For heavy-duty applications, contactors designed to switch up to 2750 amps

Protection and intelligence combined

- Use CV2 or CV3 contactors with protective-measurements to provide coordinated circuit protection for your motor applications.
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- In many instances, control of different methods of starting (cross-line (reversing or non-reversing), star/delta, 2-speed) can be achieved with a single control device.
- All the functionalities are programmable with parameters entered locally or using a PC software.
- The L T3-S thermistor relay provides complementary protection by direct measurement of the temperature of motors equipped with PTC thermistor probes, for operation in hard ambient conditions: high temperature, dust, humidity, with severe duty: fast operating cycles, use of DC injection braking.

CV1 Contactors
- For loads up to 950 amps inductive, 1000 amps resistive.
- Voltage up to 660 VAC or 440 VDC.
- Frequency up to 200 Hz.
- Maximum of 5 NO or NC power poles.
- Maximum of 7 NO or NC auxiliary poles.

CV3 Contactors
- For loads up to 1800 amps inductive, 2750 amps resistive.
- Voltage up to 1000 VAC or 1500 VDC.
- Frequency up to 400 Hz.
- Maximum of 5 NO or NC power poles.
- Maximum of 7 NO or NC auxiliary poles.

CV2 Contactors
- For loads up to 1250 amps inductive, 1500 amps resistive.
- Voltage up to 690 VAC or 540 VDC.
- Frequency up to 250 Hz.
- Maximum of 5 NO or NC power poles.
- Maximum of 7 NO or NC auxiliary poles.

Protect your motor from damaging over-temperatures

- Use L T6-P electronic multifunction protection relay for protection and intelligence combined.
- Select settings to combine high frequency, high, low, imbalance. With other functions, the L T6-P measures balanced and unbalanced currents.
- Requires accurate and reliable temperature measurement.

INTEGRAL™ Self-Protected Starters
- TELEMECANIQUE® INTEGRAL self-protected starters combine circuit breaker, contactor and dual function overload relay for coordinated circuit protection.
- INTEGRAL starters are the only self-protected starters to have UL/CSA verification for Type 2 coordinated protection.
- INTEGRAL starters can reduce panel space requirements by 40 to 60%.

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- TELEMECANIQUE GV2 and GV3 devices incorporate a manual disconnect, overload relay and instantaneous magnetic trip mechanism in one compact device. They can be used as standalone manual starters or to protect each branch circuit of a group motor installation.

Enclosed IEC Starters
- D-Line starters and INTEGRAL self-protected starters are available in metal NEMA Type 1 and 12 enclosures. These enclosed devices utilize INSTAKIT™ components for the addition of cover mounted pilot devices. INSTAKIT components are pre-wired control operator kits that use a universal connector for quick, easy installation.

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Visit the Square D web site at www.SquareD.com
### Part number suffixes to specify power pole/series combinations

* Except K

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LR2-K0302</td>
<td>Direct mounting on the contactor</td>
</tr>
<tr>
<td>LR2-K0307</td>
<td>Standard overload relays</td>
</tr>
<tr>
<td>LRD-03</td>
<td>Maximum 3 phase power ratings per phase</td>
</tr>
<tr>
<td>LRD-06</td>
<td>Max. inductive current AC3 (3) For LP4-D</td>
</tr>
<tr>
<td>LRD-07</td>
<td>For LP4-D</td>
</tr>
<tr>
<td>LRD-3365</td>
<td>(2) Only LCI, LPI</td>
</tr>
<tr>
<td>LRD-08</td>
<td>(1) Except LC1-D115, LC1-D150</td>
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</tbody>
</table>

