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C303

1 pole bi-directional DC NO contactors
up to 500 amps

Installation and maintenance manual

Document Revision History

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Important basic information

Legal notes

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Conventions for this manual

This manual describes single pole bi-directional DC NO contactors of the following types:

- C303-500-G0P-24I-V0/V1 Ecosave (Monostable with PWM module)
- C303-350-G0P-24I-V0/V1 Ecosave (Monostable with PWM module)
- C303-500-G0P-12H/24H-V0/V1 HED (Monostable, with high-efficiency drive)
- C303-350-G0P-12H/24H-V0/V1 HED (Monostable, with high-efficiency drive)
- C303-500-G0P-12I/24I-V0/V1-P00 Precharge (Monostable)
- C303-350-G0P-12I/24I-V0/V1-P00 Precharge (Monostable)
- C303-500-G0F-12H/24H-V0 HED (Monostable, with high-efficiency drive)
- C303-350-G0F-12H/24H-V0 HED (Monostable, with high-efficiency drive)
- C303-500-G0F-12I/24I-V0-P00 Precharge (Monostable)
- C303-350-G0F-12I/24I-V0-P00 Precharge (Monostable)

This manual describes the installation and maintenance of the contactors.
Cross references are presented in ***bold italics***.
To highlight particularly important safety instructions and other information, the following symbols are used in this manual:

Symbol/signal word	Meaning	Possible consequences
DANGER	Directly threatening danger	Death or severe injuries will result
WARNING	Dangerous situation	Death or severe injuries may occur
CAUTION	Dangerous situation	Slight or minor injuries may occur
ATTENTION	Warning of possible property damage	Material damage to the system, assemblies or nearby property may occur
INFO	Notes on technical features, methods for simplifying work or other information of particular importance	

General and safety information

The contactors dealt with in this document are intended for use with electrical systems for special applications. They are designed and tested in compliance with generally accepted codes of practice. However, improper use, operation, handling, maintenance of or tampering with electric equipment can cause serious or fatal injury to the user or others, and the appliance or other property can be damaged. Consequently, the operation, maintenance and installation instructions for the contactors must be strictly followed. If anything is not clear, clarification must be sought with any queries stating the device type and the serial number.
Only authorised and trained personnel are allowed to plan and carry out all mechanical and electrical installations, transport, commissioning, as well as maintenance and repair work.
This applies to the observation of the general installation and safety regulations for electrical systems as well as the proper use of tools approved for this purpose. Electrical equipment requires protection from moisture and dust during installation, operation and storage.

Observing the manual

- All personnel must read and understand the instructions in this manual and adhere to them when working with the device.
- Always adhere strictly to all safety instructions!

Duties of the operating company

- Observe all applicable national regulations, all safety, accident prevention and environmental protection regulations as well as the recognised technical rules for safe and correct working.
- Regularly check all fitted protection and safety equipment for correct function.
- Work on electrical equipment must only be carried out by a qualified electrician or by instructed persons under the supervision and control of a qualified electrician in accordance with electrical regulations.
- A specialist is someone who, on the basis of their technical training, knowledge and experience as well as knowledge of the relevant regulations, is able to assess the work assigned to them and identify possible dangers.
- Work on the contactors must only be carried out by personnel who meet the requirements set out in this manual.
- Always perform complete checks after any installation work and/or after any other conversions or alterations, in accordance with the following standards:
  - EN/IEC 60077-2
  - EN/IEC 60947-4-1

Intended use

- The contactors have been designed and tested according to national and international standards. Due to their unique features they can also be used in a wide range of industrial applications.
- The contactors must only be used under operating conditions according to the technical specifications and the instructions in this manual.
- None of the conditions of use, such as voltages, currents or ambient conditions, defined in the corresponding technical data sheets or in our ***C303 catalogue*** may be overridden. The C303 catalogue is available under: www.schaltbau.com
- The contactors may only be used when all protective devices are present, have been correctly installed and are fully operational.
- Contactors may not be used without other safety precautions in potentially explosive atmospheres and/or in aggressive media.
- The device contains unprotected live parts.
- The prescribed clearances relative to other live parts or earth and other parts must be complied with as well as the safety regulations of the applicable standards.
- Switching at close to the maximum breaking capacity may require increased minimum clearances! Do not hesitate to ask our advice in respect of any dimensioning.
- Coil suppression for reducing surges when the coil is switched off is optimally attuned to the contactor's switching behaviour. The existing opening characteristic must not be negatively influenced by parallel connection with an external diode.
- Improper handling of the contactors, e.g. impacts on the floor, may result in breakage, cracks or deformation. Always handle the device with care.
- Only use the contactors for the specified application and only with original parts. Any other usage of or tampering with the contactors is considered contrary to their intended use. No liability is assumed for damages and accidents caused due to non-compliance with the instructions in this manual or improper use of the contactors.

Ambient conditions

ATTENTION

The contactors have been design for specific ambient conditions.

- Only operate the contactors in ambient conditions, such as temperature ranges, degree of soiling, etc., as defined in the corresponding data sheets and in our ***catalogue C303***. The C303 catalogue is available under: www.schaltbau.com

Hazards and safety precautions

Electrical hazards

⚠ DANGER

The contactors are used for high voltage switching. Contact with live electrical parts can result in serious injuries or even death!

Live parts are all metal parts belonging directly to one of the circuits or wires connecting to them. All other visible metal parts and wiring may also be live if a fault exists.

Before starting any work on the contactors, always comply with the following safety rules:

- Disconnect on all sides
- Secure to prevent switching back on
- Clearly identify the working area
- Check that a voltage-free state exists
- Earth and short circuit; this includes discharging any capacitors in the main circuit
- Besides the main power circuits, also disconnect additional and auxiliary circuits
- Cover or insulate adjacent live parts
- The presence of a voltage-free state can only be clearly identified by a qualified electrician.
- When the work has been concluded, follow the procedure in reverse.

Other hazards

⚠ WARNING

Contactors must only be used for the purposes specified in the specifications and data sheets. Incorrect use can cause accidents and severe personal injury.

- The manufacturer will not be responsible for accidents arising from improper use of the product

⚠ CAUTION

During continuous operation the contactors may become hot. Risk of burns!

- Before beginning any checks or maintenance on the contactors ensure that the heated components have cooled down.

⚠ CAUTION

The contactors contain sharp-edged parts. Risk of injuries!

- Use appropriate tools for installation and maintenance work on the contactors.
- Wear safety gloves when handling sharp-edged components.

Measures for avoiding damage and malfunctions

ATTENTION

Aggressive liquids may damage the contactors.

- Ensure the contactors do not come into contact with corrosive liquids.

ATTENTION

Improper handling of the contactors, e.g. dropping on the floor, can result in breaks, cracks and deformation.

