Technical Data for Designers

Contents
Direct-on-line / Reversing starters ...... A2/20 to A2/23
Star-delta starters .......................... A2/24 to A2/28
Dimensions, mounting - Direct-on-line and reversing

Motor starters - open version
Combination automatic motor starters

GV2 ME K
On mounting rail AM1 DE200

GV2 ME K1

GV2 ME K2

GV2 DM
On mounting rail AM1 DE200

GV2 DM1

GV2 DM2

GV2 DM contactor with AC or DC coil on mounting rail AM1DE200

<table>
<thead>
<tr>
<th>GV2</th>
<th>DMe02 to DMe20</th>
<th>DMe21 to DMe32</th>
</tr>
</thead>
<tbody>
<tr>
<td>b</td>
<td>177</td>
<td>187</td>
</tr>
<tr>
<td>c</td>
<td>106</td>
<td>113</td>
</tr>
<tr>
<td>c1</td>
<td>96</td>
<td>103</td>
</tr>
</tbody>
</table>

GV2 DP
On mounting rail AM1 DE200

GV2 DP1

GV2 DP2

GV2 DP contactor with AC or DC coil on mounting rail

<table>
<thead>
<tr>
<th>GV2</th>
<th>DP02 to DP08</th>
<th>DP10 to DP32</th>
</tr>
</thead>
<tbody>
<tr>
<td>b</td>
<td>178</td>
<td>188</td>
</tr>
<tr>
<td>c</td>
<td>111</td>
<td>118</td>
</tr>
<tr>
<td>c1</td>
<td>101</td>
<td>108</td>
</tr>
<tr>
<td>d</td>
<td>107</td>
<td>107</td>
</tr>
<tr>
<td>d1</td>
<td>97</td>
<td>97</td>
</tr>
</tbody>
</table>

References:
pages A2/2 to A2/7

Schemes:
pages A2/22 and A2/23
Motor starters - open version
Combination automatic motor starters

GV3 P + LC1 D40A…D65A (for customer assembly)

Vertical mounting

Side by side mounting with S-shape busbar system GV3 S

GV3 P + LC2 D40A…D65A (for customer assembly)

Vertical mounting

Side by side mounting with S-shape busbar system GV3 S

(1) For several side-by-side motor starters, the maximum current allowed is equal to the nominal current under 400 V. Example: 55 A for a 30 kW motor under 400 V, for a GV3 P65 circuit breaker and a LC1 D65A contactor association.

(2) The maximum current allowed is equal to 90 % of maximum current. Example: 45 A for a LC1 D50A contactor.

References:
pages A2/6 and A2/7

Schemes:
page A2/23
Schemes - Direct-on-line and reversing
Motor starters - open version
Combination automatic motor starters

GV2 ME••K1••

GV2 ME••K2••

GV2 DM1••••

GV2 DM2••••

References:
pages A2/2 to A2/5

Dimensions:
page A2/20
Motor starters - open version
Combination automatic motor starters

**GV2 DP1**

**GV2 DP2**

Mechanical interlock with integral electrical contacts

Control circuit

References:
pages A2/6 and A2/7

Dimensions:
pages A2/20 and A2/21
This method of starting is applicable to motors on which all 6 stator terminals are accessible and whose delta connection voltage corresponds to the mains voltage.

Star-delta starting should be used for motors starting on no-load or having a low load torque and gradual build-up:
- the starting torque in star connection is reduced to one third of the direct starting torque, i.e. about 50 % of the rated torque.
- the starting current in star connection is about 1.8 to 2.6 times the rated current.

The transition from star to delta connection must occur when the machine has run up to speed. A too rapid build-up in load torque would cause the stabilised run-up speed to be too low and would therefore eliminate any advantage in this method of starting; this is the case with certain machines whose load torque depends on the machine speed (a characteristic of centrifugal machines, for example).

All star-delta starters are supplied with a special LAD S2 or LA2 KT2 time delay relay which imposes a delay on the delta contactor during the transition period in order to allow the star contactor sufficient breaking time.

For ratings D115 and D150, this function is performed by a time delay auxiliary contact block LAD T2 and a control relay.

(1) Motor manufacturers generally specify machine load torques.
Example: maximum resistive torque on completion of star-delta start (expressed as a proportion of the rated torque).
Motor starters - open version

Star-delta starters

**Dimensions**

<table>
<thead>
<tr>
<th>Star-delta starters</th>
<th>Pre-assembled:</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC3 K</td>
<td>LC3 D09A...D32A</td>
</tr>
<tr>
<td></td>
<td>For customer assembly: 3 x LC1 D with components D09 to D32</td>
</tr>
</tbody>
</table>

On starters LC3 D09A to D18A, a connection block is mounted on the upper part of contactor KM2, increasing the overall height of the product by 6.5 mm.

