SCHALTBAU
Connect Contact Control

3

# Contactors

## C110B/80, C110B/120
## C110B/200, C110B/300

Single pole
DC NO contactors
for industrial trucks

**Catalogue B71.en**


more information here:
schaltbau-gmbh.com

# C110B Series DC NO contactors for battery voltages

**C110B Series contactors are the cost-effective and environmentally friendly solution to switching DC currents ranging from 60 A to 300 A and battery voltages up to 48 V.**

The NO contactors are fitted with DC coils that have a coil tolerance as required by modern traction batteries of industrial trucks and other electric vehicles.

Due to economical material consumption (e.g. using as little silver and copper as possible), Schaltbau can offer these environmentally friendly switching devices at a reduced price - without compromising performance.

The single pole contactors are especially designed for use as main contactors or auxiliary contactors in all kinds of battery-powered vehicles in material handling.

A closed contact housing is standard with these contactors. It prevents plasma exit and, at the same time, protects the contactor from ingress of dust and dirt.

## Features

- Compact, rugged design
- 4 sizes
- Closed contact housing, standard
- Double-break, cadmium free contacts
- Bidirectional version for DC applications
- Standards: Following EN 1175-1 and IEC 60947-4-1

## Applications

Series C110B

- Main contactor for industrial trucks
- Main contactor for all kinds of battery-powered vehicles
- Auxiliary contactor for vehicle control and similar functions

**C110B/300 and C110B/200 Series contactors**

**C110B/120 and C110B/80 Series contactors**

## Ordering code

Series C110B

Example: **C110B/300 24RX**

**Series**

| | |
|---|---|
| C110B/ | Single pole NO contactor |

**Operating current (70 % duty cycle)**

| | |
|---|---|
| 300 | 300 A DC |
| 200 | 200 A DC |
| 120 | 120 A DC |
| 80 | 80 A DC |

**Coil voltage**

| |
|---|
| 24 / 48 V DC |

**Coil tolerance**

| | |
|---|---|
| R | -20 % … +10 % |

**Coil suppression**

| | |
|---|---|
| X | None |

***Note:***

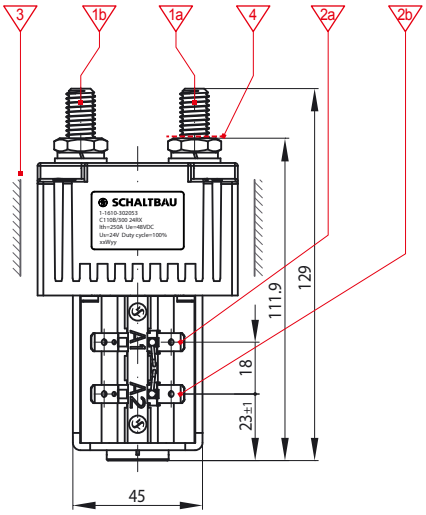
*Presented in this catalogue are only stock items which can be supplied in short delivery time. For some variants minimum quantities apply. Please do not hesitate to ask for the conditions.*

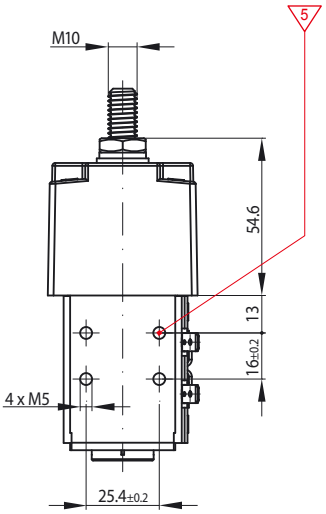
***Special variants:***

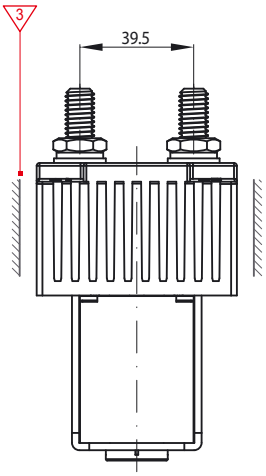
*If you need a special variant of the contactor, please do not hesitate to contact us. Maybe the type of contactor you are looking for is among our many special designs. If not, we can also supply customized designs. In this case, however, minimum order quantities apply.*

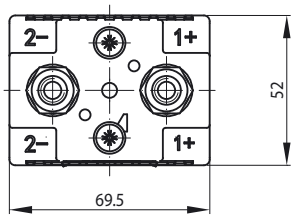
## **C110B/300** Single pole NO contactors $I_{th}$ = 250 A DC — Series C110B

