

# Product data sheet

Specifications



## TeSys F contactor - 3P (3 NO) - AC-3 - <= 440 V 400 A - coil 110 V AC

LC1F400F7

### Main

|                                |  |
|--------------------------------|--|
| Range                          | TeSys  |
| Range of product               | TeSys F  |
| Product or component type      | Contactor  |
| Device short name              | LC1F   |
| Contactor application          | Resistive load<br>Motor control  |
| Utilisation category           | AC-1<br>AC-4<br>AC-3   |
| Poles description              | 3P   |
| [Ue] rated operational voltage | <= 1000 V AC 50/60 Hz<br><= 460 V DC   |
| [Uc] control circuit voltage   | 110 V AC 40...400 Hz   |
| [Ie] rated operational current | 500 A (at <40 °C) at <= 440 V AC AC-1<br>400 A (at <55 °C) at <= 440 V AC AC-3 |

### Complementary

|   |   |
|---|---|
| [Uimp] rated impulse withstand voltage      | 8 kV  |
| [Ith] conventional free air thermal current | 500 A (at 40 °C)  |
| Rated breaking capacity                     | 3200 A conforming to IEC 60947-4-1  |
| [Icw] rated short-time withstand current    | 3600 A 40 °C - 10 s<br>2400 A 40 °C - 30 s<br>1700 A 40 °C - 1 min<br>1200 A 40 °C - 3 min<br>1000 A 40 °C - 10 min |
| Associated fuse rating                      | 400 A aM at <= 440 V<br>500 A gG at <= 440 V  |
| Average impedance                           | 0.26 mOhm - Ith 500 A 50 Hz   |
| [Ui] rated insulation voltage               | 1000 V conforming to IEC 60947-4-1<br>1500 V conforming to VDE 0110 group C   |
| Power dissipation per pole                  | 65 W AC-1<br>42 W AC-3  |
| Overvoltage category                        | III   |
| Power pole contact composition              | 3 NO  |

|  |  |
|--|--|
| <b>Motor power kW</b>  | 75 kW at 400 V AC 50/60 Hz (AC-4)<br>200 kW at 380...400 V AC 50/60 Hz (AC-3)<br>220 kW at 415 V AC 50/60 Hz (AC-3)<br>250 kW at 440 V AC 50/60 Hz (AC-3)<br>257 kW at 500 V AC 50/60 Hz (AC-3)<br>280 kW at 660...690 V AC 50/60 Hz (AC-3)<br>185 kW at 1000 V AC 50/60 Hz (AC-3)<br>110 kW at 220...230 V AC 50/60 Hz (AC-3)   |
| <b>Control circuit voltage limits</b>                        | Operational: 0.85...1.1 Uc 40...400 Hz (at 55 °C)<br>Drop-out: 0.3...0.5 Uc 40...400 Hz (at 55 °C)   |
| <b>Mechanical durability</b>                                 | 10 Mcycles   |
| <b>Inrush power in VA</b>                                    | 1075 VA, 40...400 Hz cos phi 0.9 (at 20 °C)  |
| <b>Hold-in power consumption in VA</b>                       | 15 VA, 40...400 Hz cos phi 0.9 (at 20 °C)  |
| <b>Maximum operating rate</b>                                | 2400 cyc/h 55 °C   |
| <b>Operating time</b>  | 40...65 ms closing<br>100...170 ms opening   |
| <b>Connections - terminals</b>                               | Control circuit: screw clamp terminals 1 cable(s) 1...4 mm <sup>2</sup> flexible without cable end<br>Control circuit: screw clamp terminals 2 cable(s) 1...4 mm <sup>2</sup> flexible without cable end<br>Control circuit: screw clamp terminals 1 cable(s) 1...4 mm <sup>2</sup> flexible with cable end<br>Control circuit: screw clamp terminals 2 cable(s) 1...2.5 mm <sup>2</sup> flexible with cable end<br>Control circuit: screw clamp terminals 1 cable(s) 1...4 mm <sup>2</sup> solid without cable end<br>Control circuit: screw clamp terminals 2 cable(s) 1...4 mm <sup>2</sup> solid without cable end<br>Power circuit: bar 2 cable(s) - busbar cross section: 30 x 5 mm<br>Power circuit: lugs-ring terminals 2 cable(s) 150 mm <sup>2</sup><br>Power circuit: bolted connection |
| <b>Tightening torque</b>                                     | Control circuit: 1.2 N.m<br>Power circuit: 35 N.m  |
| <b>Mounting support</b>                                      | Plate  |
| <b>Heat dissipation</b>                                      | 14 W   |
| <b>Motor power range</b>                                     | 110...220 kW at 480...500 V 3 phases<br>110...220 kW at 380...440 V 3 phases<br>110...220 kW at 200...240 V 3 phases<br>250...500 kW at 480...500 V 3 phases   |
| <b>Motor starter type</b>                                    | Direct on-line contactor   |
| <b>Contactor coil voltage</b>                                | 110 V AC standard  |
| <b>Standards</b>   | IEC 60947-1<br>JIS C8201-4-1<br>IEC 60947-4-1<br>EN 60947-4-1<br>EN 60947-1  |
| <b>Product certifications</b>                                | BV<br>UL<br>CB<br>ABS<br>RINA<br>CSA<br>RMRoS<br>DNV<br>LROS (Lloyds register of shipping)<br>UKCA   |
| <b>Compatibility code</b>                                    | LC1F   |
| <b>Control circuit type</b>                                  | AC at 40...400 Hz  |
| <b>Environment</b>   |  |
| <b>IP degree of protection</b>                               | IP20 front face with shrouds conforming to IEC 60529<br>IP20 front face with shrouds conforming to VDE 0106  |
| <b>Protective treatment</b>                                  | TH   |
| <b>Ambient air temperature for operation</b>                 | -5...55 °C   |
| <b>Ambient air temperature for storage</b>                   | -60...80 °C  |
| <b>Permissible ambient air temperature around the device</b> | -40...70 °C  |

