



### Main

|                                |   |
|--------------------------------|---|
| Range                          | TeSys   |
| Product name                   | TeSys F   |
| Product or component type      | Contacteur  |
| Device short name              | LC1F  |
| Contacteur application         | Resistive load<br>Motor control   |
| Utilisation category           | AC-1<br>AC-4<br>AC-3  |
| Poles description              | 3P  |
| Power pole contact composition | 3 NO  |
| [Ue] rated operational voltage | <= 1000 V AC 50/60 Hz<br><= 460 V DC  |
| [Ie] rated operational current | 350 A 104 °F (40 °C) <= 440 V AC AC-1<br>265 A 131 °F (55 °C) <= 440 V AC AC-3  |
| Motor power kW                 | 132 kW 380...400 V AC 50/60 Hz AC-3)<br>140 kW 415 V AC 50/60 Hz AC-3)<br>140 kW 440 V AC 50/60 Hz AC-3)<br>160 kW 500 V AC 50/60 Hz AC-3)<br>160 kW 660...690 V AC 50/60 Hz AC-3)<br>147 kW 1000 V AC 50/60 Hz AC-3)<br>75 kW 220...230 V AC 50/60 Hz AC-3)<br>51 kW 400 V AC 50/60 Hz AC-4) |
| [Uc] control circuit voltage   | 110 V AC 40...400 Hz  |

### Complementary

|  |      |
|--|------|
| [Uimp] rated impulse withstand voltage | 8 kV |
| Overvoltage category                   | III  |

\* Price is "List Price" and may be subject to a trade discount – check with your local distributor or retailer for actual price.

|  |   |
|--|---|
| [I <sub>th</sub> ] conventional free air thermal current | 350 A 104 °F (40 °C)  |
| Rated breaking capacity                                  | 2120 A IEC 60947-4-1  |
| [I <sub>cw</sub> ] rated short-time withstand current    | 2200 A 104 °F (40 °C) - 10 s<br>1230 A 104 °F (40 °C) - 30 s<br>950 A 104 °F (40 °C) - 1 min<br>620 A 104 °F (40 °C) - 3 min<br>480 A 104 °F (40 °C) - 10 min   |
| Associated fuse rating                                   | 315 A aM <= 440 V<br>400 A gG <= 440 V  |
| Average impedance  | 0.3 mOhm - I <sub>th</sub> 350 A 50 Hz  |
| [U <sub>i</sub> ] rated insulation voltage               | 1000 V conforming to IEC 60947-4-1<br>1500 V conforming to VDE 0110 group C   |
| Power dissipation per pole                               | 37 W AC-1<br>21 W AC-3  |
| Mounting support   | Plate   |
| Standards  | EN 60947-4-1<br>JIS C8201-4-1<br>EN 60947-1<br>IEC 60947-1<br>IEC 60947-4-1   |
| Product certifications                                   | BV<br>RINA<br>CSA<br>UL<br>DNV<br>RMRoS<br>CB<br>LROS (Lloyds register of shipping)<br>ABS  |
| Connections - terminals                                  | Control circuit screw clamp terminals 1 0.00...0.01 in <sup>2</sup> (1...4 mm <sup>2</sup> )flexible without cable end<br>Control circuit screw clamp terminals 2 0.00...0.01 in <sup>2</sup> (1...4 mm <sup>2</sup> )flexible without cable end<br>Control circuit screw clamp terminals 1 0.00...0.01 in <sup>2</sup> (1...4 mm <sup>2</sup> )flexible with cable end<br>Control circuit screw clamp terminals 2 0.00...0.00 in <sup>2</sup> (1...2.5 mm <sup>2</sup> )flexible with cable end<br>Control circuit screw clamp terminals 1 0.00...0.01 in <sup>2</sup> (1...4 mm <sup>2</sup> )solid without cable end<br>Control circuit screw clamp terminals 2 0.00...0.01 in <sup>2</sup> (1...4 mm <sup>2</sup> )solid without cable end<br>Power circuit: bar 2 cable(s) - busbar cross section: 32 x 4 mm<br>Power circuit: lugs-ring terminals 1 cable(s) 240 mm <sup>2</sup><br>Power circuit connector 1 0.37 in <sup>2</sup> (240 mm <sup>2</sup> )<br>Power circuit: bolted connection |
| Tightening torque  | Control circuit 10.62 lbf.in (1.2 N.m)<br>Power circuit: 35 N.m   |
| Control circuit voltage limits                           | Operational: 0.85...1.1 U <sub>c</sub> 40...400 Hz (at 55 °C)<br>Drop-out 0.15...0.2 U <sub>c</sub> 40...400 Hz 131 °F (55 °C))   |
| Inrush power in VA                                       | 650 VA 40...400 Hz 0.9 68 °F (20 °C))   |
| Hold-in power consumption in VA                          | 10 VA 40...400 Hz cos phi 0.9 (at 20 °C)  |
| Heat dissipation   | 8 W   |
| Operating time   | 40...65 ms closing<br>100...170 ms opening  |
| Mechanical durability                                    | 10 Mcycles  |
| Maximum operating rate                                   | 2400 cyc/h 55 °C  |
| Compatibility code                                       | LC1F  |
| Motor power range  | 55...100 kW 200...240 V 3 phase<br>110...220 kW 480...500 V 3 phase<br>110...220 kW at 380...440 V 3 phases   |
| Motor starter type                                       | Direct on-line contactor  |
| Contactor coil voltage                                   | 110 V AC standard   |

