
Installation Instruction HIPERDRIVE Hub HH7X PROFIBUS DP

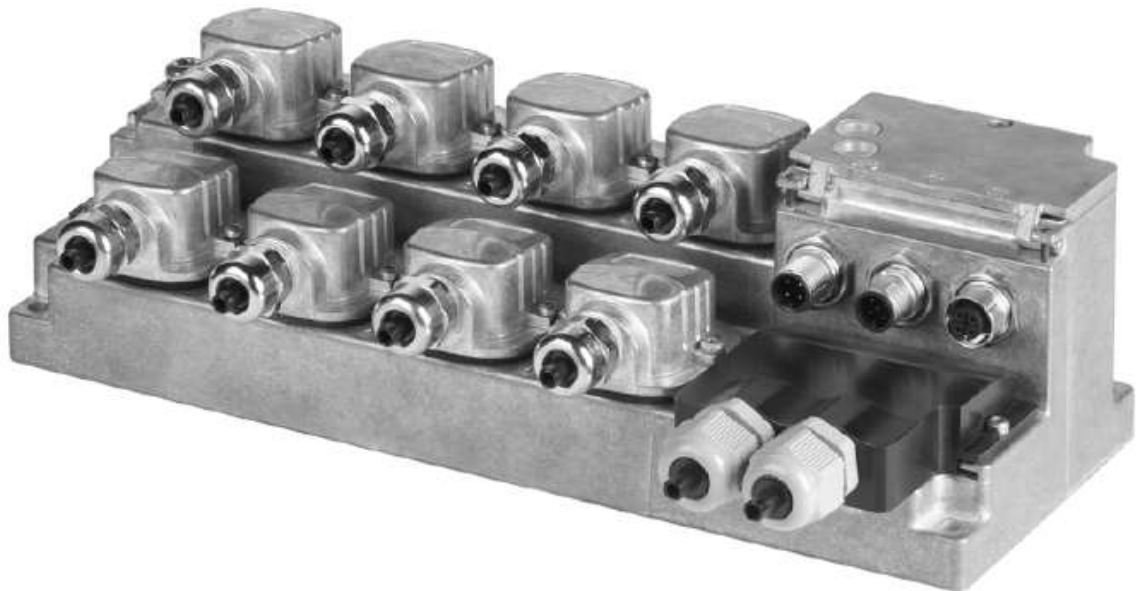


Image similar

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HIPERDRIVE Hub HH7X

Assembly Instructions

General

The HIPERDRIVE Hub HH7X is a PROFIBUS DP interface for power distribution and data management for a maximum of 8 HIPERDRIVE HDA 70 / PSE 441... drives.

Safety notes for assembly

People protection

The HIPERDRIVE Hub HH7X is an electronic device. We assume that assembly and initial commissioning will be carried out by a specialist who, due to his/her professional training, recognises the possible danger moments related to the work and performs this work observing the applicable professional Safety and Accident Prevention Regulations.

- Only assemble and install the device in a potential-free / de-energised condition.
- Only use correct tools and aids.
- Perform the assembly according to the description below.
- Do not make any modifications to the device.
- Do not repair the device.
- Inform the manufacturer if the device malfunctions or shows damage.

Device protection

The HIPERDRIVE Hub HH7X contains electronic components.

- Handle the device carefully.
- Prevent
 - mechanical shocks / loads,
 - the ingress of moisture / dust and
 - the effect of aggressive gases, intense heat / cold etc. on the device.
- Prior to connecting the electric power cables, check if the voltage / power supply source, through which the device is to be operated, meets the technical requirements of the device and the statutory guidelines.
- Operate
 - only the drives intended for this by the manufacturer, with the device. Currently, these are the series HDA 70 / PSE 441.
 - the device only within the values specified in the technical data (see Operating Instructions for HIPERDRIVE Hub HH7X PROFIBUS DP).
- Do not open the device! Have any repairs and checks carried out by the manufacturer's service personnel.