- Ensure the contactors are always handled correctly.
- Do not throw the contactors on the floor.
- At regular intervals perform a visual check of the contactors for possible damage.
- Immediately replace any damaged parts.

ATTENTION

Electrostatic Discharge (ESD) can damage sensitive electronic components of the contactor.

- Apply suitable ESD protection measures before installing or connecting the product.

ATTENTION

Depending on the product type, contactors can contain permanent magnets. Such magnets can attract ferromagnetic parts resulting in damage to the contactors.

- Ensure that the contactors are installed in a location where it is not possible for them to attract any ferromagnetic parts.

ATTENTION

Depending on the product type, contactors can contain permanent magnets. These permanent magnets can destroy the data on the magnetic strips of credit or similar cards.

- Keep credit or similar cards away from the contactors.

ATTENTION

During switching off, strong electromagnetic fields are generated in the vicinity of the contactors. These may influence other components close to the contactors.

- Make sure that the contactors are installed in a location where no other components are affected.

ATTENTION

In the case of damage, wear and/or soiling of the contactors - in the form of a partial break, sharp edges and discoloured surfaces - the functional reliability of the contactors is no longer ensured.

- Visually inspect the contactors regularly to detect wear and soiling.
- Replace damaged parts immediately.
- Immediately remove any soiling without leaving any residues.
- Immediately replace any parts with persistent soiling

ATTENTION

Detent-edged rings and detent-edged washers have a limited life time. After screws secured with detent-edged rings or detent-edged washers have been undone three times, the rings or washers must be replaced by new ones.

- Record the frequency of undoing of the screws in the work log.
- Replace detent-edged rings or detent-edged washers with new ones after the screws have been undone three times.

C303 – 1 pole bi-directional DC NO contactors up to 500 amps

Compact 1 pole NO contactors for DC up to 1,500 volts rated insulation voltage, continuous currents up to 500 amps and high making and short-time currents.

The C303 bi-directional DC contactors are compact, high-performance witchgear for applications with high making currents or large capacities. All versions can carry up to 500 amps continuously; in the event of a short circuit, significantly higher currents can flow without the contacts welding together. This means that the contactor retains its full function to disconnect high loads – up to 1.5 MW – regardless of the current direction. This full bi-directionality is important for systems with a charging and discharging process.

Typical applications are DC circuits in inverters, in battery storage systems or in charging stations in the e-mobility sector.

- Compact dimensions with a high rated insulation voltage U_i of up to 1,500 volts
- High thermal continuous current I_{th} of up to 500 amps
- High breaking capacity up to 1.5 megawatts max. and full bi-directionality – safe disconnection of high power loads
- Coil control in 3 versions:
  - Ecosave: Coil control with energy-saving PWM module
  - HED: Economical high-efficiency drive or
  - Precharge: Special version as precharge contactor
- Auxiliary switch with mirror contact function according to IEC 60947-4-1, annex F

Standards

- **IEC 60947-4-1**
  Low-voltage switchgear and controlgear – Part 4-1: Contactors and motor starters – Electromechanical contactors and motor starters.
- **ISO 16750-3**
  Road vehicles – Environmental conditions and testing for electrical and electronic equipment – Part 3: Mechanical loads
- **UL 60947-4-1**
  Low-Voltage Switchgear and Controlgear – Part 4-1: Contactors and motor-mtarters – Electromechanical contactors and motor-starters.
- **GB/T 14048.4 (in preparation)**
  Low-Voltage Switchgear and Controlgear – Part 4-1: Contactors and motor-starters – Electromechanical contactors and motor-starters.

Technical information and material properties

For technical information and material properties, refer to the corresponding data sheets and to our ***C303 catalogue***. The C303 catalogue is available under: www.schaltbau.com

C303-XXX-G0P-24I-V0/V1 (Ecosave: Monostable, with PWM module)

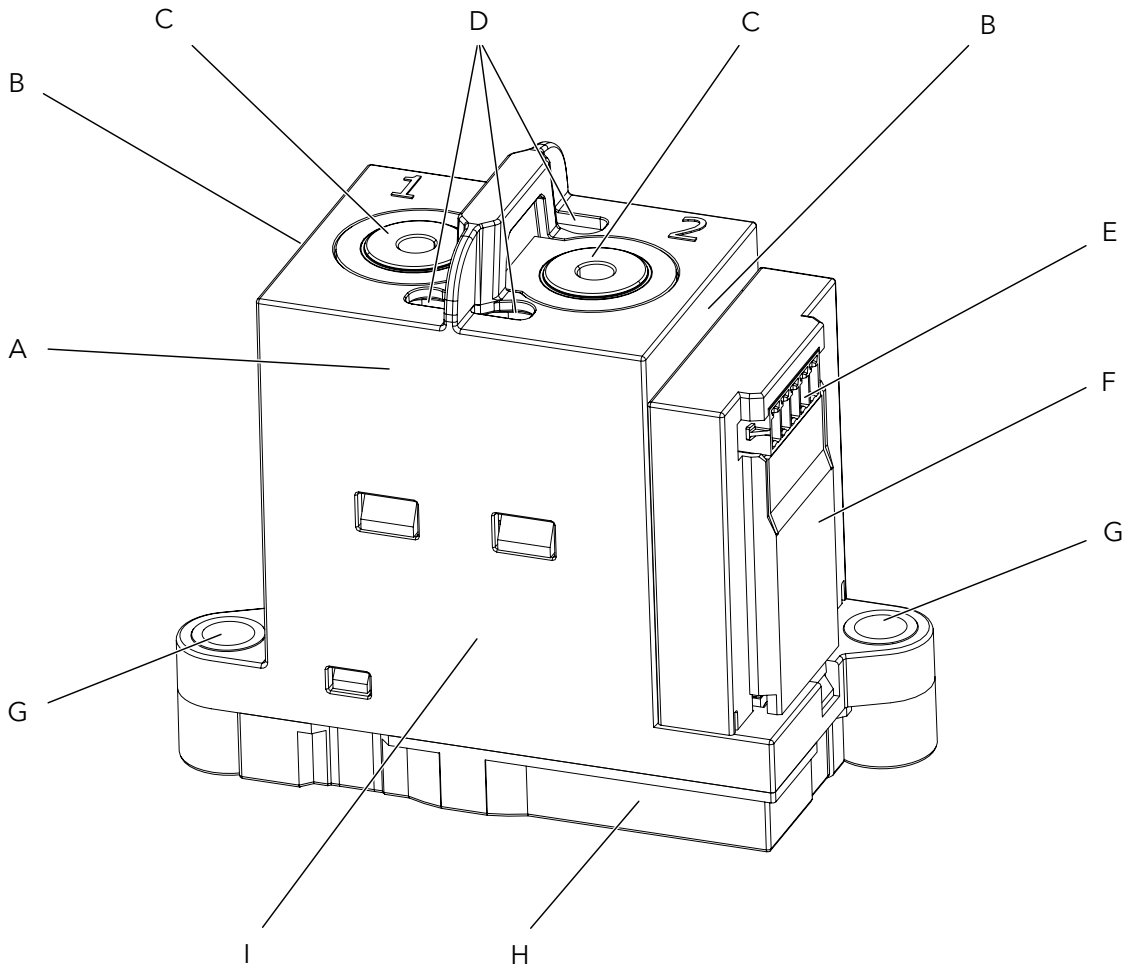

Fig. 1: C303-XXX-G0P-24I-V0/V1 (Ecosave: Monostable with PWM module)

