Contactors

C100/80, C100/120
C100/200, C100/320

Single pole
DC NO contactors
for industrial trucks

Catalogue B70.en
C100 – DC contactors for battery voltages

Schaltbau contactors of the C100 series are the easy and economical solution for switching DC currents of 60 A up to 320 A as well as battery voltages of up to 80 V.

The contactors are equipped with DC coils featuring coil tolerances as required for traction batteries of industrial trucks and other battery-powered vehicles.

C100 Series contactors are single pole NO DC contactors with magnetic blowout designed for use as main or auxiliary contactors.

The magnetic blow-out they feature ensures a long service life with respect to electrical endurance.

Only stock items are dealt with in this catalogue.

Features

- Compact, rugged design
- Types of 4 different sizes
- Double-break cadmium-free contacts
- Extra wide coil tolerance
- Applicable standards: EN 1175-1, IEC 60947-1, IEC 60947-4-1
- Approval: 

Applications

- Main contactor for materials handling vehicles
- Main contactor for all kind of battery-powered vehicles
- Auxiliary contactor for steering and control functions, and the like

Ordering code

Example: **C100/80 24RX-V1**

<table>
<thead>
<tr>
<th>Series</th>
<th>Single pole DC NO contactor</th>
</tr>
</thead>
<tbody>
<tr>
<td>C100</td>
<td>C100/80 and C100/120 Series contactors</td>
</tr>
<tr>
<td>C100/120</td>
<td>C100/200 and C100/320 Series contactors</td>
</tr>
</tbody>
</table>

Operating current

- 80 A DC
- 120 A DC
- 200 A DC
- 320 A DC

Coil voltage

- 24 / 48 V DC

Coil tolerance

- R: –30 % … +10 %
- X: none

Aux. contact, type of

- V: micro switch, SPDT

Aux. contact, number of

- 1: one auxiliary switch

Presented in this catalogue are only stock items which can be supplied in short delivery time.

The following options are also available:

- SPDT
- Double pole SPST NO
- Mounting brackets
- Omega-shape brackets (only C100/120)
- Large contacts
- Closed contact housings
- Coils for other voltages
- Coils for 70% duty with stronger spring

Special variant

If you need a special variant of the contactor, please do not hesitate to contact us. Maybe, the type of contactor you are looking for is among our many special designs. If not, we can also supply customized designs. In this case, however, minimum order quantities apply.
## Specifications

