



# COMBIVERT ACCESSORIES

INSTRUCTIONS FOR USE | INSTALLATION H6 DC TERMINAL

Translation of the original manual  
Document 20178987 EN 01



# Preface

The hardware and software described in this document are products of KEB. The information contained in this document is valid at the time of publishing. KEB reserves the right to update this document in response to misprints, mistakes or technical changes.

## Signal words and symbols

Certain procedures within this document can cause safety hazards during the installation or operation of the device. Refer to the safety warnings in this document when performing these procedures. Safety signs are also located on the device where applicable. A safety warning is marked by one of the following warning signs:

<b>DANGER</b>	Dangerous situation, which will cause death or serious injury if this safety warning is ignored.
<b>WARNING</b>	Dangerous situation, which may cause death or serious injury if this safety warning is ignored.
<b>CAUTION</b>	Dangerous situation, which may cause minor injury if this safety warning is ignored.
<b>NOTICE</b>	Situation, which can cause damage to property if this safety warning is ignored.

### RESTRICTION

Used when the following statements depend on certain conditions or are only valid for certain ranges of values.



Used for informational messages or recommended procedures.

## More symbols

- ▶ This arrow starts an action step.
- / - Enumerations are marked with dots or indents.
- => Cross reference to another chapter or another page.



Note to further documentation.  
[www.keb.de/service/downloads](http://www.keb.de/service/downloads)



## Laws and guidelines

KEB Automation KG confirms with the EC declaration of conformity and the CE mark on the device nameplate that it complies with the essential safety requirements.

The EC declaration of conformity can be downloaded on demand via our website.

## Warranty and liability

The warranty and liability on design, material or workmanship for the acquired device is given in the general sales conditions.



Here you will find our general sales conditions.  
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Further agreements or specifications require a written confirmation.

## Support

Although multiple applications are referenced, not every case has been taking into account. If you require further information or if problems occur which are not referenced in the documentation, you can request the necessary information via the local KEB agency.

**The use of our units in the target products is outside of our control and therefore lies exclusively in the area of responsibility of the customer.**

The information contained in the technical documentation, as well as any user-specific advice in spoken and written and through tests, are made to best of our knowledge and information about the intended use. However, they are regarded as being only informal and changes are expressly reserved, in particular due to technical changes. This also applies to any violation of industrial property rights of a third-party. Selection of our units in view of their suitability for the intended use must be done generally by the user.

**Tests can only be done within the intended end use of the product (application) by the customer. They must be repeated, even if only parts of hardware, software or the unit adjustment are modified.**

## Copyright

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# 1 Basic Safety Instructions

The COMBIVERT is designed and constructed in accordance with state-of-the-art technology and the recognized safety rules and regulations. However, the use of such devices may cause functional hazards for life and limb of the user or third parties, or damages to the system and other material property.

The following safety instructions have been created by the manufacturer for the area of electric drive technology. They can be supplemented by local, country- or application-specific safety instructions. This list is not exhaustive. Violation of the safety instructions by the customer, user or other third party leads to the loss of all resulting claims against the manufacturer.

## NOTICE



### Hazards and risks through ignorance.

- ▶ Read the instructions for use !
- ▶ Observe the safety and warning instructions !
- ▶ If anything is unclear, please contact KEB Automation KG !

## 1.1 Target group

This instruction manual is determined exclusively for electrical personnel. Electrical personnel for the purpose of this instruction manual must have the following qualifications:

- Knowledge and understanding of the safety instructions.
- Skills for installation and assembly.
- Start-up and operation of the product.
- Understanding of the function in the used machine.
- Detection of hazards and risks of the electrical drive technology.
- Knowledge of *DIN IEC 60364-5-54*.
- Knowledge of national safety regulations.

## 1.2 Validity of this manual

This part of the instructions for use describes the DC terminal for the COMBIVERT H6. This instructions for use

- contains only supplementary safety instructions.
- is only valid in conjunction with the instructions for use *Installation COMBIVERT H6*.

## 2 Product Description

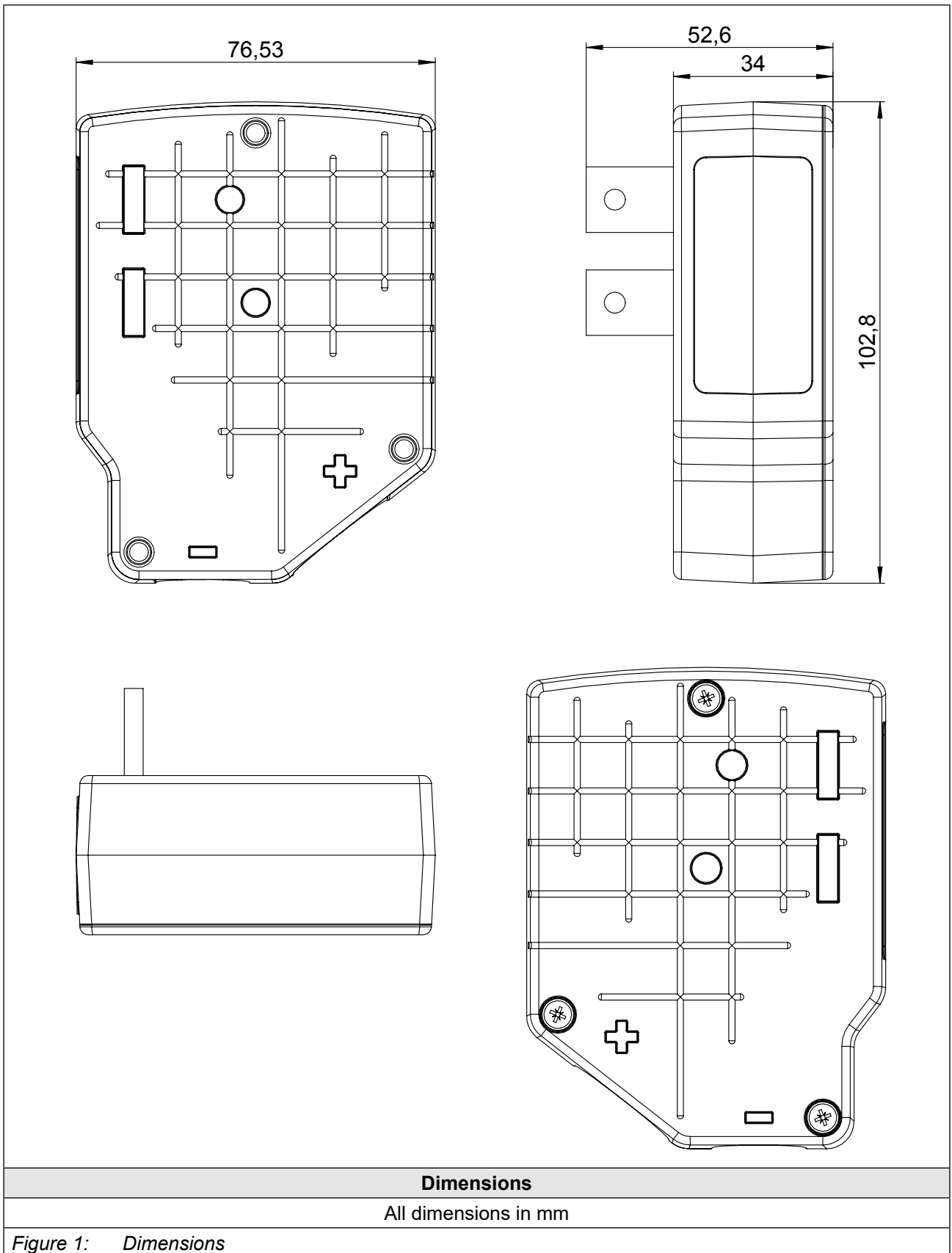
The DC terminal is designed for the use with KEB drive controllers of the series COMBIVERT H6. It is used to extend the internal DC bus of the COMBIVERT H6.