A Arc chamber (behind the cover) with permanent magnetic blow-out
B Permanent magnets (behind the cover)
C Main contacts
- Material: copper
- Terminal: M6, screw-in depth 10 mm, torque 5 ... 6 Nm
- Diameter: 13.5 mm

D Blow-out openings
E Connector: Phoenix contact MCV 1.5/5-G-3.5-RN
- V1 (with auxiliary contact): both coil connections and the three auxiliary contact connections are assigned
- V0 (w/o auxiliary contact): both coil connections are assigned

F Coil control with integrated PWM module.
Only with V1: 1x S880 auxiliary contact CO (SPDT) with mirror contact function according to IEC 60947-4-1, annex F
G Mounting holes with press-fit bushes 7 mm for screw mounting with two M6 screws, torque 6 ... 8 Nm
H Base plate
I Magnetic drive (behind the cover)

C303-XXX-G0P-12H/24H-V0/V1 (HED: Monostable, with high-efficiency drive) / C303-XXX-G0P-12I/24I-V0/V1-P00 (Precharge: Monostable)

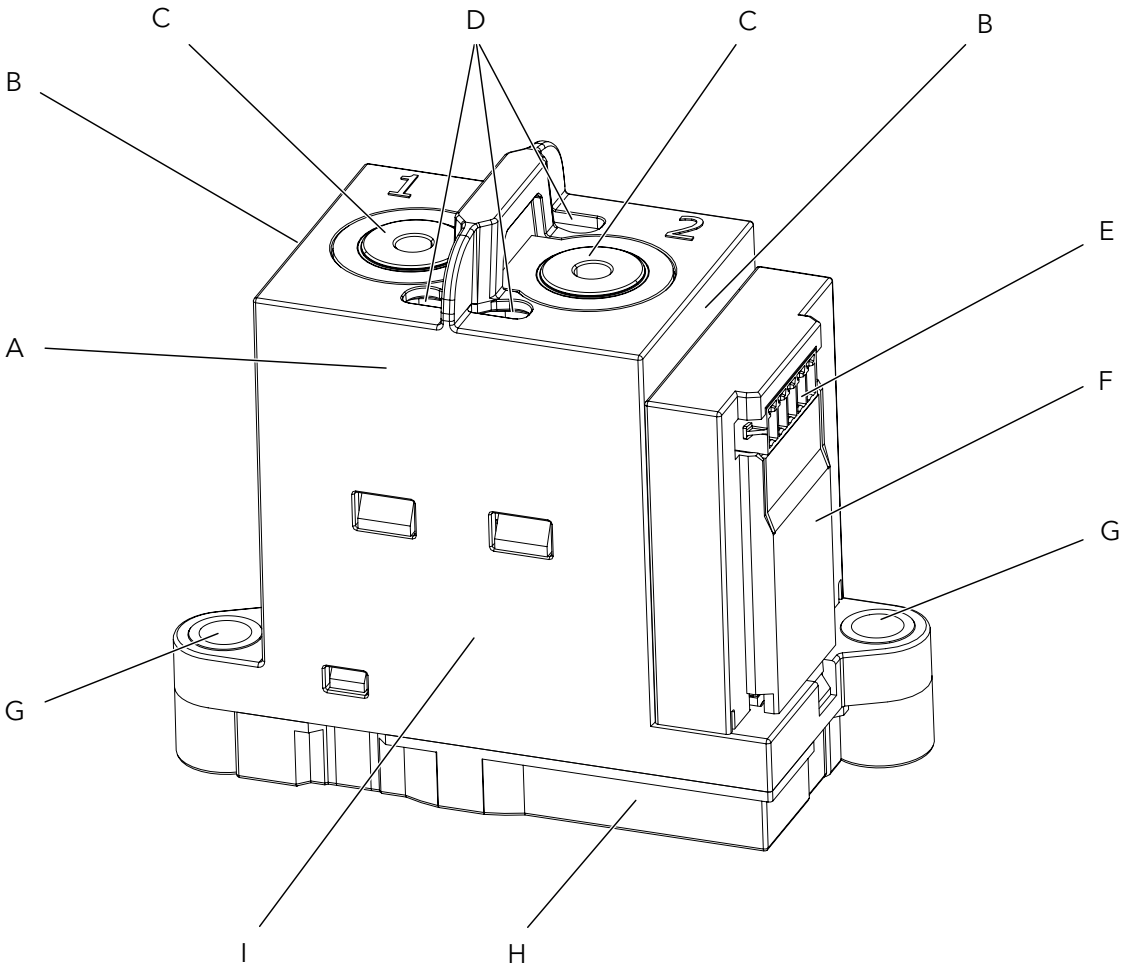

Fig. 2: C303-XXX-G0P-12H/24H-V0/V1 (HED: Monostable with high-efficiency drive) / C303-XXX-G0P-12I/24I-V0/V1-P00 (Precharge: Monostable, for use as precharging contactor for limiting high making currents of the main contactors)

A Arc chamber (behind the cover) with permanent magnetic blow-out
B Permanent magnets (behind the cover)
C Main contacts
- Material: copper
- Terminal: M6, screw-in depth 10 mm, torque 5 ... 6 Nm
- Diameter: 13.5 mm

D Blow-out openings
E Connector: Phoenix contact MCV 1.5/5-G-3.5-RN
- V1 (with auxiliary contact): both coil connections and the three auxiliary contact connections are assigned,
- V0 (w/o auxiliary contact): both coil connections are assigned

F Connection board (behind the cover) which brings the coil connections and the auxiliary contact connections (only with V1) to connector E.
- Only with V1: 1x S880 auxiliary contact CO (SPDT) with mirror contact function according to IEC 60947-4-1, annex F

G Mounting holes with press-fit bushes 7 mm for screw mounting with two M6 screws, torque 6 ... 8 Nm
H Base plate
I Magnetic drive (behind the cover)
- HED: with optimized coil size to ensure maximum efficiency even without the use of a PWM module
- Precharge: Magnetic drive with standard coil

C303-XXX-G0F-12H/24H-V0 (HED: Monostable, with high-efficiency drive) / C303-XXX-G0F-12I/24I-V0-P00 (Precharge: Monostable)