## Environment

|                                       |   |
|---------------------------------------|---|
| IP degree of protection               | IP20 front face with shrouds conforming to IEC 60529<br>IP20 front face with shrouds conforming to VDE 0106 |
| Protective treatment                  | TH  |
| Ambient air temperature for operation | 23...131 °F (-5...55 °C)  |

|   |                            |
|---|----------------------------|
| Ambient air temperature for storage                   | -76...176 °F (-60...80 °C) |
| Permissible ambient air temperature around the device | -40...158 °F (-40...70 °C) |
| Height  | 7.99 in (203 mm)           |
| Width   | 7.93 in (201.5 mm)         |
| Depth   | 8.39 in (213 mm)           |
| Net Weight  | 16.40 lb(US) (7.44 kg)     |

### Ordering and shipping details

|                       |                                   |
|-----------------------|-----------------------------------|
| Category              | 22336 - CTR,F-LINE,AC,OPEN,NONREV |
| Discount Schedule     | I12                               |
| GTIN                  | 00785901020349                    |
| Nbr. of units in pkg. | 1                                 |
| Package weight(Lbs)   | 17.73 lb(US) (8.04 kg)            |
| Returnability         | Yes                               |
| Country of origin     | CZ                                |

### Packing Units

|                        |                            |
|------------------------|----------------------------|
| Unit Type of Package 1 | PCE                        |
| Package 1 Height       | 9.84 in (25 cm)            |
| Package 1 width        | 10.04 in (25.5 cm)         |
| Package 1 Length       | 10.24 in (26 cm)           |
| Package 2 Weight       | 230.09 lb(US) (104.368 kg) |

### Offer Sustainability

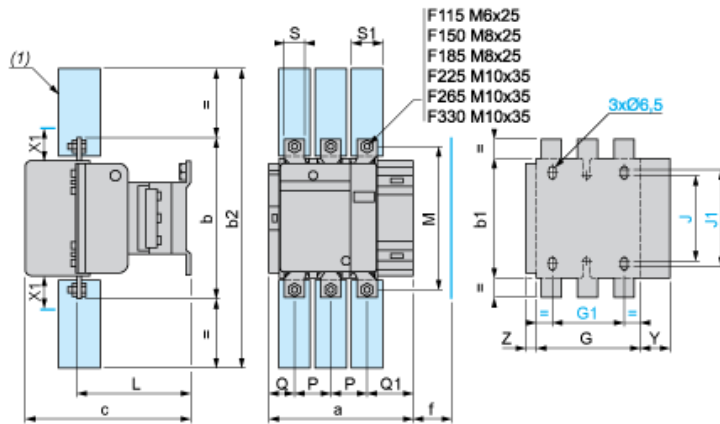
|                            |   |
|----------------------------|---|
| Sustainable offer status   | Green Premium product   |
| California proposition 65  | WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a> |
| REACH Regulation           | <a href="#">REACH Declaration</a>   |
| EU RoHS Directive          | Compliant<br><a href="#">EU RoHS Declaration</a>  |
| Mercury free               | Yes   |
| RoHS exemption information | <a href="#">Yes</a>   |
| China RoHS Regulation      | <a href="#">China RoHS declaration</a><br>Product out of China RoHS scope. Substance declaration for your information.  |
| 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.  |
| PVC free                   | Yes   |

### Contractual warranty

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

## Dimensions and Drawings

### LC1 F115 to F330



(1) Power terminal protection shroud

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

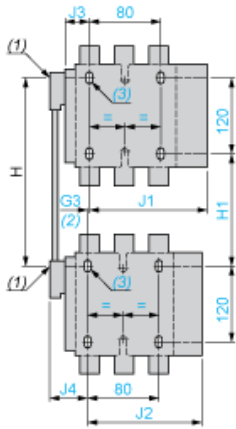
| LC1        | 200...500 V | 600...1000 V |
|------------|-------------|--------------|
| F115, F150 | 10          | 15           |
| F185       | 10          | 15           |
| F225, F265 | 10          | 15           |
| F330       | 10          | 15           |