### 2.1 Intended use

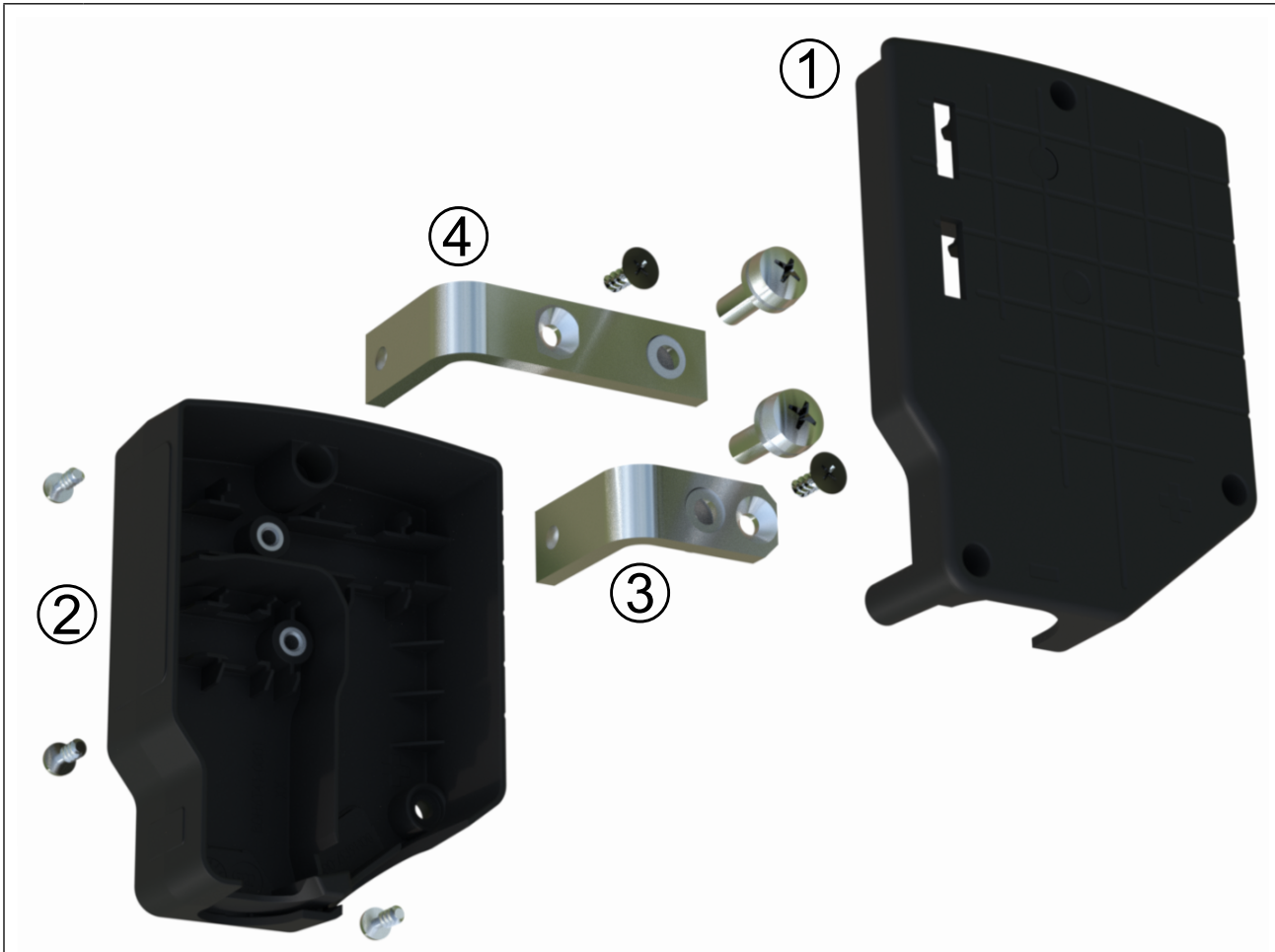
The DC terminal offers the possibility to adapt the DC bus of the COMBIVERT via cable. The installation of the H6 system can thus be flexibly divided or extended into several groups. For example, for space reasons in several rows, on different heat sinks or in different control cabinets. Installation is optionally possible at both ends of the H6 system.



**2.2 Dimensions**



2.3 Overview



**Legend**

1	Housing cover
2	Bottom of the housing
3	Connection bracket -
4	Connection bracket +

Figure 2: Overview

### 3 Technical Data

#### 3.1 Electrical data

DC terminal			
Cable cross-section	A / mm <sup>2</sup>	1x50	2x35
Input/output data			
Voltage range	$U_{dc}$ / V	452...840	
Rated current	$I_{dc}$ / A	180	250
Rated current UL	$I_{dc\_UL}$ / A	150	230
Maximum current for 60 s	$I_{dc\_max}$ / A	270	325
Other data			
Max. ambient temperature	$t$ / °C	45	
<i>Table 1: Electrical data</i>			

#### 3.2 DC-fusing

**NOTICE**

**High energy consumption with DC-bus connection!**

**Fire risk in case of earth or short circuit!**

► Ensure fire protection by semiconductor fuses.

The fire protection is realized with two semiconductor fuses (in +/- branch) and offers partly also device protection. The semiconductor fuses must be connected downstream the DC terminal. The customer is responsible for line and overload protection.