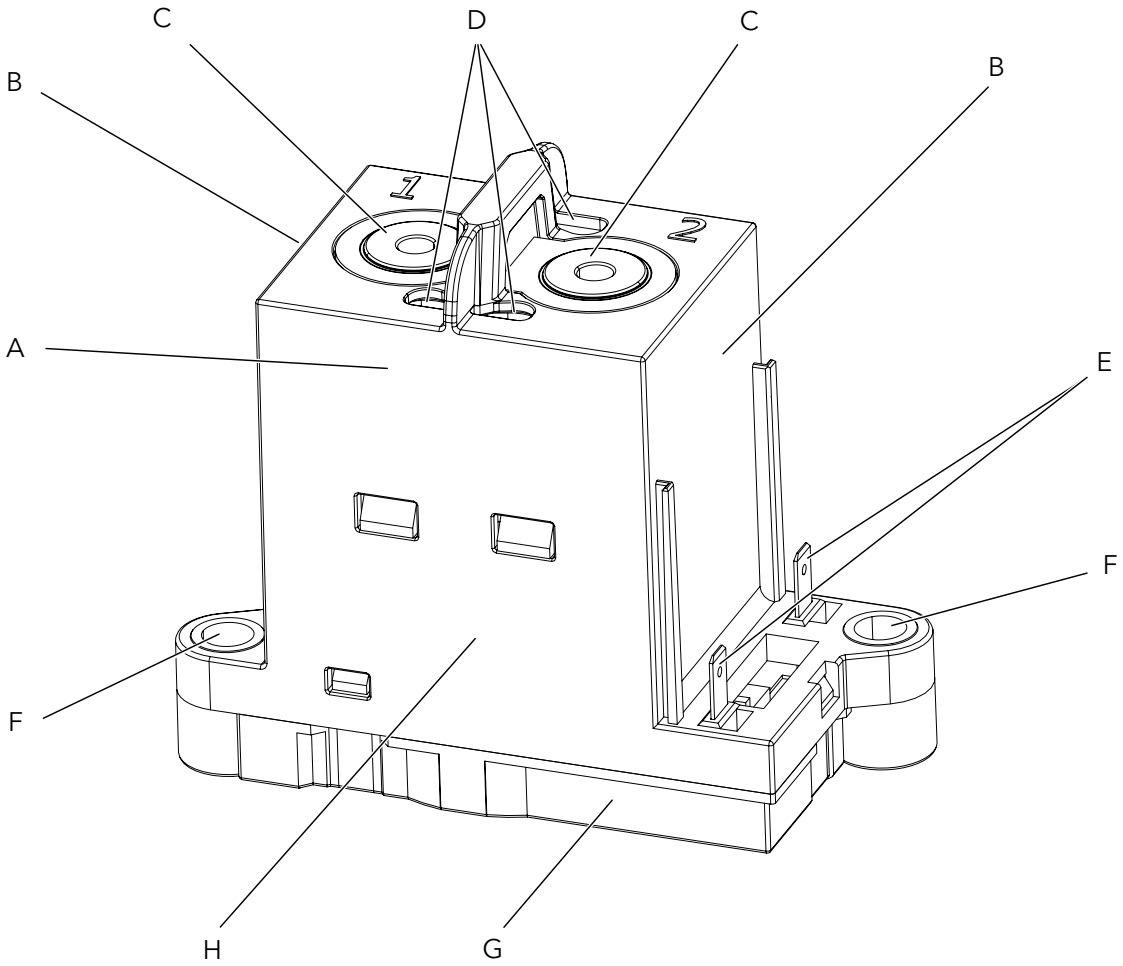

Fig. 3: C303-XXX-G0F-12H/24H-V0 (HED: Monostable, with high-efficiency drive) / C303-XXX-G0F-12I/24I-V0-P00 (Precharge: Monostable, for use as precharging contactor for limiting high making currents of the main contactors)

A Arc chamber (behind the cover) with permanent magnetic blow-out
B Permanent magnets (behind the cover)
C Main contacts
- Material: copper
- Terminal: M6, screw-in depth 10 mm, torque 5 ... 6 Nm
- Diameter: 13.5 mm
D Blow-out openings
E Coil connector A1-/A2+: Flat tabs 4.8 x 0.5 mm
F Mounting holes with press-fit bushes 7 mm for screw mounting with two M6 screws, torque 6 ... 8 Nm
G Base plate
H Magnetic drive (behind the cover)
- HED: with optimized coil size to ensure maximum efficiency even without the use of a PWM module
- Precharge: magnetic drive with standard coil

Storage

ATTENTION

Moisture and dust can damage the contactors. If the device is to be stored for a prolonged period of time:

- Store the device in its original packaging,
- Store the device in a dry and dust-free location

Return shipments

Schaltbau recommends retaining the original packaging for any return shipments.
If the original packaging is not available, care must be taken to pack the contactor in a way that prevents damage during shipment.

Unpacking

Unpacking the device

- Before opening the packaging, perform a visual inspection for any signs that could indicate damage having occurred during transport (impacts, bumps, dropping, etc.).
- If any signs indicate that the contactor has been subject to excessive impacts do not install it.

Check parts for transport damage

ATTENTION

If parts are damaged, functional reliability of the contactor has been lost.

- Before installing, check all parts for possible transport damage.
- Do not install damaged parts.

Mounting

Dimensions/interfaces and further technical specifications

The dimensions and other technical specifications are given in the respective data sheets or can be found in our ***catalogue C303***. The C303 catalogue is available under: www.schaltbau.com

Preparatory measures

- A suitable mounting plate with 2 mounting holes must be provided according to the following dimensional drawings (***Fig. 4 and Fig. 5***).
- The mounting holes can be either:
  - threaded holes (for threaded screws)
  - or through holes (for threaded screws and nuts)
- Fastening of the contactors on the mounting plate is performed using 2 M6 mounting screws.
- The length of the mounting screws must be determined dependent on the structural circumstances.
- To secure the mounting screws so that they do not come loose, appropriate screw locking elements must be provided. Schaltbau recommends using Schnorr washers (or similar).
- The mounting screws must be equipped with washers (resting on the device). Installation without washers is not permitted!
- The mounting screws must be tightened to a torque of 6 ... 8 Nm (for screws with property class 8.8).