Intended use

- Operate the HIPERDRIVE Hub exclusively as a PROFIBUS DP interface for power distribution and data management for a maximum of 8 HIPERDRIVE HDA 70 / PSE 441 drives. Any other use is not intended and can lead to personal injury, damage to property or devices!

The device is not designed for use

- in explosive
- in radioactive or
- in biologically or chemically contaminated atmospheres!

Description of the device

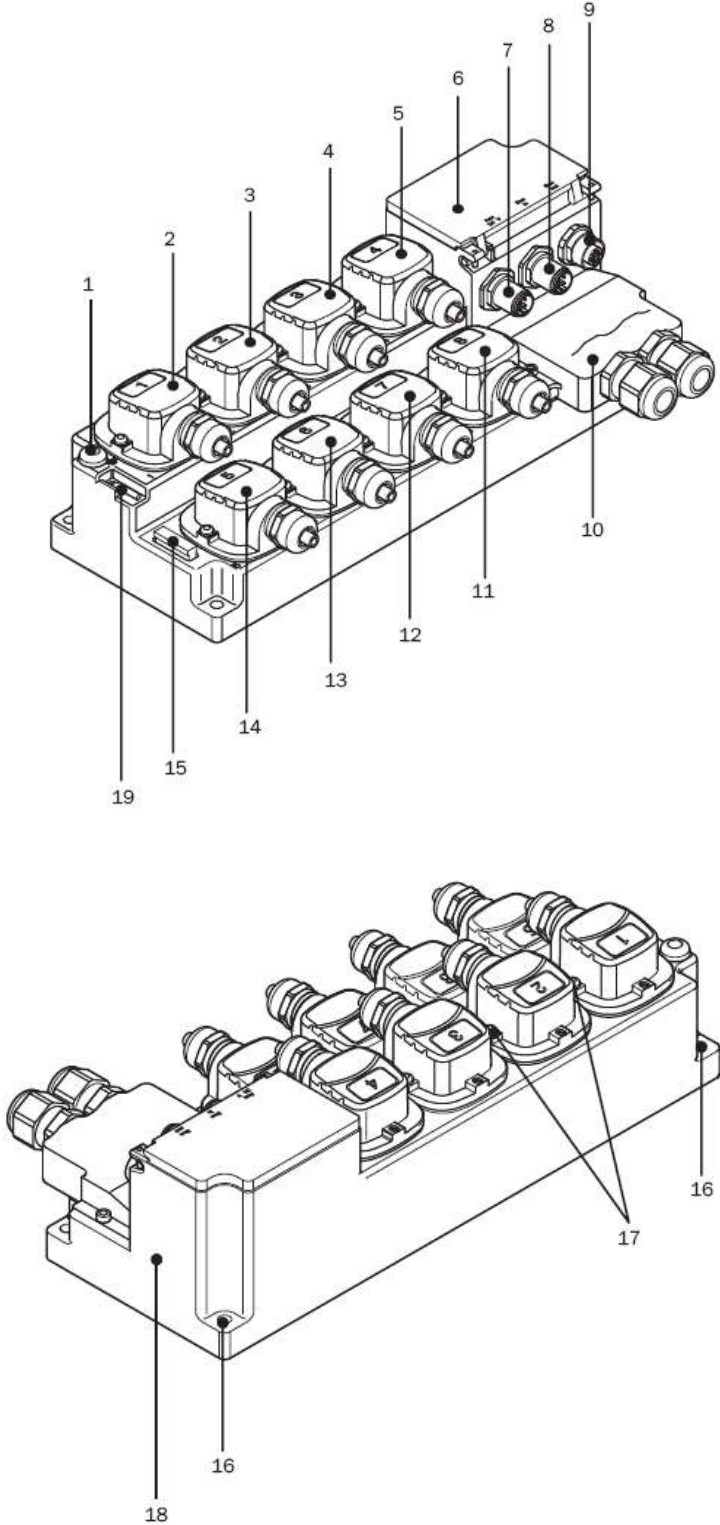


Fig. 1

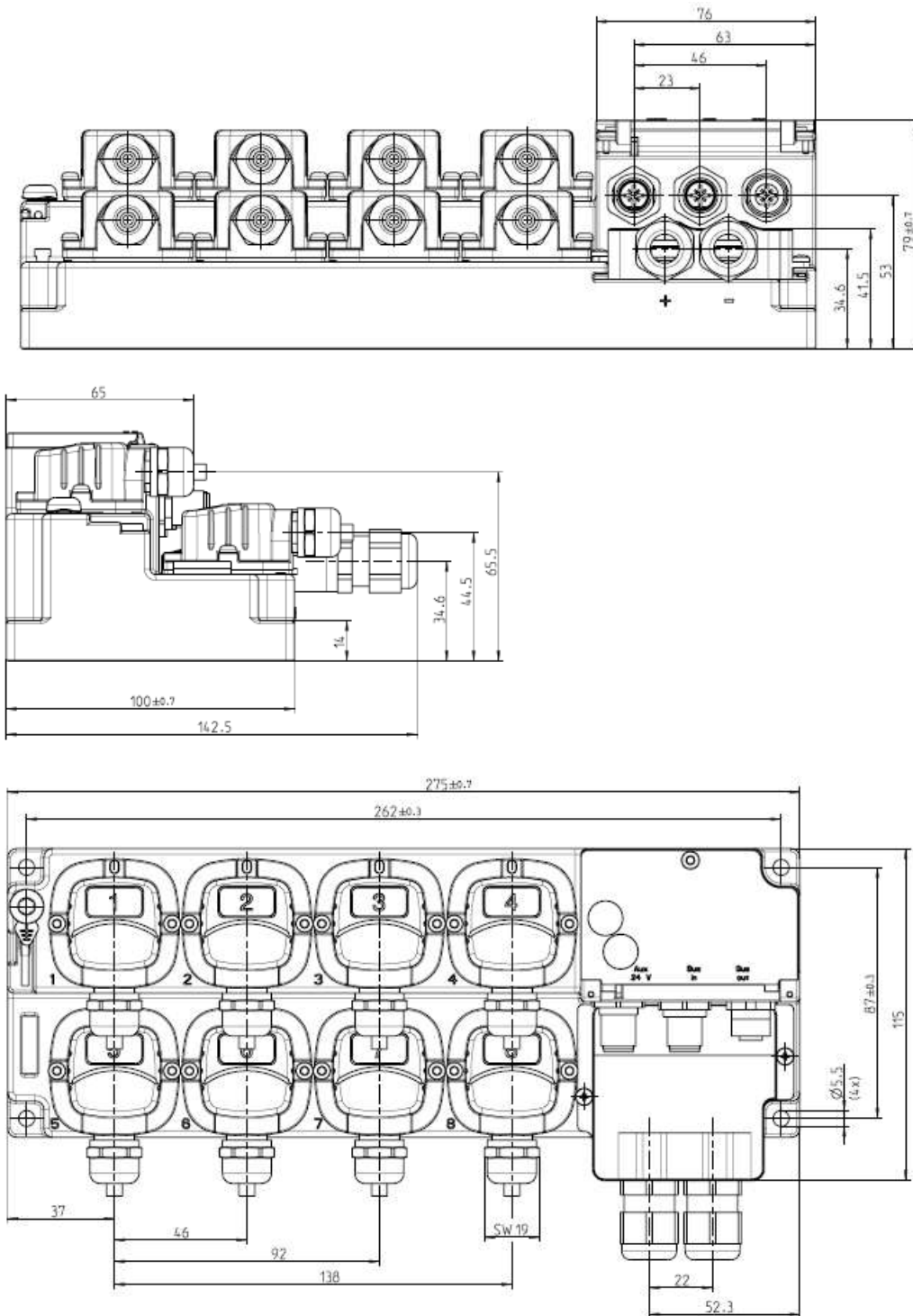
Legend for fig. 1

- 1 *Protective Earth conductor connection (M6 x 10)*
- 2 *Plug connector X-D1, connection plug for drive 1*
- 3 *Plug connector X-D2, connection plug for drive 2*
- 4 *Plug connector X-D3, connection plug for drive 3*
- 5 *Plug connector X-D4, connection plug for drive 4*
- 6 *Cover flap of the operating unit*