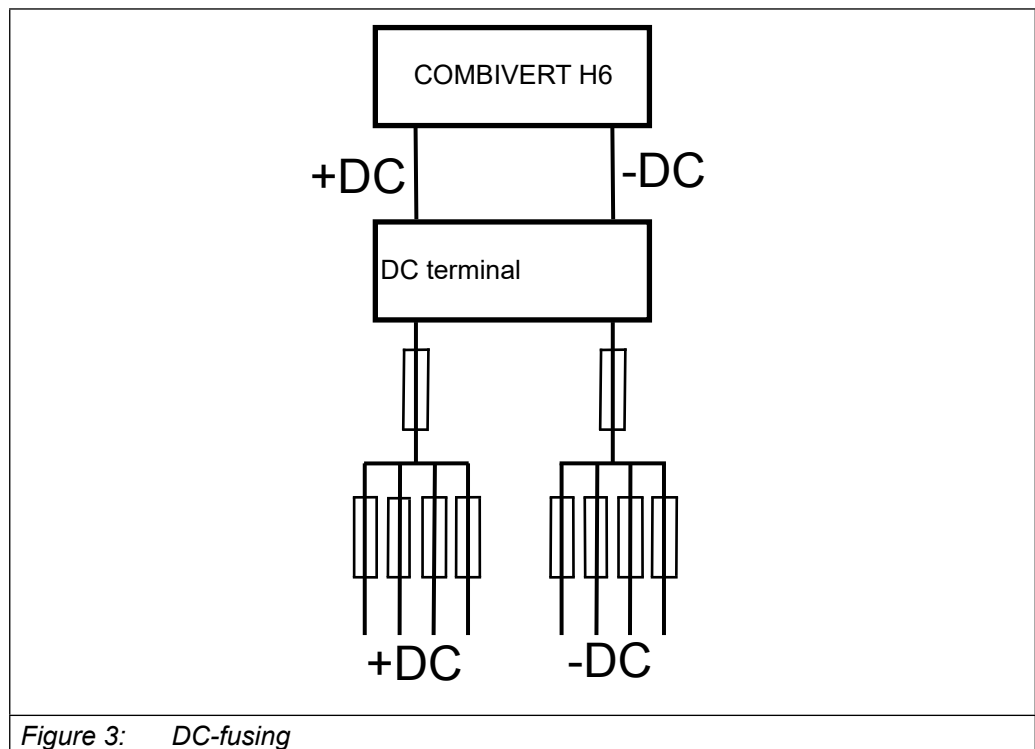


Figure 3: DC-fusing

### 3.2.1 Recommended cable cross-sections and DC-fuses

Recommended cable cross-sections and DC-fuses in connection with H6 supply modules.

#### 3.2.1.1 Rectifier module in connection with DC terminal

Rectifier module								
Device size		19	20	21	24	25	27	28
Max. permissible mains fuses gL/gG	$I_{max} / A$	50	63	80	200	250	315	400
Rated output current	$I_{dc\_outN} / A$	55	70	90	180	230	300	435
DC terminal								
Recommended cable cross-section	$\varnothing / mm^2$	16	25	35	2x35	2x35	2x35	2x35
Max. permissible DC-fuses aR	$I_{dc\_max} / A$	63	80	100	200	250	250	250

Table 2: Rectifier module in connection with DC terminal

#### 3.2.1.2 Active Infeed Converter (AIC) in connection with DC terminal

Active Infeed Converter (AIC)							
Device size		14	19	21	23	24	26
Max. permissible mains fuses gR/aR	$I_{max} / A$	25	80	125	250	250	350
Rated output current	$I_{dc\_outN} / A$	16.5	60	90	145	180	250
DC terminal							
Recommended cable cross-section	$\varnothing / mm^2$	16	25	35	50	2x35	2x35
Max. permissible DC-fuses aR	$I_{dc\_max} / A$	35	80	100	160	200	250

Table 3: Active Infeed Converter (AIC) in connection with DC terminal

#### 3.2.1.3 Recommended DC-fuses

KEB recommends DC-fuses from Siba.

Recommended DC-fuses	
Manufacturer	Siba
Fuse type	Class aR, Rated Voltage DC 700V, Size 000 DIN 80
Rated current $I_N / A$	Part number
35	2029220.35
50	2029220.50
63	2029220.63
80	2029220.80
100	2029220.100
125	2029220.125
160	2029220.160
200	2029220.200
250	2029220.250

Table 4: Recommended DC-fuses

## 4 Installation

### 4.1 Required tool

- Phillips screwdriver type PH2
- Torx screwdriver type T20

### 4.2 Installation of the connecting cables

The DC terminal is pre-assembled ex factory for the mounting on the right end of the DC bus. If it should be used on the left side => „4.5 Changing the connection side“.

- ▶ Unscrew the housing screws with a Phillips screwdriver and remove the housing cover.