Mounting holes

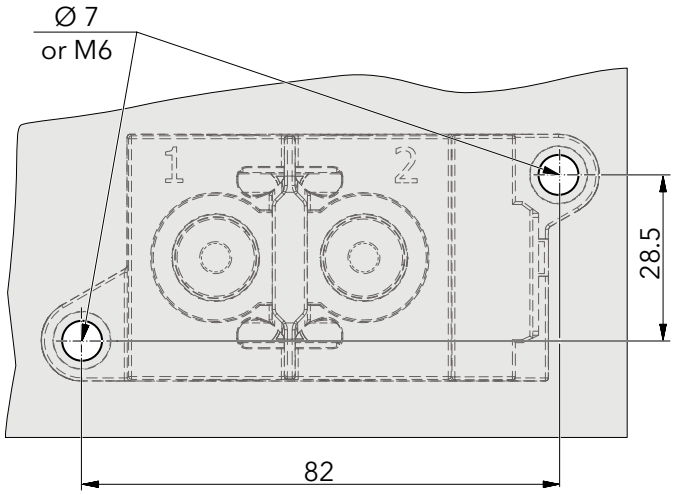

Fig. 4: C303-XXX-G0P-...: Dimensions and layout of mounting holes

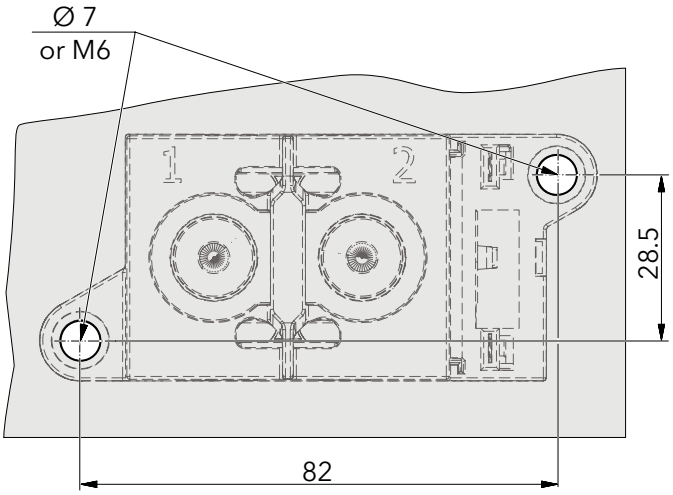

Fig. 5: C303-XXX-G0F-...: Dimensions and layout of mounting holes

Mounting orientations

Contactor versions for screw mounting are designed for horizontal (A) or vertical (B) mounting, as shown for example in (***Fig. 6 and Fig. 7***). With the exception of HED devices, upside down mounting (C) is also possible.

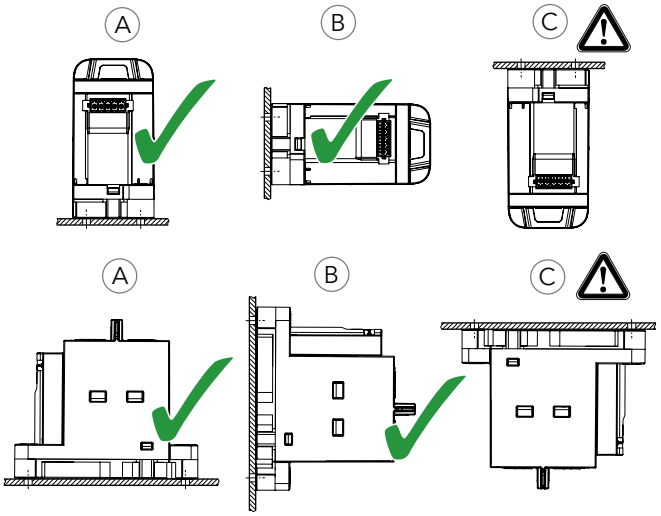

Fig. 6: C303-XXX-G0P-...: Examples of permissible mounting orientations

⚠ Upside down mounting as shown under (C) is not permissible for HED devices.

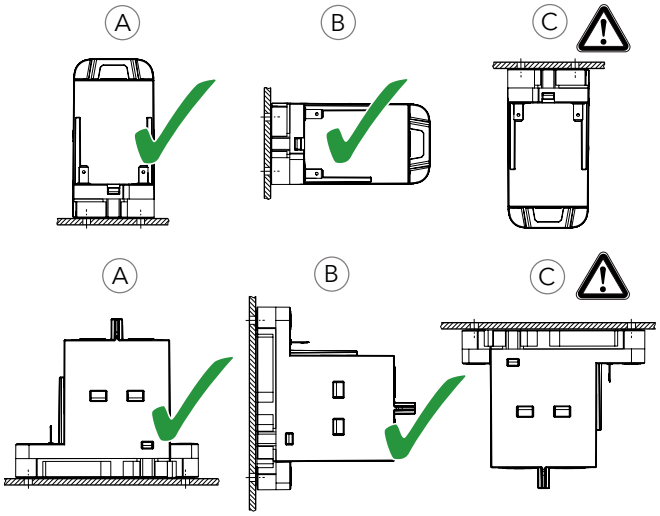

Fig. 7: C303-XXX-G0F-...: Examples of permissible mounting orientations

⚠ Upside down mounting as shown under (C) is not permissible for HED devices.

Required minimum clearances

Switching of high voltage currents produces electric arcs and it is possible that plasma will escape from the openings of the arcing chambers. Therefore, it is extremely important to maintain the minimum clearances to ground/earth and the bus bars to avoid flashovers.
A minimum clearance from magnetic or magnetised parts is required on all sides and above for C303 contactors.
See ***catalogue C303***. Available under: www.schaltbau.com

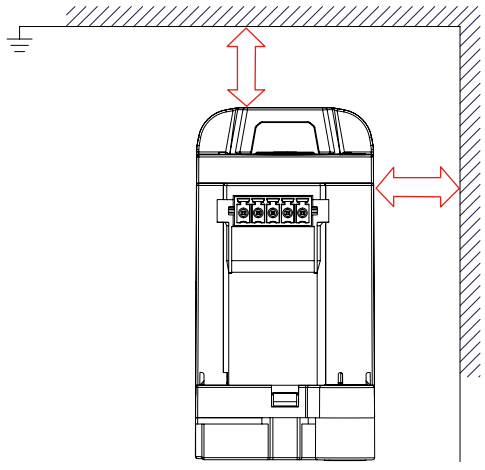

Fig. 8: C303-XXX-G0P-...: Minimum clearance required from magnetic and earthed components. Clearances see ***C303 catalogue***.

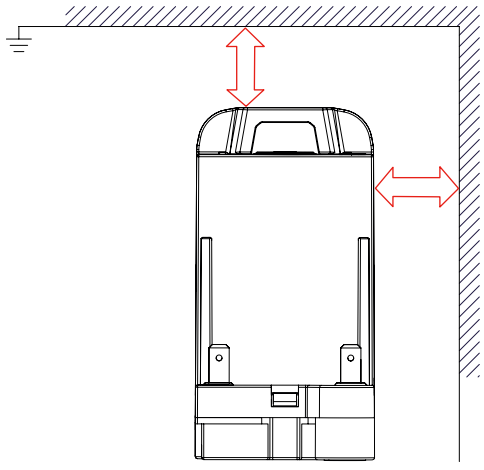

Fig. 9: C303-XXX-G0F-...: Minimum clearance required from magnetic and earthed components. Clearances see ***C303 catalogue***.