|                    |                         |
|--------------------|-------------------------|
| Height             | 206 mm                  |
| Width              | 213 mm                  |
| Depth              | 219 mm                  |
| Operating altitude | 3000 m without derating |
| Net weight         | 9.1 kg                  |

## Packing Units

|                              |           |
|------------------------------|-----------|
| Unit Type of Package 1       | PCE       |
| Number of Units in Package 1 | 1         |
| Package 1 Height             | 25.0 cm   |
| Package 1 Width              | 29.0 cm   |
| Package 1 Length             | 24.0 cm   |
| Package 1 Weight             | 9.26 kg   |
| Unit Type of Package 2       | P06       |
| Number of Units in Package 2 | 10        |
| Package 2 Height             | 77.0 cm   |
| Package 2 Width              | 80.0 cm   |
| Package 2 Length             | 60.0 cm   |
| Package 2 Weight             | 102.05 kg |

## Offer Sustainability

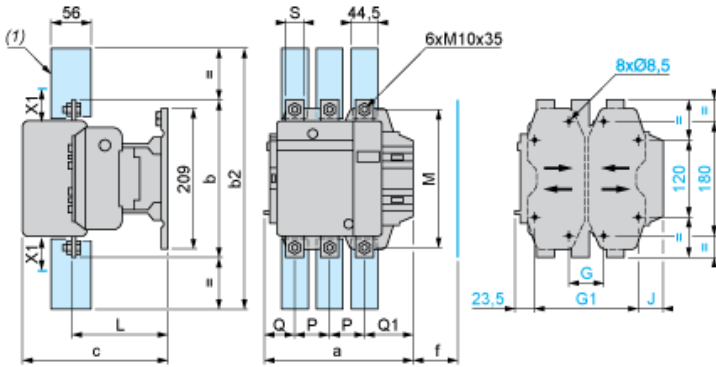
|                            |   |
|----------------------------|---|
| Sustainable offer status   | Green Premium product   |
| REACH Regulation           | <a href="#">REACH Declaration</a>   |
| EU RoHS Directive          | Compliant<br><a href="#">EU RoHS Declaration</a>  |
| Mercury free               | Yes   |
| China RoHS Regulation      | <a href="#">China RoHS declaration</a><br>Product out of China RoHS scope. Substance declaration for your information   |
| RoHS exemption information | <a href="#">Yes</a>   |
| Environmental Disclosure   | <a href="#">Product Environmental Profile</a>   |
| Circularity Profile        | <a href="#">End of Life Information</a>   |
| WEEE                       | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins   |
| California proposition 65  | WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a> |