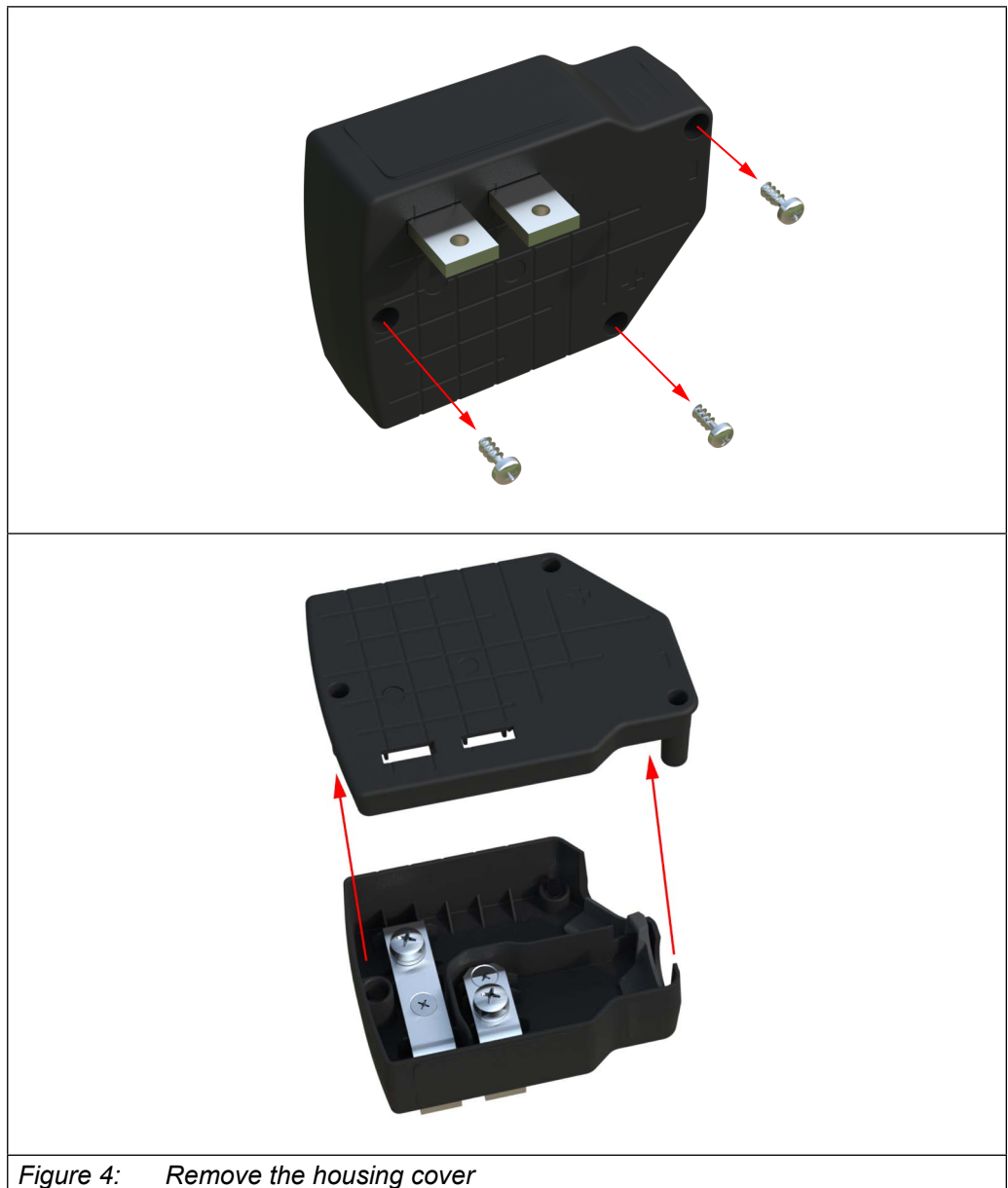
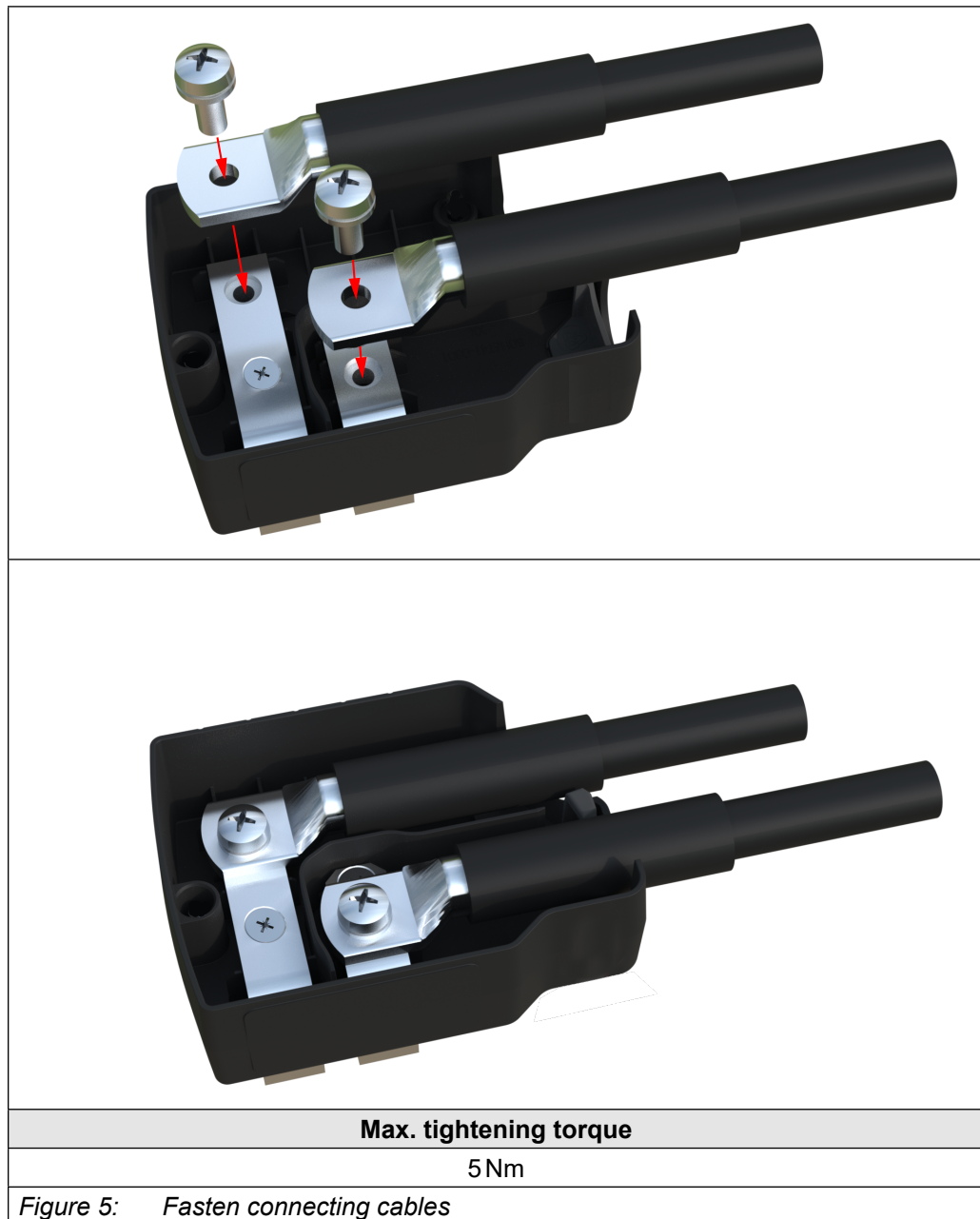


Figure 4: Remove the housing cover

## INSTALLATION OF THE CONNECTING CABLES

- ▶ Unscrew the two Phillips screws and tighten the connecting cables.
- ▶ Make sure that the length of the connecting cables has a sufficient bending radius in the feeding. When using several cables => „4.4 Use of two connecting cables in parallel“.