<table>
<thead>
<tr>
<th>Series</th>
<th>C100/80</th>
<th>C100/120</th>
<th>C100/200</th>
<th>C100/320</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kind of voltage</td>
<td>DC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main contacts, number of, configuration</td>
<td>1x SPST NO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal voltage $U_n$</td>
<td>80 V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated insulation voltage $U_i$</td>
<td>150 V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated impulse withstand voltage $U_{imp}$</td>
<td>2.5 kV</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pollution degree</td>
<td>PD3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overvoltage category</td>
<td>OV3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated operational current $I_e$ (70% duty cycle, repetition time: 60 s)</td>
<td>80 A</td>
<td>120 A</td>
<td>200 A</td>
<td>320 A</td>
</tr>
<tr>
<td>Conventional free air thermal current $I_{th}$</td>
<td>60 A</td>
<td>100 A</td>
<td>150 A</td>
<td>250 A</td>
</tr>
<tr>
<td>Making capacity, resistive load, $T = 1$ msec</td>
<td>300 A</td>
<td>600 A</td>
<td>1,000 A</td>
<td>1,600 A</td>
</tr>
<tr>
<td>Breaking capacity, $T &lt; 1$ msec</td>
<td>NO 80 V DC: 250 A</td>
<td>80 V DC: 300 A</td>
<td>80 V DC: 500 A</td>
<td>80 V DC: 1,300 A</td>
</tr>
<tr>
<td>Rated short-time withstand current $I_{cw}$</td>
<td>400 A / 100 msec</td>
<td>800 A / 100 msec</td>
<td>1,500 A / 100 msec</td>
<td>2,000 A / 100 msec</td>
</tr>
<tr>
<td>Switch-off, no reversing</td>
<td>only in one direction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main contacts</td>
<td>Contact material</td>
<td>NO: AgSnO$_2$</td>
<td>NO: AgSnO$_2$</td>
<td>NO: AgSnO$_2$</td>
</tr>
<tr>
<td>Terminals / torque</td>
<td>M6 / 5 Nm max.</td>
<td>M8 / 7 Nm max.</td>
<td>M8 / 7 Nm max.</td>
<td>M10 / 10 Nm max.</td>
</tr>
<tr>
<td>Auxiliary contact</td>
<td>Mirror contact</td>
<td>IEC 60947-4-1, Annex F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of / configuration</td>
<td>1x SPDT</td>
<td>2.5 A at 24 V DC; 1.0 A at 48 V DC; 0.5 A at 80 V DC</td>
<td>2.5 A at 24 V DC; 1.0 A at 48 V DC; 0.5 A at 80 V DC</td>
<td>2.5 A at 24 V DC; 1.0 A at 48 V DC; 0.5 A at 80 V DC</td>
</tr>
<tr>
<td>Switching capacity, $T = 0$ ms</td>
<td>NO: 2.5 A at 48 V DC; 1.0 A at 80 V DC; 0.5 A at 80 V DC</td>
<td>2.5 A at 48 V DC; 1.0 A at 80 V DC; 0.5 A at 80 V DC</td>
<td>2.5 A at 48 V DC; 1.0 A at 80 V DC; 0.5 A at 80 V DC</td>
<td>2.5 A at 48 V DC; 1.0 A at 80 V DC; 0.5 A at 80 V DC</td>
</tr>
<tr>
<td>Terminals, Flat tabs</td>
<td>2.0 x 0.5 mm</td>
<td>6.3 x 0.8 mm</td>
<td>6.3 x 0.8 mm</td>
<td>6.3 x 0.8 mm</td>
</tr>
<tr>
<td>Magnetic drive</td>
<td>Coil voltage $U_i$</td>
<td>24 / 48 V DC</td>
<td>24 / 48 V DC</td>
<td>24 / 48 V DC</td>
</tr>
<tr>
<td>Coil tolerance</td>
<td>-30 % ... +10 % $U_i$</td>
<td>-30 % ... +10 % $U_i$</td>
<td>-30 % ... +10 % $U_i$</td>
<td>-30 % ... +10 % $U_i$</td>
</tr>
<tr>
<td>Coil power dissipation at $U_i$ and $T = 20$ °C</td>
<td>&lt; 6.5 W / &lt; 5.5 W</td>
<td>&lt; 14 W / &lt; 11.5 W</td>
<td>&lt; 19 W / &lt; 16 W</td>
<td>&lt; 24 W / &lt; 20 W</td>
</tr>
<tr>
<td>Coil suppression</td>
<td>Cold / warm coil</td>
<td>6.3 x 0.8 mm</td>
<td>6.3 x 0.8 mm</td>
<td>6.3 x 0.8 mm</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanical life cycles</td>
<td>$&gt; 3 \times 10^6$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical life</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vibration / shock</td>
<td>IEC 60068-2-6, IEC 60068-2-27</td>
<td>6 g (10 ... 500 Hz) / 30 g (11 msec, half sinus)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mounting position</td>
<td>horizontal or vertical (contact studs must point upwards)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient temperature $T_a$</td>
<td>-25 °C ... +40 °C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage temperature $T_s$</td>
<td>-40 °C ... +85 °C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>&lt; 250 g</td>
<td>&lt; 450 g</td>
<td>&lt; 800 g</td>
<td>&lt; 1,500 g</td>
</tr>
</tbody>
</table>
C100/80 Series contactors are designed for currents of up to 80 A DC and battery voltages of up to 80 V.
The C100/80 is a single pole NO contactor with magnetic blowout suitable for use as main or auxiliary contactor.

The contactors are fitted with DC coils featuring an extra wide coil tolerance as required for traction batteries of industrial trucks and other battery-powered vehicles.
See data sheet for detailed specifications on page 2.