Ventilation requirements

Ensure sufficient ventilation in the installation area, especially when disconnecting heavy loads. This allows the plasma to be dissipated more quickly to reduce the risk of flash-overs and corrosion.

Safety

Installation must be performed by qualified trained personnel.

ATTENTION

Electrostatic Discharge (ESD) can damage sensitive electronic components of the contactor.

- Apply suitable ESD protection measures before installing or connecting the product.

ATTENTION

When installing, ensure that no dirt can get into the contactor as a result of surrounding building activities.

Installing the contactor

Tools required

- Socket spanner set, hexagon nuts
- Open-ended spanner set
- Torque wrench
- Hex key set

Procedure

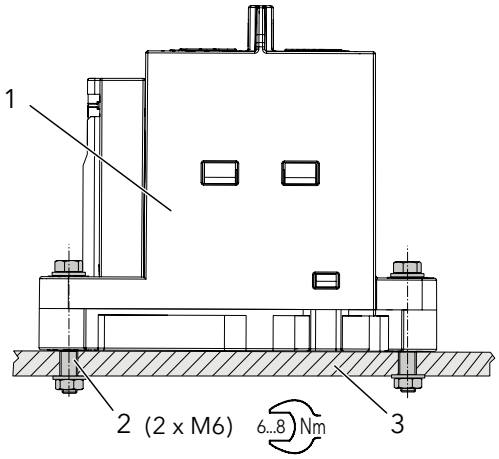

Fig. 10: C303-XXX-G0P-...: Installing the contactor on the mounting plate

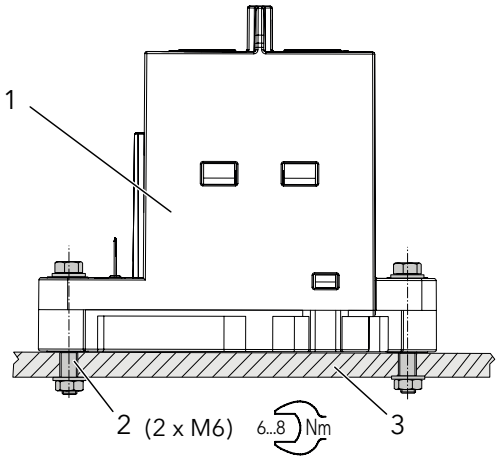

Fig. 11: C303-XXX-G0F-...: Installing the contactor on the mounting plate

ATTENTION

Detent-edged rings and detent-edged washers have a limited life time. After screws secured with detent-edged rings or detent-edged washers have been undone three times, the rings or washers must be replaced by new ones.

- Record the frequency of undoing of the screws in the work log.
- Replace detent-edged rings or detent-edged washers with new ones after the screws have been undone three times.

1. Ensure that the contact surfaces on the mounting plate (3) are free from dirt and other contamination (e.g. metal chips).
2. Position the contactor (1) on the mounting plate (3) which is provided with mounting holes.

ATTENTION

The mounting screws M6 (2) must be equipped with washers (resting on the device). Installation without washers is not permitted!

3. Secure the contactor (1) with its base plate to the mounting plate (3) using 2 M6 mounting screws (2).
4. In designs with the mounting holes implemented as threaded holes, screw the mounting screws into the holes directly, not forgetting the washers.
5. In designs with through holes, fit the mounting screws and washers and tighten the screws using suitable screw locking elements and nuts.
6. Thighten the mounting screws (2) to a torque of 6 ... 8 Nm (for screws with property class 8.8).

Electrical data and other technical specifications

For the power consumption of the magnetic drive system and electrical data of the auxiliary switches as well as other technical specifications, refer to the respective data sheets and to our ***C303 catalogue***. The C303 catalogue is available under: www.schaltbau.com

Preparatory measures

- Connection of the main power circuit can be implemented with wires or busbars.
- The minimum conductor cross-sections for the main terminal connection must be observed.
- If connecting wires are used, they must be selected taking into consideration the insulation class and the ambient conditions.
- The minimum conductor cross-sections for the connecting wires are given in our ***C303 catalogue*** and must be adhered to. The C303 catalogue is available under: www.schaltbau.com
- The connecting wires of the main power circuit must be fitted with appropriate ring terminals suitable for M6 terminal screws.
- The Screw-in depth for the M6 terminal screws is 10 mm.
- Schaltbau recommends Schnorr washers (or similar) to prevent the terminal screws from coming loose.
- The M6 terminal screws must be tightened to the specified torque of 5 ... 6 Nm (for screws with property class 8.8)
- The connection for the coil drive system and, if applicable, the auxiliary contact (only for contactor types V1) is made with a connector (Phoenix or flat tab, depending on the contactor type). Consequently, the control wires must be connected to a corresponding connector.
- For the power consumption of the coil drive system and the electrical data of the auxiliary contact refer to our ***C303 catalogue***.

Safety

DANGER

The contactors are used for high voltage switching. Contact with live electrical parts can result in serious injuries or even death!

Live parts are all metal parts belonging directly to one of the circuits or wires connecting to them. All other visible metal parts and wiring may also be live if a fault exists.

Before starting any work on the contactors, always comply with the following safety rules:

- Disconnect on all sides
- Secure to prevent switching back on
- Clearly identify the working area
- Check that a voltage-free state exists
- Earth and short circuit; this includes discharging any capacitors in the main circuit
- Besides the main power circuits, also disconnect additional and auxiliary circuits
- Cover or insulate adjacent live parts
- The presence of a voltage-free state can only be clearly identified by a qualified electrician.
- When the work has been concluded, follow the procedure in reverse.

ATTENTION

Detent-edged rings and detent-edged washers have a limited life time. After screws secured with detent-edged rings or detent-edged washers have been undone three times, the rings or washers must be replaced by new ones.

- Record the frequency of undoing of the screws in the work log.
- Replace detent-edged rings or detent-edged washers with new ones after the screws have been undone three times.

Tools required

- Socket spanner set, hexagon nuts
- Open-ended spanner set
- Torque wrench
- Continuity tester
- Cable ties

Connecting the coil drive and auxiliary contact

The connection for the coil drive is made via Phoenix connector or flat tab 4.8 x 0.5 (depending on the contactor type).

If applicable, the auxiliary contact (only for contactor types V1) is also connected via the Phoenix connector.