### Table of Power Ratings

<table>
<thead>
<tr>
<th>Voltage</th>
<th>DC Consumption (A)</th>
<th>AC Consumption (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>230 V</td>
<td>0.1 0.16 0.25 0.4 0.63 1 1.6 2.5 4</td>
<td>0.2 5 25</td>
</tr>
<tr>
<td>220 V</td>
<td>0.1 0.16 0.25 0.4 0.63 1 1.6 2.5 4</td>
<td>0.2 5 25</td>
</tr>
<tr>
<td>208 V</td>
<td>0.1 0.16 0.25 0.4 0.63 1 1.6 2.5 4</td>
<td>0.2 5 25</td>
</tr>
<tr>
<td>110 V</td>
<td>0.1 0.16 0.25 0.4 0.63 1 1.6 2.5 4</td>
<td>0.2 5 25</td>
</tr>
<tr>
<td>48 V</td>
<td>0.1 0.16 0.25 0.4 0.63 1 1.6 2.5 4</td>
<td>0.2 5 25</td>
</tr>
<tr>
<td>24 V</td>
<td>0.1 0.16 0.25 0.4 0.63 1 1.6 2.5 4</td>
<td>0.2 5 25</td>
</tr>
</tbody>
</table>

### Maximum Wire Sizes

<table>
<thead>
<tr>
<th>Voltage</th>
<th>DC Max. Wire Size</th>
<th>AC Max. Wire Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>400 V</td>
<td>866 MCM 250 MCM</td>
<td>333 MCM 250 MCM</td>
</tr>
<tr>
<td>380 V</td>
<td>866 MCM 250 MCM</td>
<td>333 MCM 250 MCM</td>
</tr>
<tr>
<td>250 V</td>
<td>866 MCM 250 MCM</td>
<td>333 MCM 250 MCM</td>
</tr>
<tr>
<td>460 V</td>
<td>866 MCM 250 MCM</td>
<td>333 MCM 250 MCM</td>
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<tr>
<td>480 V</td>
<td>866 MCM 250 MCM</td>
<td>333 MCM 250 MCM</td>
</tr>
<tr>
<td>380/400 V</td>
<td>866 MCM 250 MCM</td>
<td>333 MCM 250 MCM</td>
</tr>
<tr>
<td>415 V</td>
<td>866 MCM 250 MCM</td>
<td>333 MCM 250 MCM</td>
</tr>
<tr>
<td>1000 V</td>
<td>866 MCM 250 MCM</td>
<td>333 MCM 250 MCM</td>
</tr>
</tbody>
</table>

### Front Mounted Contactors

- Class 10
- 11 004
- 0.36 0.54 0.8 1.2
- 0.11 0.16 0.23 0.36
- 3.7 5.5 8 11.5
- 1.2 1.8 2.6 3.7

### Built-in auxiliary contacts

- LP1-K09
- LP9-K09
- LA1-KN02
- LA1-KN04
- LA1-KN31
- LA1-KN40
- LA1-KN13
- LA1-KN22
- LA1-DZ40
- LA1-D80
- LA1-D150
- LC1-D09
- LC1-D12
- LC1-F185
- LC1-F225
- LC1-F265
- LC1-F330
- LC1-F400
- LC1-F500
- LC1-F630
- LC1-F800
- LC1-BL3
- LC1-BM3

For more information refer to publication 8502CT0101.
**Multifunction overload relays**

- **Low Consumption DC (< 0.2 A)**
  - Maximum 3 phase
  - Max. inductive current AC3

- **Additional blocks**
  - For LP4-D

- **Coil Suffixes**
  - R7 R5 R6 RD* QW R
  - V7 V5 - - QW V
  - U7 U5 U6 - MW U
  - P7 P5 - - MW P
  - 230 V
  - 220 V
  - 208 V
  - 120 V
  - 110 V
  - F7 F5 F6 FD FW F
  - -- L 6 - -
  - 48 V
  - 24 V
  - Hz 50/60 50* 60* … 400 40/400

- **Standard overload relays**
  - DC
  - AC DC DC AC/DC AC

- **Specifications**
  - Low Consumption
  - Built-in auxiliary contacts
  - Additional blocks
  - Front mounted

- **Contactors**
  - AWG
  - A

- **Auxiliary contact configuration**
  - Part number suffixes to specify power pole
  - *Except K*
### Multifunction Overload Relays

- Direct mounting on the contactor
- Low Consumption DC (< 2 A)
- Maximum 3 phase
- Maximum 3 phase
- Max. resistive current AC1
- Max. inductive current AC3
- Only LCI, LPI
- Except LC1-D115, LC1-D150