Pre-assembled: LC3 D80

For customer assembly: 3 x LC1 D with components D80

**References:**

pages A2/8 to A2/13

**Schemes:**

page A2/26
**Dimensions, schemes - Star-delta**

**Motor starters - open version**

Star-delta starters

---

**Dimensions**

**Star-delta starters**

On mounting rail AM1 DP, pre-assembled

<table>
<thead>
<tr>
<th></th>
<th>LC3 D090A à D320A</th>
</tr>
</thead>
<tbody>
<tr>
<td>b</td>
<td>153 - 137</td>
</tr>
<tr>
<td>c</td>
<td>139 - 145</td>
</tr>
<tr>
<td></td>
<td>with LAD S and sealing cover 143 - 149</td>
</tr>
</tbody>
</table>

---

**Schemes**

LC3 K, LC3 D09A to D80
LC3 D09A to D320A

---

**Note:** LC3 D09A to D18A: Mechanical interlock between KM3 and KM1.

---

LC3 D115 and D150

---

Recommended cabling for reversal of motor rotation (standard motor, viewed from shaft end).

---

References:

pages A2/8 to A2/13

---

(1) Recommended cabling for reversal of motor rotation (standard motor, viewed from shaft end).

(2) Remote control.
# Dimensions - Star-delta

## Motor starters - open version

Star-delta starters

### Dimensions

**Chassis mounted starters**

Pre-assembled: LC3 F185 to LC3 F400

For customer assembly: 2 x LC1 F&&& and 1 x LC1 D150 or 3 x LC1 F&&&

---

#### LC3 F185 or 2 x LC1 F&&& + 1 x LC1 D with components F185

<table>
<thead>
<tr>
<th>a</th>
<th>b</th>
<th>c</th>
<th>G</th>
<th>H</th>
<th>K</th>
<th>K1</th>
<th>K2</th>
<th>K3</th>
<th>K4</th>
</tr>
</thead>
<tbody>
<tr>
<td>565</td>
<td>675</td>
<td>235</td>
<td>525</td>
<td>625</td>
<td>160</td>
<td>110</td>
<td>80</td>
<td>110</td>
<td>80</td>
</tr>
</tbody>
</table>

#### LC3 F225 or 3 x LC1 F&&& with components F225

<table>
<thead>
<tr>
<th>a</th>
<th>b</th>
<th>c</th>
<th>G</th>
<th>H</th>
<th>K</th>
<th>K1</th>
<th>K2</th>
<th>K3</th>
<th>K4</th>
</tr>
</thead>
<tbody>
<tr>
<td>565</td>
<td>675</td>
<td>235</td>
<td>525</td>
<td>625</td>
<td>160</td>
<td>110</td>
<td>80</td>
<td>110</td>
<td>80</td>
</tr>
</tbody>
</table>

#### LC3 F265 or 3 x LC1 F&&& with components F265

<table>
<thead>
<tr>
<th>a</th>
<th>b</th>
<th>c</th>
<th>G</th>
<th>H</th>
<th>K</th>
<th>K1</th>
<th>K2</th>
<th>K3</th>
<th>K4</th>
</tr>
</thead>
<tbody>
<tr>
<td>665</td>
<td>775</td>
<td>266</td>
<td>625</td>
<td>725</td>
<td>165</td>
<td>110</td>
<td>100</td>
<td>110</td>
<td>110</td>
</tr>
</tbody>
</table>

#### LC3 F330 or 3 x LC1 F&&& with components F330

<table>
<thead>
<tr>
<th>a</th>
<th>b</th>
<th>c</th>
<th>G</th>
<th>H</th>
<th>K</th>
<th>K1</th>
<th>K2</th>
<th>K3</th>
<th>K4</th>
</tr>
</thead>
<tbody>
<tr>
<td>765</td>
<td>975</td>
<td>276</td>
<td>725</td>
<td>825</td>
<td>195</td>
<td>140</td>
<td>100</td>
<td>110</td>
<td>180</td>
</tr>
</tbody>
</table>

#### LC3 F400 or 3 x LC1 F&&& with components F400

<table>
<thead>
<tr>
<th>a</th>
<th>b</th>
<th>c</th>
<th>G</th>
<th>H</th>
<th>K</th>
<th>K1</th>
<th>K2</th>
<th>K3</th>
<th>K4</th>
</tr>
</thead>
<tbody>
<tr>
<td>765</td>
<td>975</td>
<td>276</td>
<td>725</td>
<td>925</td>
<td>195</td>
<td>140</td>
<td>100</td>
<td>180</td>
<td>110</td>
</tr>
</tbody>
</table>
Recommended cabling for reversal of motor rotation (standard motor, viewed from shaft end).