### Dimension diagram

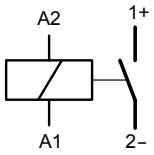



### Circuit diagram




1a *Main terminal »1+«: Threaded stud M10, tightening torque 10 Nm max.*

1b *Main terminal »2–«: Threaded stud M10, tightening torque 10 Nm max.*

2a *Coil terminal »A1«: Flat tabs 6.3x0.8 according to DIN46244*

2b *Coil terminal »A2«: Flat tabs 6.3x0.8 according to DIN46244*

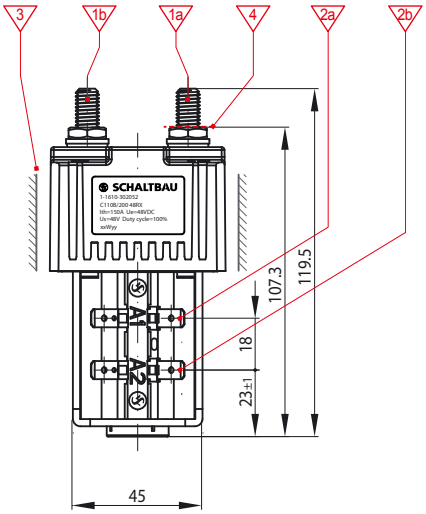
3 *Clearance 5 mm to all sides of earthed as well as live parts*

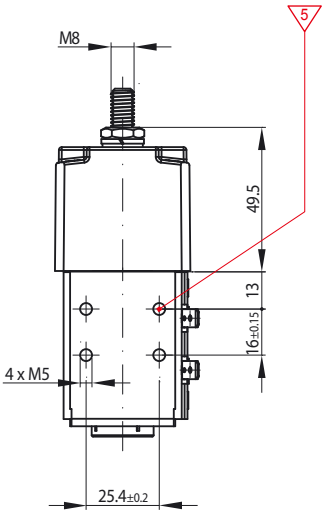
4 *Stud terminals: Do not use the nut for termination! Nuts and washers for termination not included in delivery*

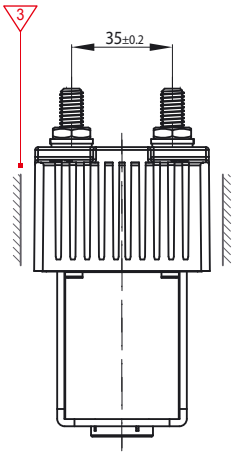
5 *Mounting with 4x M5 screws on each side, maximum length of thread engagement 3 mm, tightening torque 2 Nm*

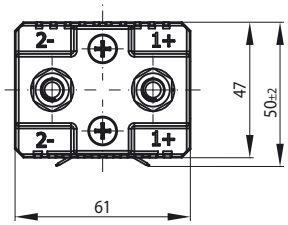
## **C110B/200** Single pole NO contactors $I_{th}$ = 150 A DC — Series C110B

### Dimension diagram

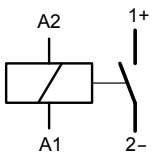



### Circuit diagram




1a *Main terminal »1+«: Threaded stud M8, tightening torque 7 Nm max.*

1b *Main terminal »2–«: Threaded stud M8, tightening torque 7 Nm max.*

2a *Coil terminal »A1«: Flat tabs 6.3x0.8 according to DIN46244*

2b *Coil terminal »A2«: Flat tabs 6.3x0.8 according to DIN46244*

3 *Clearance 5 mm to all sides of earthed as well as live parts*

4 *Stud terminals: Do not use the nut for termination! Nuts and washers for termination not included in delivery*

5 *Mounting with 4x M5 screws on each side, maximum length of thread engagement 3 mm, tightening torque 2 Nm*

*Dimensions in mm*

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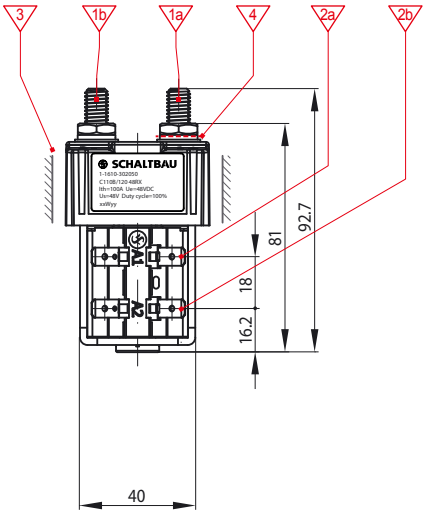
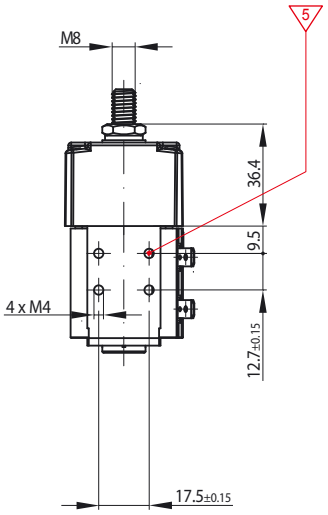
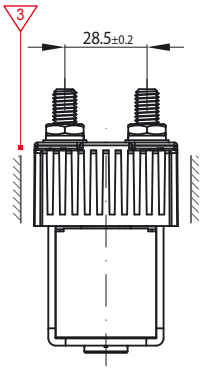
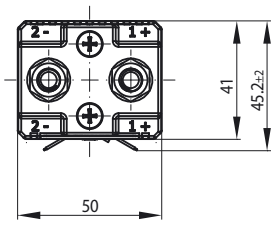
## C110B/120 Single pole NO contactors $I_{th}$ = 100 A DC — Series C110B