## Contractual warranty

|          |           |
|----------|-----------|
| Warranty | 18 months |
|----------|-----------|

**Dimensions and Drawings**

**LC1 F400 and F500**



(1) Power terminal protection shroud

**NOTE:** X1 (mm) = Minimum electrical clearance according to operating voltage and breaking capacity.

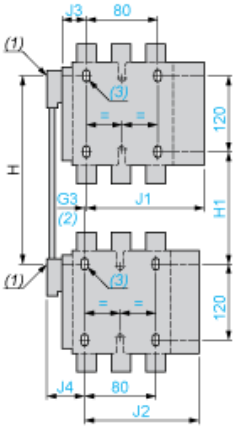
|      |             |              |
|------|-------------|--------------|
| LC1  | 200...500 V | 600...1000 V |
| F400 | 15          | 20           |
| F500 | 15          | 20           |

| LC1  |    | a   | b   | b2  | c   | f   | G suppl | G min. | G max | G1 sup | G1 mir | G1 ma | J    | L   | M   | P  | Q  | Q1  | S  |
|------|----|-----|-----|-----|-----|-----|---------|--------|-------|--------|--------|-------|------|-----|-----|----|----|-----|----|
| F400 | 2P | 213 | 206 | 375 | 219 | 146 | 80      | 66     | 102   | 170    | 156    | 192   | 19.5 | 145 | 181 | 48 | 69 | 96  | 25 |
|      | 3P | 213 | 206 | 375 | 219 | 146 | 80      | 66     | 102   | 170    | 156    | 192   | 19.5 | 145 | 181 | 48 | 43 | 74  | 25 |
|      | 4P | 261 | 206 | 375 | 219 | 146 | 80      | 66     | 150   | 170    | 156    | 240   | 67.5 | 145 | 181 | 48 | 43 | 74  | 25 |
| F500 | 2P | 233 | 238 | 400 | 232 | 150 | 80      | 66     | 120   | 170    | 156    | 210   | 39.5 | 146 | 208 | 55 | 76 | 102 | 30 |
|      | 3P | 233 | 238 | 400 | 232 | 150 | 80      | 66     | 120   | 170    | 156    | 210   | 39.5 | 146 | 208 | 55 | 46 | 77  | 30 |
|      | 4P | 288 | 238 | 400 | 232 | 150 | 140     | 66     | 175   | 230    | 156    | 265   | 34.5 | 146 | 208 | 55 | 46 | 77  | 30 |

**TeSys F reversing contactors and changeover contactor pairs Vertically mounted**

**NOTE:** For customer assembly, with mechanical interlock (MI) LA9 F, fixing recommended on AM1 EC uprights (please consult your Regional Sales Office). 2 x LC1 identical or different ratings (LC1 F115 to F630 and F800).

**Assembly A**



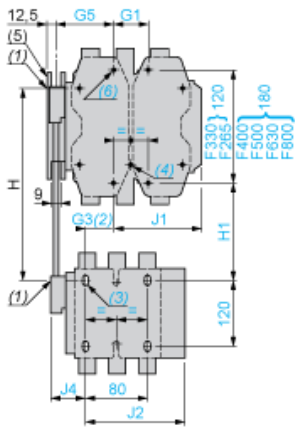
- (1) Mechanical interlock shaft.
- (2) For assembly of contactors of different ratings only.
- (3) 4 x Ø6.5 for LC1 F115 to F225.