#### Current Ratings

- **208 V**
  - 1.5, 2.2, 3, 2.2, 3
  - 4 600/690 V kW
  - 5 500 V kW
  - 6 415 V kW
  - 7 380/400 V kW
  - 8 220/230 V kW

- **415 V**
  - 4 660/690 V kW
  - 5 500 V kW
  - 6 415 V kW
  - 7 380/400 V kW
  - 8 220/230 V kW

- **440 V**
  - 4 600/690 V kW
  - 5 500 V kW
  - 6 415 V kW
  - 7 380/400 V kW
  - 8 220/230 V kW

- **480 V**
  - 4 600/690 V kW
  - 5 500 V kW
  - 6 415 V kW
  - 7 380/400 V kW
  - 8 220/230 V kW

- **500 V**
  - 4 500 V kW
  - 5 415 V kW
  - 6 380/400 V kW
  - 7 220/230 V kW

- **557**
  - 5 90 110 0 110 132 160 200 250 kW
  - 6 55 110 0 110 132 160 200 250 kW

- **630**
  - 5 90 110 0 110 132 160 200 250 kW
  - 6 55 110 0 110 132 160 200 250 kW

- **750**
  - 5 90 0 110 132 160 200 250 kW
  - 6 55 0 110 132 160 200 250 kW

- **900**
  - 5 90 0 110 132 160 200 250 kW
  - 6 55 0 110 132 160 200 250 kW

- **1000**
  - 5 90 0 110 132 160 200 250 kW
  - 6 55 0 110 132 160 200 250 kW

- **1100**
  - 5 90 0 110 132 160 200 250 kW
  - 6 55 0 110 132 160 200 250 kW

- **1250**
  - 5 90 0 110 132 160 200 250 kW
  - 6 55 0 110 132 160 200 250 kW

- **1500**
  - 5 90 0 110 132 160 200 250 kW
  - 6 55 0 110 132 160 200 250 kW

- **1800**
  - 5 90 0 110 132 160 200 250 kW
  - 6 55 0 110 132 160 200 250 kW

- **2000**
  - 5 90 0 110 132 160 200 250 kW
  - 6 55 0 110 132 160 200 250 kW

- **2750 A**
  - 5 90 0 110 132 160 200 250 kW
  - 6 55 0 110 132 160 200 250 kW

#### Contact Ratings

- **48 V**
  - 0.11 0.16 0.23 0.36 A

- **550 V**
  - 0.11 0.16 0.23 0.36 A

- **1150 V**
  - 0.11 0.16 0.23 0.36 A

- **208 V**
  - 0.11 0.16 0.23 0.36 A

- **415 V**
  - 0.11 0.16 0.23 0.36 A

- **600 V**
  - 0.11 0.16 0.23 0.36 A

- **1100 V**
  - 0.11 0.16 0.23 0.36 A

- **2200 V**
  - 0.11 0.16 0.23 0.36 A

- **220 V**
  - 0.11 0.16 0.23 0.36 A

- **500 V**
  - 0.11 0.16 0.23 0.36 A

- **1000 V**
  - 0.11 0.16 0.23 0.36 A

- **1100 V**
  - 0.11 0.16 0.23 0.36 A

- **2200 V**
  - 0.11 0.16 0.23 0.36 A

#### Contact Sizes

- **AWG**: 11 004

- **Wires**: 11 004

#### Overload Characteristics

- **Type**: LR2
- **Rating**: 0.11 0.16 0.23 0.36 A
- **Rated Voltage**: 240 V

#### Built-in Auxiliary Contacts

- **Standard overload relays**
  - Built-in auxiliary contacts
  - **Contacts**: NO NC NC NO

#### Protective Features

- **Short-circuit release**: 1- 3 0 s
- **Overload release**: 1- 3 0 s

#### Capacitor Starters

- **Capacitor Starters**: 1- 3 0 s

#### Motor Starter Models

- **Models**: LR2, LR2-K0301, LR2-K0304, LR2-K0312, LR2-K0314

#### Image Annotations

- **Image 1**: Contactors
- **Image 2**: Overload Relays
- **Image 3**: Auxiliary Contacts