### Dimension diagram

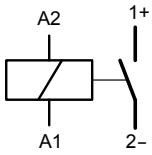


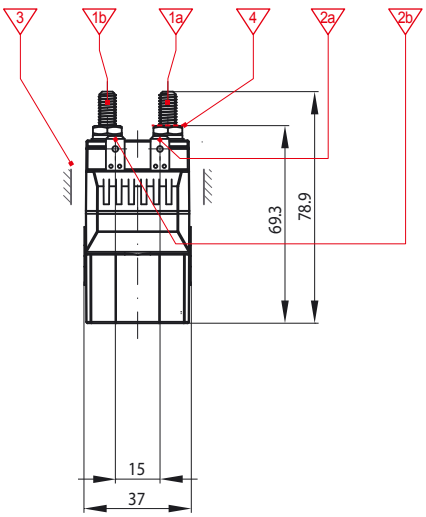

### Circuit diagram

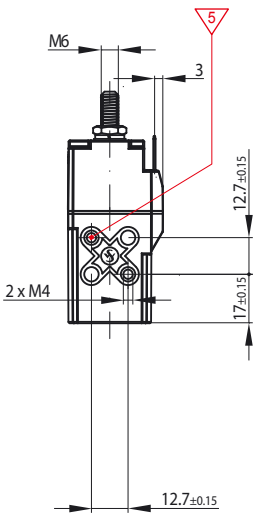


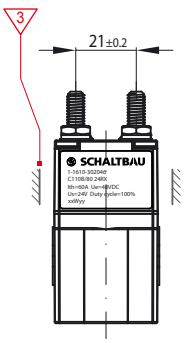

1a Main terminal »1+«: Threaded stud M8, tightening torque 7 Nm max.
1b Main terminal »2–«: Threaded stud M8, tightening torque 7 Nm max.
2a Coil terminal »A1«: Flat tabs 6.3x0.8 according to DIN46244
2b Coil terminal »A2«: Flat tabs 6.3x0.8 according to DIN46244
3 Clearance 5 mm to all sides of earthed as well as live parts
4 Stud terminals: Do not use the nut for termination! Nuts and washers for termination not included in delivery
5 Mounting with 4x M5 screws on each side, maximum length of thread engagement 2.5 mm, tightening torque 1.5 Nm

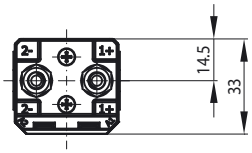
## C110B/80 Single pole NO contactors $I_{th}$ = 60 A DC — Series C110B

### Dimension diagram

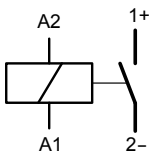



### Circuit diagram




1a Main terminal »1+«: Threaded stud M6, tightening torque 5 Nm max.
1b Main terminal »2–«: Threaded stud M6, tightening torque 5 Nm max.
2a Coil terminal »A1«: Flat tabs 6.3x0.8 according to DIN46244
2b Coil terminal »A2«: Flat tabs 6.3x0.8 according to DIN46244
3 Clearance 5 mm to all sides of earthed as well as live parts
4 Stud terminals: Do not use the nut for termination! Nuts and washers for termination not included in delivery
5 Mounting with 4x M5 screws on each side, maximum length of thread engagement 2.5 mm, tightening torque 1.5 Nm