For the pin assignment refer to our ***catalogue C303***.
The C303 catalogue is available under: www.schaltbau.com

For wiring the Phoenix connector, see the connector manufacturer's assembly instructions, available under www.phoenixcontact.com

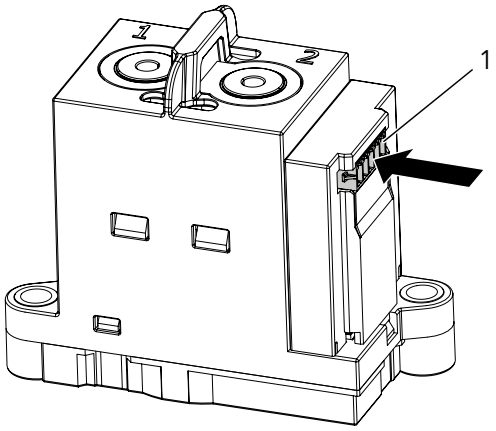

Fig. 12: C303-XXX-G0P-...: Example with Phoenix connector: Connecting the coil drive and, if applicable, the auxiliary contact

With Phoenix connector

1. Plug the wired Phoenix connector into the counterpart (1) on the contactor.

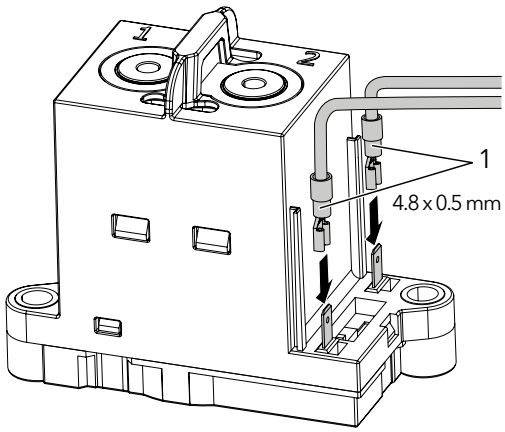

Fig. 13: C303-XXX-G0F-...: Example with flat tab connector: Connecting the coil drive

With flat tab connector

1. Connect the wired flat tabs (1) to the flat tab terminals on the contactor.

Connecting the main contacts

ATTENTION

Make sure that the connection points for the main contacts are free from corrosion.

ATTENTION

When connecting the main contacts using ring terminals or busbars, etc., make sure that the creepage and clearance distances are observed.

ATTENTION

From a certain arc chamber pressure (before the contactor explodes), bursting areas open so that the pressure, including the plasma, is specifically discharged through the blow-out openings (1) on the top of the contactor.

- For short-circuit currents < 8kA the blow-out openings (1) can be covered.
- For short-circuit currents ≥ 8kA make sure that the blow-out openings (1) are not covered by any connecting elements (ring terminals, busbars, etc), as shown in ***Fig. 14***.

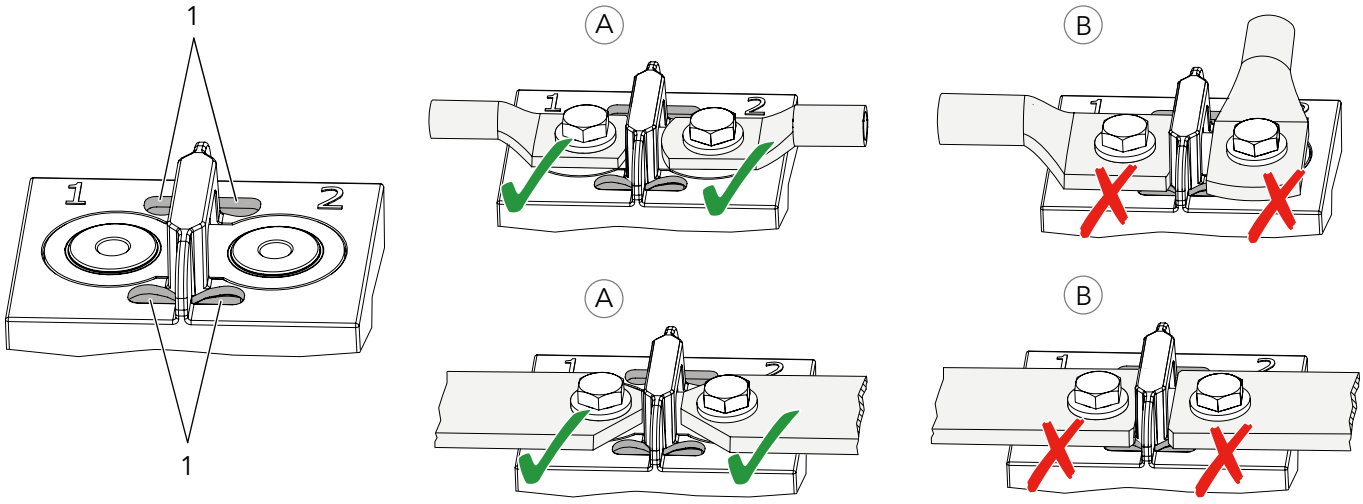

Fig. 14: Blow-out openings (1): Examples of permissible connections (A) and non-permissible connections (B) for short-circuit currents ≥ 8kA

Connection example using wires

The connecting wires of the main power circuit must be fitted with appropriate ring terminals suitable for M6 terminal screws.

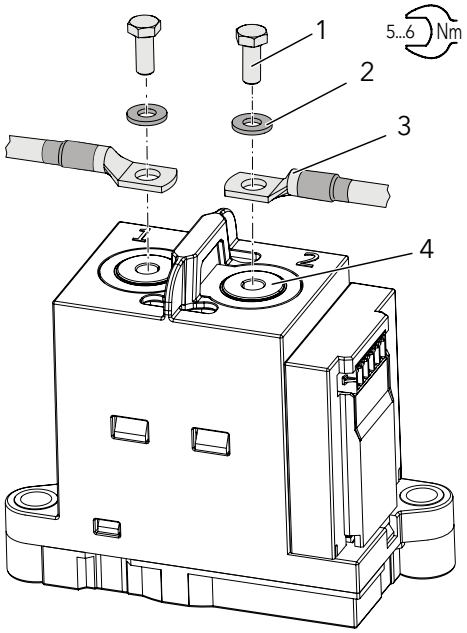

Fig. 15: C303-XXX-G0P-...: Connecting the main contacts (connection example using wires)

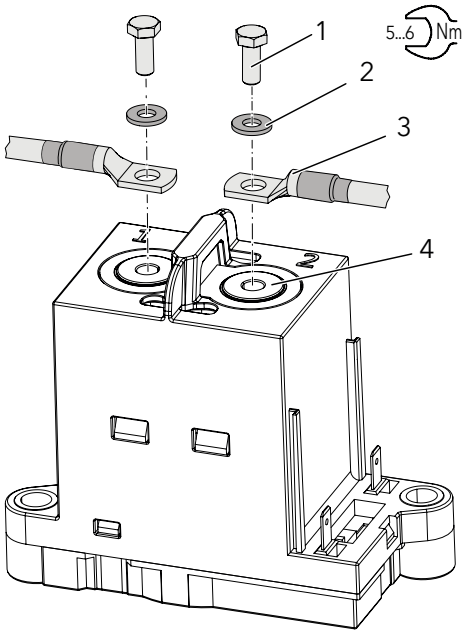

Fig. 16: C303-XXX-G0F-...: Connecting the main contacts (connection example using wires)

1. Route the pre-assembled connecting wires to both main contacts (4).
2. Screw the ring terminals (3) from above into the existing press-fit nuts (6) in the main contacts (4) using the terminal screws (1) and suitable screw locking elements (2).
   - Schaltbau recommends using Schnorr washers (or similar).
   - The screw-in depth for the M6 terminal screws is 10 mm
3. Tighten the terminal screws (1) to a torque of 5 ... 6 Nm.