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**Dimension and Circuit diagrams**

**Dimension diagram**

- Nut M6 DIN EN ISO 4032; steel, white zinc plated
- Retaining washer 6
- Nut M6 DIN EN ISO 4032; brass, without surface-coating. Permissible tightening torque 2 Nm.
- Spring washer 6
- Washer 6, non-standard
- Maximum length of engagement 2.5 mm
- Coil terminal: Flat quick-connect 6.3x0.8 DIN46244
- Auxiliary contact: Flat quick-connect termination 2x0.5
- At arc exit the minimum clearance must be > 50mm (in all other areas a minimum clearance of 5 mm must be maintained to all sides)

**Circuit diagram**

- MB-H S1 Ordering code Horizontal mounting brackets
- MB-V S1 Ordering code Vertical mounting brackets

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Dimensions in mm / Subject to change
C100/120 Series contactors are designed for currents of up to 120 A DC and battery voltages of up to 80 V. The C100/120 is a single pole NO contactor with magnetic blowout suitable for use as main or auxiliary contactor.

The contactors are fitted with DC coils featuring an extra wide coil tolerance as required for traction batteries of industrial trucks and other battery-powered vehicles. See data sheet for detailed specifications on page 2.

### Dimension and Circuit diagrams

#### Dimension diagram

- Nut M8 DIN EN ISO 4032; steel, white zinc plated
- Permissible tightening torque 6...7 Nm
- Retaining washer 8
- Nut M8 DIN EN ISO 4032; brass, without surface-coating. Permissible tightening torque 3 Nm.
- Spring washer 8
- Washer 8, non-standard
- Maximum length of engagement 2.5 mm
- Coil terminal: Flat quick-connect 6.3x0.8 DIN46244
- Auxiliary contact: Flat quick-connect termination 6.3x0.8
- At arc exit the minimum clearance must be >60mm (in all other areas a minimum clearance of 5 mm must be maintained to all sides)

#### Circuit diagram

- A1
- 12
- 14
- A2

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### Mounting accessories

- **MB-H S2** Ordering code
  - Horizontal mounting brackets

- **MB-V S1** Ordering code
  - Vertical mounting brackets
C100/200 Single pole NO contactor 200 A DC

C100/200 Series contactors are designed for currents of up to 200 A DC and battery voltages of up to 80 V.
The C100/200 is a single pole NO contactor with magnetic blowout suitable for use as main or auxiliary contactor.

The contactors are fitted with DC coils featuring an extra wide coil tolerance as required for traction batteries of industrial trucks and other battery-powered vehicles.
See data sheet for detailed specifications on page 2.

Dimension and Circuit diagrams

Dimension diagram

Circuit diagram

Mounting accessories

- **MB-H S3** Ordering code
  Horizontal mounting brackets

- **MB-V S2** Ordering code
  Vertical mounting brackets

Dimensions in mm / Subject to change
C100/320 Single pole NO contactor 320 A DC

C100/320 Series contactors are designed for currents of up to 320 A DC and battery voltages of up to 80 V. The C100/320 is a single pole NO contactor with magnetic blowout suitable for use as main or auxiliary contactor.

The contactors are fitted with DC coils featuring an extra wide coil tolerance as required for traction batteries of industrial trucks and other battery-powered vehicles. See data sheet for detailed specifications on page 2.

Dimension and Circuit diagrams

Dimension diagram

Circuit diagram

Mounting accessories

- **MB-H S4**  Ordering code
  Horizontal mounting brackets

- **MB-V S2**  Ordering code
  Vertical mounting brackets

Subject to change / Dimensions in mm
Connectors

- Connectors manufactured to industry standards
- Connectors to suit the special requirements of communications engineering (MIL connectors)
- Charging connectors for battery-powered machines and systems
- Connectors for railway engineering, including UIC connectors
- Special connectors to suit customer requirements

Snap-action switches

- Snap-action switches with positive opening operation
- Snap-action switches with self-cleaning contacts
- Snap-action switch made of robust polyetherimide (PEI)
- Snap-action switch with two galvanically isolated contact bridges
- Special switches to suit customer requirements

Contactors

- Single and multi-pole DC contactors
- High-voltage AC/DC contactors
- Contactors for battery powered vehicles and power supplies
- Contactors for railway applications
- Terminal bolts and fuse holders
- DC emergency disconnect switches
- Special contactors to suit customer requirements

Electrics for rolling stock

- Equipment for driver’s cab
- Equipment for passenger use
- High-voltage switchgear
- High-voltage heaters
- High-voltage roof equipment
- Equipment for electric brakes
- Design and engineering of train electrics to customer requirements