*Dimensions in mm*

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## Specifications

Series C110B

| Series | Standard | C110B/300 | C110B/200 | C110B/120 | C110B/80 |
|---|---|---|---|---|---|
| **Main contacts** | | | | | |
| Type of voltage | | DC (bidirectional) | | | |
| Main contacts, number of, configuration | | 1x NO | | | |
| Utilization category | EN 60947-4-1 | DC-1 | | | |
| Rated operating voltage $U_e$ | EN 60947-4-1 | 48 V | | | |
| Rated insulation voltage $U_i$ | EN 60947-4-1 | 80 V | | | |
| Rated impulse withstand voltage $U_{imp}$ | EN 60947-4-1 | 1.5 kV | | | |
| Pollution degree<br>Overvoltage category | EN 60947-4-1 | PD3<br>OV3 | | | |
| Rated operating current $I_e$<br>(70 % duty cycle, duration 60 s) | EN 60947-1 | 300 A | 200 A | 120 A | 80 A |
| Conventional thermal current $I_{th}$ | EN 60947-1 | 250 A | 150 A | 100 A | 60 A |
| Rated short-circuit making capacity $I_{cm}$ | EN 60947-1 | 1,500 A | 1,000 A | 600 A | 300 A |
| Rated short-circuit breaking capacity $I_{cn}$ | EN 60947-1 | 1,200 A | 500 A | 300 A | 300 A |
| Rated short time withstand current $I_{cw}$ | EN 60947-1 | 1,800 A | 1,500 A | 800 A | 400 A |
| Minimum wire gauge at $I_{th}$ | | 95 mm² | 50 mm² | 25 mm² | 10 mm² |
| Design<br>Terminals / torque<br>Contact material | | M10 / 10 Nm max.<br>$AgSnO_2$ | M8 / 6 Nm max.<br>$AgSnO_2$ | M8 / 6 Nm max.<br>$AgSnO_2$ | M6 / 3 Nm max.<br>$AgSnO_2$ |
| **Magnetic drive** | | | | | |
| Coil voltage $U_s$ | | 24 / 48 V DC | 24 / 48 V DC | 24 / 48 V DC | 24 / 48 V DC |
| Coil tolerance | | -20 % ... +10 % $U_s$ | -20 % ... +10 % $U_s$ | -20 % ... +10 % $U_s$ | -20 % ... +10 % $U_s$ |
| Coil suppression | | --- | --- | --- | --- |
| Power consumption at Us (Ta = 20 °C)<br>cold / warm coil | | < 17 W / < 13 W | < 17 W / < 13 W | < 13.5 W / < 10 W | < 6.5 W / < 5 W |
| Pull-in time, typical at $T_a$ = 20 °C<br>Pull-in voltage, typical (cold coil, $T_a$ = 20 °C) | | 50 ms<br>0.6 x $U_s$ | 50 ms<br>0.6 x $U_s$ | 40 ms<br>0.6 x $U_s$ | 25 ms<br>0.6 x $U_s$ |
| Drop-out time, typical at $T_a$ = 20 °C<br>Drop-out voltage, typical | | 20 ms<br>0.1 ... 0.4 x $U_s$ | 15 ms<br>0.1 ... 0.4 x $U_s$ | 20 ms<br>0.1 ... 0.4 x $U_s$ | 10 ms<br>0.1 ... 0.4 x $U_s$ |
| Coil terminals, flat tabs | | 6,3 x 0,8 mm | 6,3 x 0,8 mm | 6,3 x 0,8 mm | 6,3 x 0,8 mm |
| IP rating | EN 60529 | Terminals IP00 / Switching chamber IP40 | | | |
| Endurance<br>electrical<br>mechanical | | > 50,000 cycles ($U_e$, $I_e$, T < 1 ms)<br>> 1 million cycles | | | |
| Vibration, Shock<br>Vibration<br>Shock<br>Shock (Transport) | EN 60068-2-6<br>EN 60068-2-27 | 5 g (10 ... 500 Hz) *1<br>20 g (10 ms, half sinus) *1<br>70 g (6 ms, half sinus) | | | |
| Mounting orientation | | Vertical (studs pointing upwards) or horizontal | | | |
| Temperature range<br>Operating temperature $T_a$<br>Storage temperature | | -25 °C … +40 °C<br>-40 °C … +85 °C | | | |
| Weight | | < 850 g | < 630 g | < 380 g | < 180 g |



*1 *Kontaktöffnungszeiten <2 ms*

# Schaltbau GmbH

For detailed information on our products and services visit our website – or give us a call!

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with compliments:

IRIS Certification

The production facilities of Schaltbau GmbH have been IRIS certified since 2008.

Schaltbau GmbH ISO 14001 certified since 2002

Certified to DIN EN ISO 14001 since 2002. For the most recent certificate visit our website.

Schaltbau GmbH ISO 9001 certified since 1994

Certified to DIN EN ISO 9001 since 1994. For the most recent certificate visit our website.

## Electrical Components and Systems for Railway Engineering and Industrial Applications

### 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
### Emergency disconnect switches

- 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

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