**Assembly A<sup>(7)</sup> - Mechanical interlock reference**

|          | G3 3P | G3 4P | H min. | H max. | H1 min. | H1 max. | J1 3P | J1 4P |
|----------|-------|-------|--------|--------|---------|---------|-------|-------|
| LA9 FF4F | 0     | 0     | 200    | 310    | 80      | 190     | 137   | 155.5 |
| LA9 FG4F | 3     | 4     | 210    | 300    | 90      | 180     | 139.5 | 159.5 |
| LA9 FG4G | 0     | 0     | 220    | 310    | 100     | 190     | 139.5 | 159.5 |

|          | J2 3P | J2 4P | J3 3P | J3 4P | J4 3P | J4 4P |
|----------|-------|-------|-------|-------|-------|-------|
| LA9 FF4F | 137   | 155.5 | 48.5  | 67    | 48.5  | 67    |
| LA9 FG4F | 137   | 155.5 | 53    | 73    | 54    | 69    |
| LA9 FG4G | 139.5 | 159.5 | 53    | 73    | 53    | 73    |

**Assembly B**

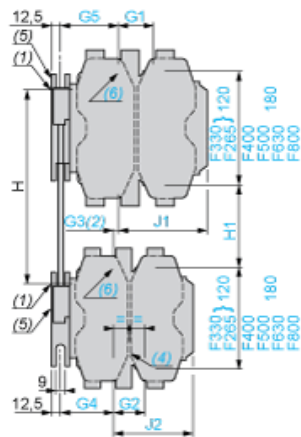


- (4) 4 x Ø6.5 for LC1 F265.
- (5) Mechanical interlock guide bracket.

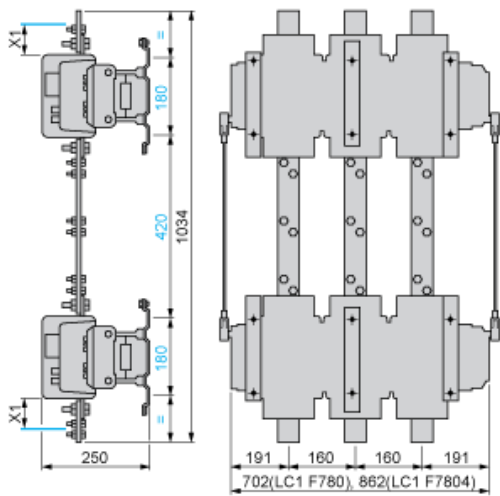
Assembly B<sup>(7)</sup> - Mechanical interlock reference

|          | G1 3P   | G1 4P   | G3 3P | G3 4P | G5 3P | G5 4P | H min. | H max. |
|----------|---------|---------|-------|-------|-------|-------|--------|--------|
| LA9 FH4F | 96      | 96      | 21    | 27    | 60    | 83    | 240    | 380    |
| LA9 FJ4F | 80      | 80      | 45    | 26    | 83    | 83    | 250    | 380    |
| LA9 FK4F | 80      | 140     | 45    | 26    | 83    | 83    | 270    | 380    |
| LA9 FL4F | 180     | 240     | 35    | 17    | 74    | 74    | 310    | 380    |
| LA9 FH4G | 96      | 96      | 19    | 23    | 60    | 83    | 250    | 380    |
| LA9 FJ4G | 80      | 80      | 42    | 22    | 83    | 83    | 250    | 380    |
| LA9 FK4G | 80      | 140     | 42    | 22    | 83    | 83    | 270    | 380    |
| LA9 FL4G | 180     | 240     | 33    | 13    | 74    | 74    | 310    | 380    |
|          | H1 min. | H1 max. | J1 3P | J1 4P | J2 3P | J2 4P | J4 3P  | J4 4P  |
| LA9 FH4F | 110     | 250     | 157.5 | 181.5 | 137   | 155.5 | 48.5   | 67     |
| LA9 FJ4F | 80      | 210     | 144.5 | 192.5 | 137   | 155.5 | 48.5   | 67     |
| LA9 FK4F | 100     | 210     | 164.5 | 219.5 | 137   | 155.5 | 48.5   | 67     |
| LA9 FL4F | 140     | 210     | 248.5 | 328.5 | 137   | 155.5 | 48.5   | 67     |
| LA9 FH4G | 120     | 250     | 157.5 | 181.5 | 139.5 | 159.5 | 53     | 73     |
| LA9 FJ4G | 90      | 220     | 144.5 | 192.5 | 139.5 | 159.5 | 53     | 73     |
| LA9 FK4G | 110     | 220     | 164.5 | 219.5 | 139.5 | 159.5 | 53     | 73     |
| LA9 FL4G | 150     | 220     | 248.5 | 328.5 | 139.5 | 159.5 | 53     | 73     |

Assembly C



- (6) 4 x Ø8.5 for LC1 F400, F500 or 4 x Ø10.5 for LC1 F630 and F800.