| LC1  |    | a     | b   | b1  | b2  | c   | f   | G     | G1 | J   | J1  | L     | M   | P  | Q    | Q1   | S  | S1   | Y  | Z    |
|------|----|-------|-----|-----|-----|-----|-----|-------|----|-----|-----|-------|-----|----|------|------|----|------|----|------|
| F115 | 3P | 163.5 | 162 | 137 | 265 | 171 | 131 | 106   | 80 | 106 | 120 | 107   | 147 | 37 | 29.5 | 60   | 20 | 26   | 44 | 13.5 |
|      | 4P | 200.5 | 162 | 137 | 265 | 171 | 131 | 143   | 80 | 106 | 120 | 107   | 147 | 37 | 29.5 | 60   | 20 | 26   | 44 | 13.5 |
| F150 | 3P | 163.5 | 170 | 137 | 301 | 171 | 131 | 106   | 80 | 106 | 120 | 107   | 150 | 40 | 26   | 57.5 | 20 | 34   | 44 | 13.5 |
|      | 4P | 200.5 | 170 | 137 | 301 | 171 | 131 | 143   | 80 | 106 | 120 | 107   | 150 | 40 | 26   | 55.5 | 20 | 34   | 44 | 13.5 |
| F185 | 3P | 168.5 | 174 | 137 | 305 | 181 | 130 | 111   | 80 | 106 | 120 | 113.5 | 154 | 40 | 29   | 59.5 | 20 | 34   | 44 | 13.5 |
|      | 4P | 208.5 | 174 | 137 | 305 | 181 | 130 | 151   | 80 | 106 | 120 | 113.5 | 154 | 40 | 29   | 59.5 | 20 | 34   | 44 | 13.5 |
| F225 | 3P | 168.5 | 197 | 137 | 364 | 181 | 130 | 111   | 80 | 106 | 120 | 113.5 | 172 | 48 | 21   | 51.5 | 25 | 44.5 | 44 | 13.5 |
|      | 4P | 208.5 | 197 | 137 | 364 | 181 | 130 | 151   | 80 | 106 | 120 | 113.5 | 172 | 48 | 17   | 47.5 | 25 | 44.5 | 44 | 13.5 |
| F265 | 3P | 201.5 | 203 | 145 | 375 | 213 | 147 | 142   | 96 | 106 | 120 | 141   | 178 | 48 | 39   | 66.5 | 25 | 44.5 | 38 | 21.5 |
|      | 4P | 244.5 | 203 | 145 | 375 | 213 | 147 | 190   | 96 | 106 | 120 | 141   | 178 | 48 | 34   | 66.5 | 25 | 44.5 | 38 | 16.5 |
| F330 | 3P | 213   | 206 | 145 | 375 | 219 | 147 | 154.5 | 96 | 106 | 120 | 145   | 181 | 48 | 43   | 74   | 25 | 44.5 | 38 | 20.5 |
|      | 4P | 261   | 206 | 145 | 375 | 219 | 147 | 202.5 | 96 | 106 | 120 | 145   | 181 | 48 | 43   | 74   | 25 | 44.5 | 38 | 20.5 |

### 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



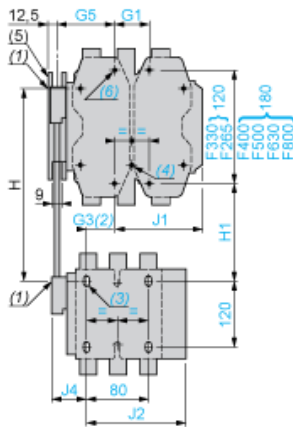
- (1) Mechanical interlock shaft.
- (2) For assembly of contactors of different ratings only.
- (3) 4 x Ø6.5 for LC1 F115 to F225.

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



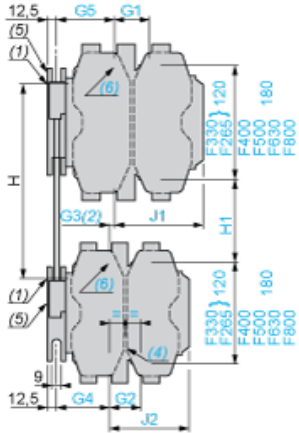
- (4) 4 x Ø6.5 for LC1 F265.
- (5) Mechanical interlock guide bracket.

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

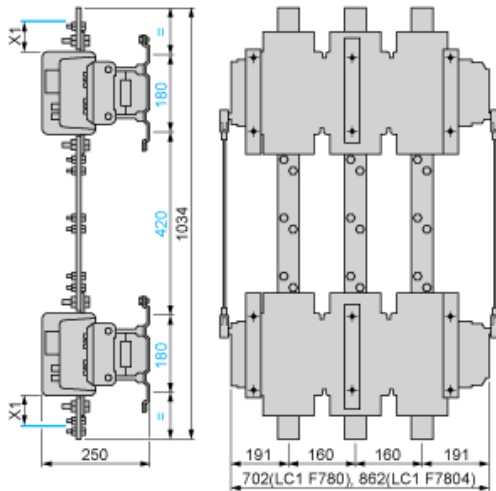
|          | G1 3P | G1 4P | G3 3P | G3 4P | G5 3P | G5 4P | H min. | H max. |
|----------|-------|-------|-------|-------|-------|-------|--------|--------|
| LA9 FH4F | 96    | 96    | 21    | 27    | 60    | 83    | 240    | 380    |
| LA9 FJ4F | 80    | 80    | 45    | 26    | 83    | 83    | 250    | 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    |

|          | G1 3P | G1 4P | G2 3P | G2 4P | G3 3P            | G3 4P            | G4 3P | G4 4P | G5 3P | G5 4P |
|----------|-------|-------|-------|-------|------------------|------------------|-------|-------|-------|-------|
| 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 |

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## 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 ~ / ☰)