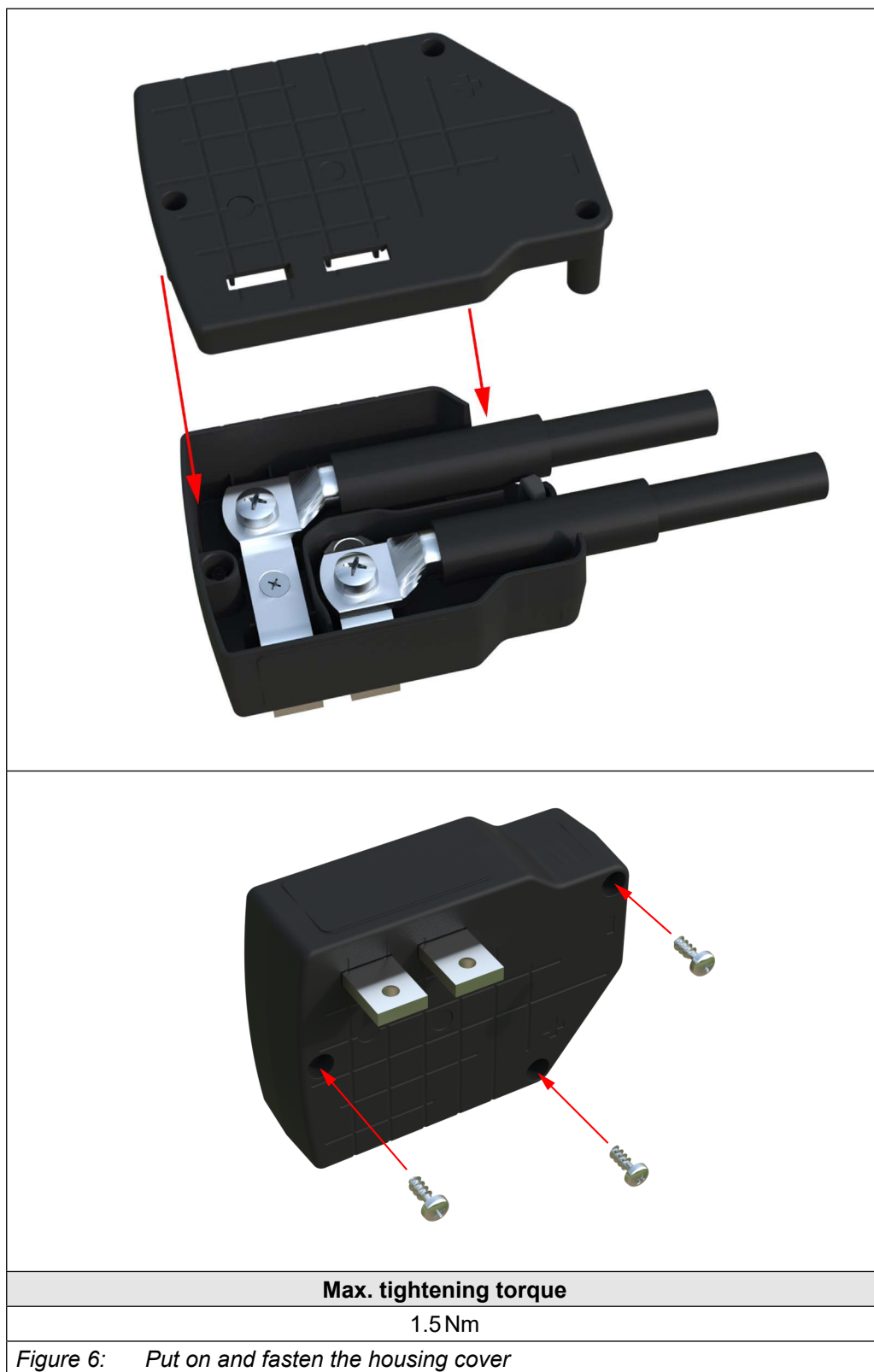
### **⚠ DANGER**

#### **Danger to life due to electric shock!**

When using smaller cable cross-sections (=> „3 Technical Data“) the protection against accidental contact is only guaranteed to a limited degree.

- ▶ Ensure adequate insulation at the connection of the cable to the crimp connector (e.g. of heat-shrinkable tube).
- ▶ The stripping length and usable conductor cross-sections can be taken from the specification of the manufacturer of the crimp connector.

- Put on the housing cover and fix it with the cross-head screws.



COMBIVERT H6 DC terminal with mounted connecting cables.

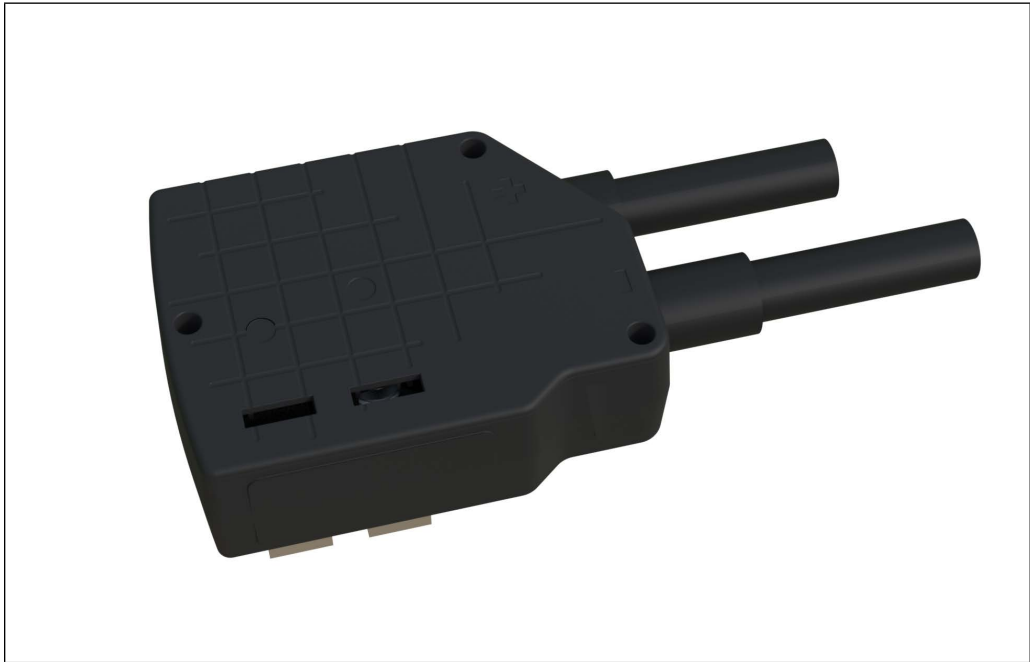
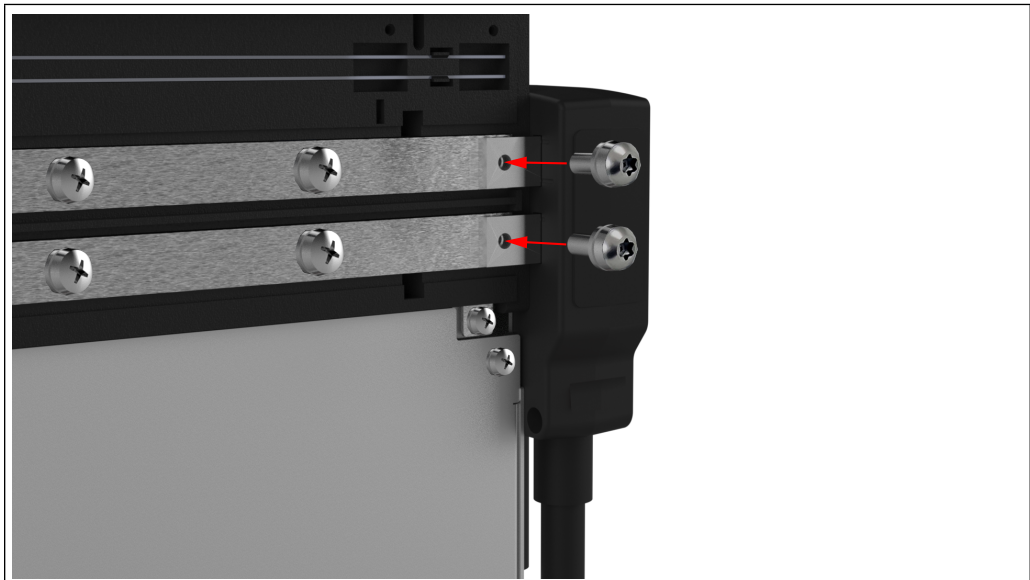