#### Table Data

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Contact Configuration</th>
<th>Special Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>LR2-K0301</td>
<td>Multifunction Overload Relay</td>
<td>Direct mounting on the contactor</td>
<td>Low Consumption DC (&lt; 2 A)</td>
</tr>
<tr>
<td>LR2-K0304</td>
<td>Standard Overload Relay</td>
<td>Maximum 3 phase</td>
<td>Max. inductive current AC3</td>
</tr>
<tr>
<td>LR2-K0312</td>
<td>Multifunction Overload Relay</td>
<td>Maximum 3 phase</td>
<td>Max. resistive current AC1</td>
</tr>
<tr>
<td>LR2-K0314</td>
<td>Multifunction Overload Relay</td>
<td>Maximum 3 phase</td>
<td>Only LCI, LPI</td>
</tr>
<tr>
<td>LR2-K0320</td>
<td>Multifunction Overload Relay</td>
<td>Except LC1-D115, LC1-D150</td>
<td>Except LC1-D115, LC1-D150</td>
</tr>
</tbody>
</table>

#### Diagram

- **Diagram 1**: Contactors
- **Diagram 2**: Overload Relays
- **Diagram 3**: Auxiliary Contacts

#### Note

- * Except K

#### Technical Specifications

- **Rated Voltage**: 240 V
- **Rated Current**: 0.11 0.16 0.23 0.36 A
- **Overload Protection**: LR2
- **Contacts**: NO NC NC NO

#### Conclusion

- Multifunction overload relays are designed for direct mounting on the contactor, offering low consumption DC operation with maximum 3 phase current ratings.
- They provide critical overload protection and are suitable for various industrial applications, ensuring reliable performance and safety in electrical systems.
For heavy-duty applications, contactors designed to switch up to 2750 amps for Protection and Intelligence combined.

CV1 Contactors
- For loads up to 950 amps inductive, 1000 amps resistive
- Voltage up to 660 VAC or 440 VDC
- Frequency up to 200 Hz
- Maximum of 5 NO or NC power poles
- Maximum of 7 NO or NC auxiliary poles

CV3 Contactors
- For loads up to 1800 amps inductive, 2750 amps resistive
- Voltage up to 1000 VAC or 1500 VDC
- Frequency up to 400 Hz
- Maximum of 5 NO or NC power poles
- Maximum of 7 NO or NC auxiliary poles

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Manual Starter and Protector
The TELEMECANIQUE GV2 and GV3 devices incorporate a manual disconnect, overload relay and instantaneous magnetic trip mechanism in one compact device. They can be used as standalone manual starters or to protect each branch circuit of a group motor installation.

Enclosed IEC Starters
D-Line starters and INTEGRAL self-protected starters are available in metal NEMA Type 1 and 12 enclosures. These enclosed devices utilize INSTAKIT™ components for the addition of cover mounted pilot devices. INSTAKIT components are pre-wired control operator kits that use a universal connector for quick, easy installation.

Contactors and Thermal Overload Relays from 6 to 2750 A
Schneider Electric Brands
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Visit the Square D web site at www.SquareD.com
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Request document 8539CT9201R6/97

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Request document 252OCT9501R6/97

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Request following documents
- 9502HO9401R0996 - INSTAKIT pre-wired starter access
- 9502HO9402R0996 - D-Line non-combination starters
- 9502HO9403R0996 - INTEGRAL starters
- 8502CT0101 - IEC SMCE contactors and starters
- 8502BR0102-T eSys-The New D-LINE

D-Line, K-Line and F-Line contactors and overload relays are the largest selling motor starting and protection devices in the world. They offer starting for motors up to 800 hp at 480 AC volts and switching of resistive loads up to 1350 amps. They are UL-listed, CSA-certified and CE-marked for use in North America and around the world.

Get more with the world’s Power & Control specialist.
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Visit the Square D web site at www.SquareD.com
For heavy-duty applications, contactors designed to switch up to 2750 amps

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- It enables automatic control of different methods of starting:
  - cross-line (reversing or non-reversing)
  - star/delta
  - 2-speed
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