Connection example using busbars

As an alternative to connection using wires, the main power circuit can be connected with busbars.

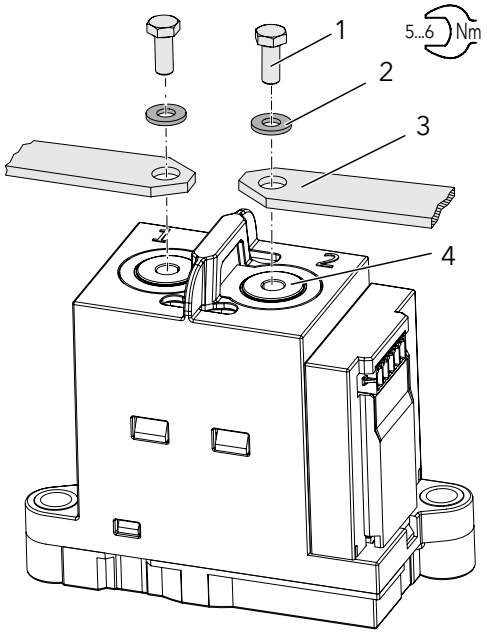

Fig. 17: C303-XXX-G0P-...: Connecting the main contacts (connection example using busbars)

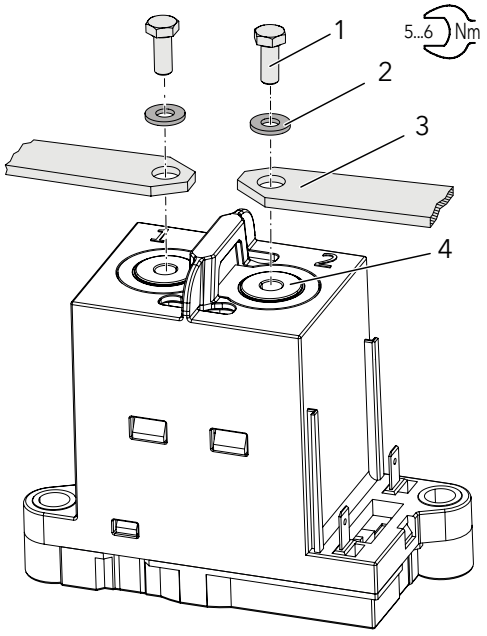

Fig. 18: C303-XXX-G0F...: Connecting the main contacts (connection example using busbars)

1. Route the busbars (3) to both main contacts (4).
2. Screw the busbars (3) from above into the existing press-fit nuts (6) in the main contacts (4) using the terminal screws (1) and suitable screw locking elements (2).
   - Schaltbau recommends using Schnorr washers (or similar).
   - The screw-in depth for the M6 terminal screws is 10 mm
3. Tighten the terminal screws (1) to a torque of 5 ...6 Nm.

Checks

After the installation, perform the following checks:

- Check that the contactors are correctly installed on the mounting plate and tightly screwed in place.
- Check that the connecting wires or busbars are correctly installed and fit tightly at the main contacts.
- Check that the control wires of the coil terminals are correctly installed to the external connector and have the correct polarity.
- Check that the control wires of the auxiliary contact (if applicable) are correctly installed to the external connector.
- Check the correct assignment and function of the auxiliary contact (if applicable) using a continuity tester.
- Switch the contactor several times without activating the main power circuit.
- Check the pull-in and drop-off voltage based on the Schaltbau specifications. See ***C303 catalogue***.
- Check the routing of the wiring. Wires must not be squeezed or bent. If applicable bundle and secure wires using cable ties.
- After every installation check the contactor for correct operation in accordance with the following standards:
  - EN/IEC 60077-2
  - EN/IEC 60947-4-1

Maintenance

Preventive maintenance

Contactors of the C303 series are maintenance-free within the rated mechanical life time. The electrical life time depends on the number of switching cycles under heavy load conditions and may vary for different applications. In normal use, this corresponds to a decade-long operating period.

Carry out a visual inspection of the contactor at regular intervals:

- Check the contactor housing for wear and damage.
- Check the fastening elements and electrical connections for tightness and damage.
- Remove any dirt if necessary.

Corrective maintenance

The contactors are maintenance-free. Therefore there is no general requirement to replace parts during its service life.

⚠ DANGER

If damage to the contactor, wires or busbars is visible or malfunctions occur, the safety of the contactor is no longer guaranteed.

- Replace a damaged contactor immediately.
- Replace damaged components such as wires, cable lugs or busbars immediately.
- Replace the contactor immediately in case of malfunction.

Technical Data

Technical data and information on the material properties for the contactors of the C303 series are given in our ***C303 catalogue***. Schaltbau products are subject to continual improvement. Therefore, the product information in catalogues, data sheets, etc. may change at any time. Therefore, only the latest version of a catalogue is valid at any time – downloads available under: www.schaltbau.com

Disposal

This product is designed for exclusive professional use by commercial companies. The owner is responsible for ensuring an environmentally sound disposal of this product at the end of its working life.
This product or parts of it may not be disposed of with other household waste.
To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this product or parts of it from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.
Please observe all local regulations and recommendations for the disposal, recycling or environmentally friendly processing of the parts and materials that have been used or replaced during installation, operation and maintenance tasks.
At the end of the product's useful life ensure environmentally sound disposal of the product according to the legal regulations and requirements for electrical and electronic waste equipment in your country.

We enable electrification for a sustainable future

Schaltbau is a global technology leader specializing in contactors, connectors, switches, and electrical devices.

As pioneers of electrification, Schaltbau has been championing safety on rail for generations. Building on nearly a century of rail experience, with our sub-brand Eddicy we also create future-oriented products and solutions with the highest standards of safety and reliability to switch, connect, control and protect DC applications in energy and e-mobility.

Headquartered in Germany, Schaltbau has a worldwide presence with 12 production and sales sites on all major continents.

Find out more on www.schaltbau.com.

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