Figure 7: DC terminal with mounted connecting cables

### 4.3 Mounting of the DC terminal on the COMBIVERT H6

- Fasten the DC terminal to the DC bus rail of the COMBIVERT H6 with the Torx screws included in the assembly kit.



**Max. tightening torque**

3 Nm

Figure 8: Screw the DC terminal to the DC bus rail



- ▶ Replace the covers over the DC bus rail and the housing of the COMBIVERT H6.

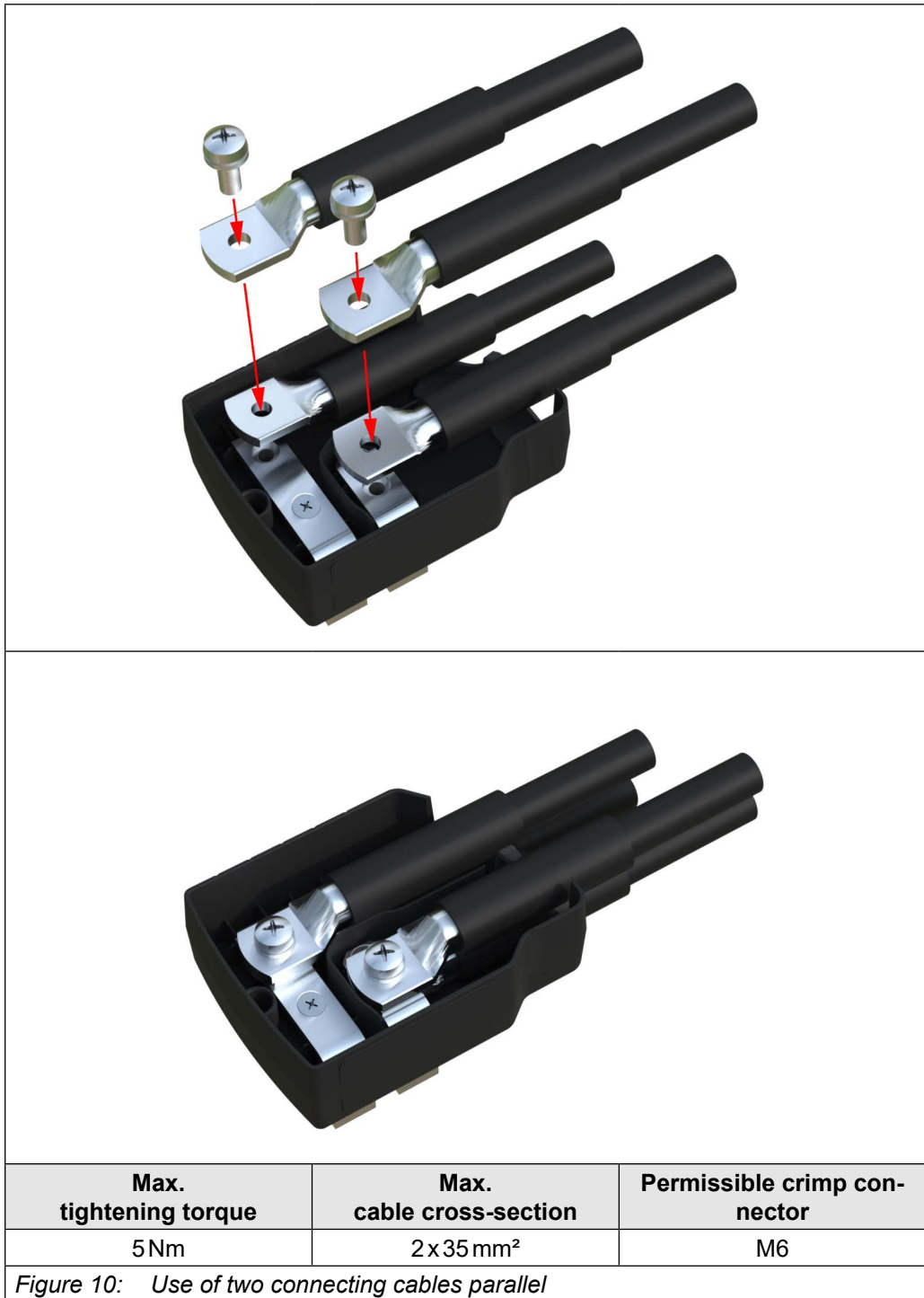
**NOTICE****Prevent tensile load on the DC terminal!**

- ▶ At a distance of max. 50 cm after the terminal, mechanically intercept the cable!

#### 4.4 Use of two connecting cables in parallel

When using two connecting cables parallel at one connection.

- ▶ Place the lower crimp connectors upside down.
- ▶ Insert the screws through both crimp connectors at the same time and fasten with them.



## 4.5 Changing the connection side

To be able to use the DC terminal at the left end of the DC bus, it must be converted.

- ▶ Remove the housing cover (=> „[Figure 4: Remove the housing cover](#)“).
- ▶ Unscrew the two marked screws.