(7) Only 3P for F800.

(8) In this case, G4 is greater than G5.

Assembly C<sup>(7)</sup>

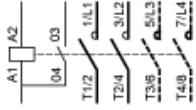
|          | G1 3P | G1 4P | G2 3P | G2 4P | G3 3P            | G3 4P            | G4 3P | G4 4P | G5 3P | G5 4P |
|----------|-------|-------|-------|-------|------------------|------------------|-------|-------|-------|-------|
| LA9 FH4H | 96    | 96    | 96    | 96    | 0                | 0                | 60    | 83    | 60    | 83    |
| LA9 FJ4H | 80    | 80    | 96    | 96    | 23               | 0                | 60    | 83    | 83    | 83    |
| LA9 FK4H | 80    | 140   | 96    | 96    | 23               | 0                | 60    | 83    | 83    | 83    |
| LA9 FL4H | 180   | 240   | 96    | 96    | 14               | g <sup>(8)</sup> | 60    | 83    | 74    | 74    |
| LA9 FJ4J | 80    | 80    | 80    | 80    | 0                | 0                | 83    | 83    | 83    | 83    |
| LA9 FK4J | 80    | 140   | 80    | 80    | 0                | 0                | 83    | 83    | 83    | 83    |
| LA9 FL4J | 180   | 240   | 80    | 80    | g <sup>(8)</sup> | g <sup>(8)</sup> | 83    | 83    | 74    | 74    |
| LA9 FK4K | 80    | 140   | 80    | 140   | 0                | 0                | 83    | 83    | 83    | 83    |
| LA9 FL4K | 180   | 240   | 80    | 140   | g <sup>(8)</sup> | g <sup>(8)</sup> | 83    | 83    | 74    | 74    |
| LA9 FL4L | 180   | 240   | 180   | 240   | 0                | 0                | 74    | 74    | 74    | 74    |

|          | H min. | H max. | H1 min. | H1 max. | J1 3P | J1 4P | J2 3P | J2 4P |
|----------|--------|--------|---------|---------|-------|-------|-------|-------|
| LA9 FH4H | 250    | 380    | 130     | 260     | 157.5 | 181.5 | 157.5 | 181.5 |
| LA9 FJ4H | 260    | 380    | 110     | 230     | 144.5 | 192.5 | 157.5 | 181.5 |
| LA9 FK4H | 280    | 380    | 130     | 230     | 164.5 | 219.5 | 157.5 | 181.5 |
| LA9 FL4H | 330    | 380    | 170     | 220     | 248.5 | 328.5 | 157.5 | 181.5 |
| LA9 FJ4J | 260    | 380    | 60      | 200     | 144.5 | 192.5 | 144.5 | 192.5 |
| LA9 FK4J | 280    | 380    | 100     | 200     | 164.5 | 219.5 | 144.5 | 192.5 |
| LA9 FL4J | 325    | 380    | 140     | 195     | 248.5 | 329.5 | 144.5 | 192.5 |
| LA9 FK4K | 300    | 380    | 120     | 200     | 164.5 | 329.5 | 164.5 | 219.5 |
| LA9 FL4K | 345    | 380    | 160     | 195     | 248.5 | 328.5 | 164.5 | 219.5 |
| LA9 FL4L | 380    | 380    | 200     | 200     | 248.5 | 328.5 | 248.5 | 328.5 |

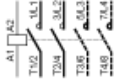
Connections and Schema

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2, 3, and 4-pole Contactors



LC1 F115 to F630, F1250(coil LX1 F ~)



LC1 F115 to F630 , F1250 (coil LX4 F ≡)

LC1 F115 to F265 (coil LX9 F ~)

LC1 F800 (coil LX8 F ~ / ≡)