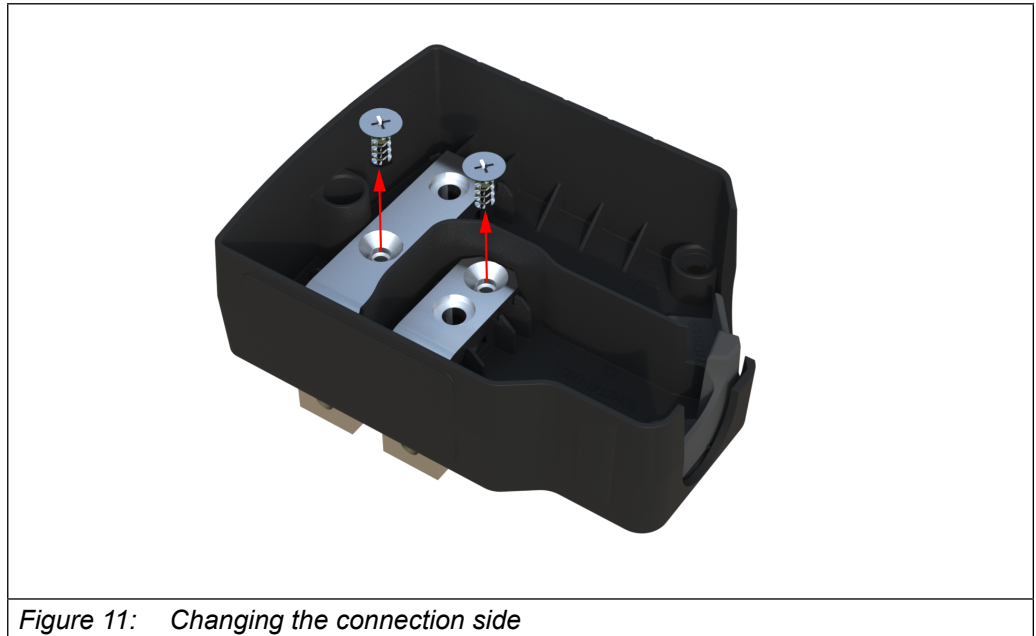


Figure 11: Changing the connection side

## CHANGING THE CONNECTION SIDE

- ▶ Remove the connection brackets from the bottom of the housing.
- ▶ Insert connection bracket rotated by 180° into the housing cover.

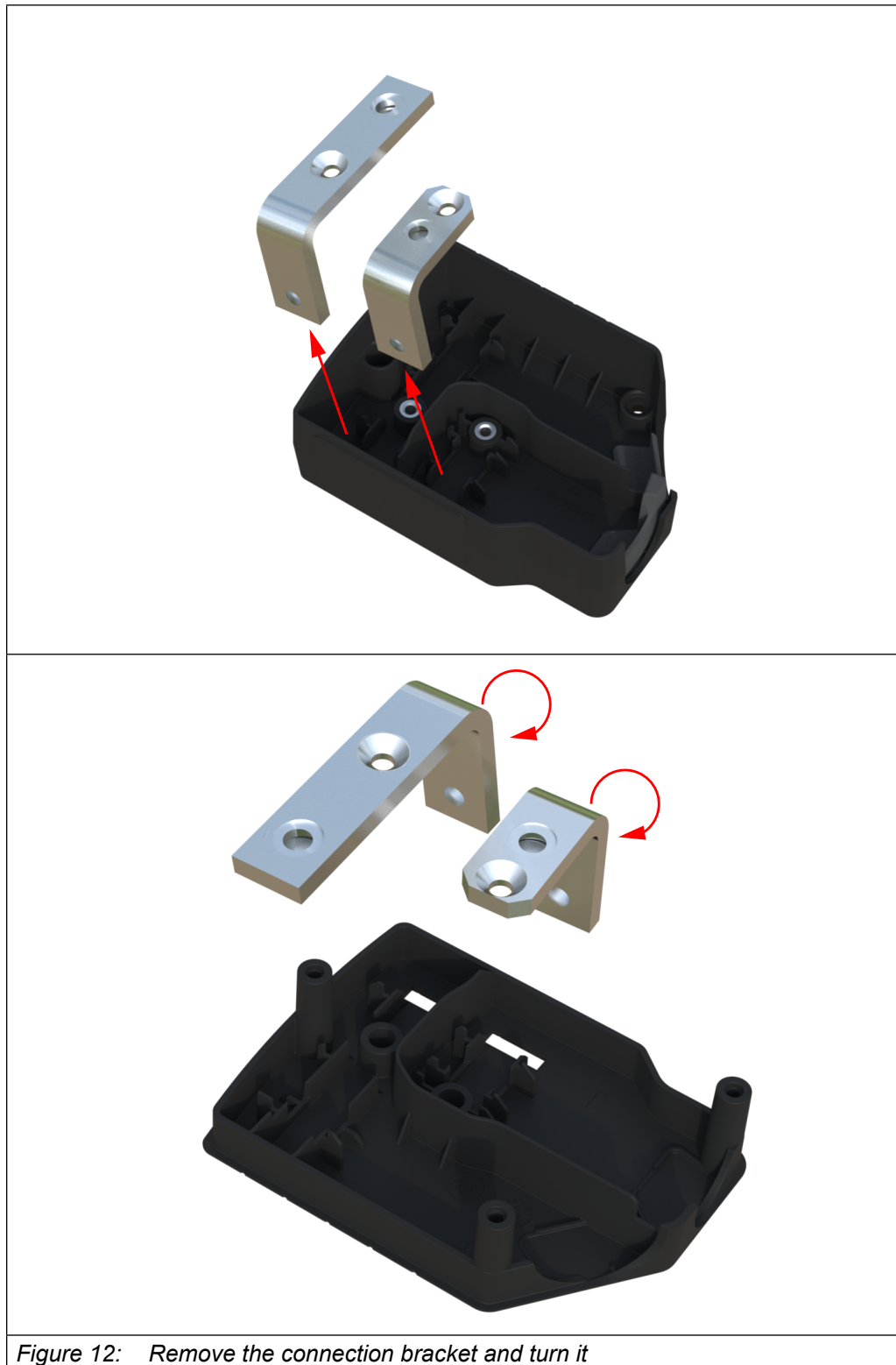
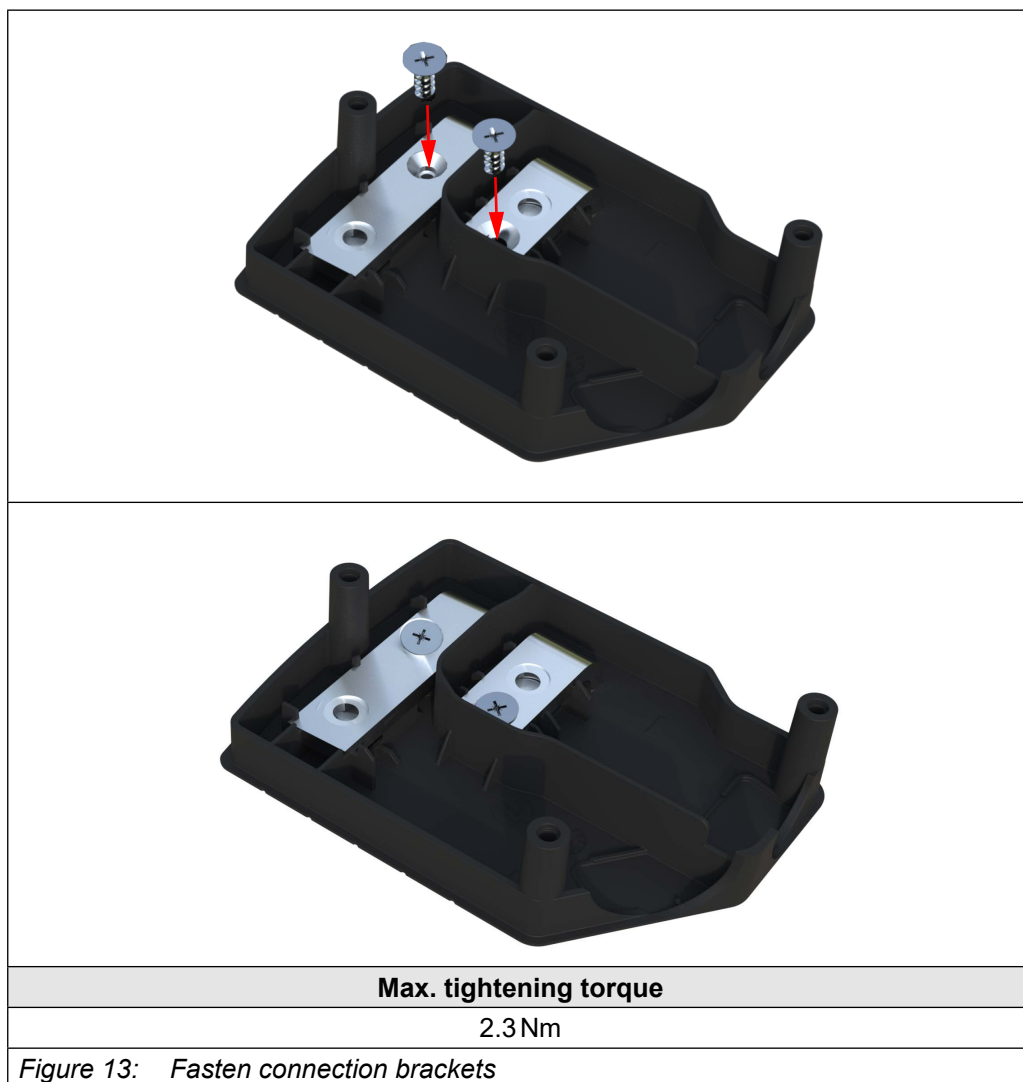


Figure 12: Remove the connection bracket and turn it

- Fasten the connection brackets with the previously removed screws.



- ▶ Fasten the connecting cables => „*Figure 5: Fasten connecting cables*“.
- ▶ Put the housing cover back on the bottom of the housing and fasten it => „*Figure 6: Put on and fasten the housing cover*“.

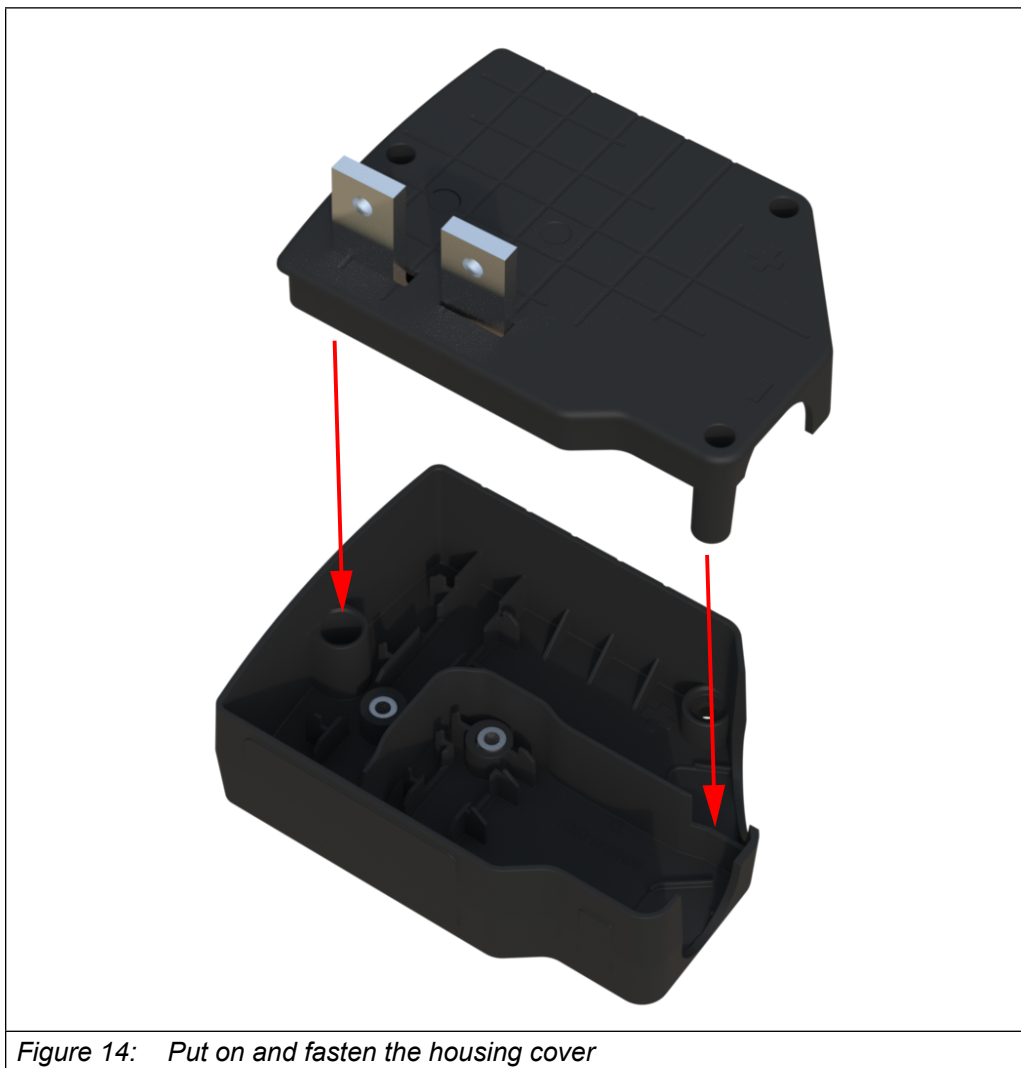


Figure 14: Put on and fasten the housing cover

- ▶ Attach the DC terminal to the left end of the DC bus of the COMBIVERT H6  
=> „4.3 Mounting of the DC terminal on the COMBIVERT H6“.

**NOTICE****Prevent tensile load on the DC terminal!**

- ▶ At a distance of max. 50 cm after the terminal, mechanically intercept the cable!

## 5 Revision History

Version	Date	Description
00	2018-05	Pre-series. Creation of the installation DC terminal for H6
01	2022-02	Release series version



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