- 7 *Plug connector X-B1, 4-pin M12 plug (pins) AUX 24 V DC*
- 8 *Plug connector X-B2, 5-pin M12 plug (pins) Bus In*
- 9 *Plug connector X-B3, 5-pin M12 plug (socket) Bus Out*
- 10 *Cover cap of the screw terminals for voltage supply of the drives*
- 11 *Plug connector X-D8, connection plug for drive 8*
- 12 *Plug connector X-D7, connection plug for drive 7*
- 13 *Plug connector X-D6, connection plug for drive 6*
- 14 *Plug connector X-D5, connection plug for drive 5*
- 15 *Spare fuse 10*
- 16 *Hole for assembly of the HIPERDRIVE Hub \varnothing 5.5 (4 x)*
- 17 *Fixing screws of the plug connector cover (16 x)*
- 18 *Type label*
- 19 *Offset screwdriver TX10*

Allocation of the port designation to the hardware

The allocation of the physical connection points to the arrangement selected in the software is specified by the manufacturer, in the device firmware. The numbering begins in the upper row left with ports 1 (X-D1 / drive 1) to 4 and in the lower row with ports 5 to 8.

Fig. 2



Mechanical assembly

The mounting position must be chosen such that the cable entries point downwards. The mounting surface may consist of concrete, brickwork, steel, wood or plastic. However, it must be even and dry. The assembly position should enable straightforward feeding of the power supply and drive cables and be easily accessible.

- Mount the device with four screws, in the suitable position.

Connection of the supply voltage

Advice:

Observe the project advice and the advice provided in the mounting instructions

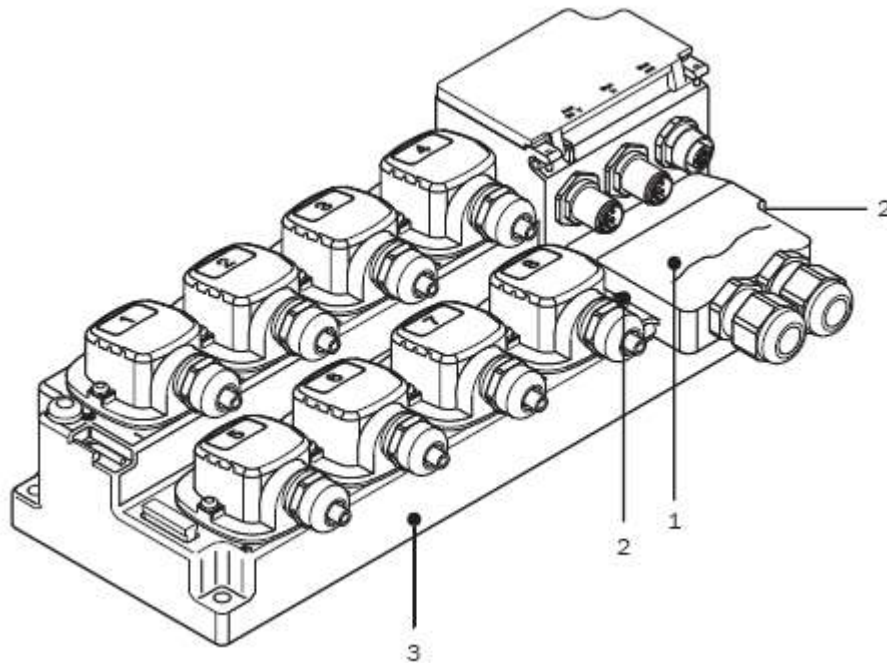
Danger! Avoid damaging the drive!

Ensure that the polarity of the supply voltage for the drive and bus interface in addition to the data lines are connected correctly!

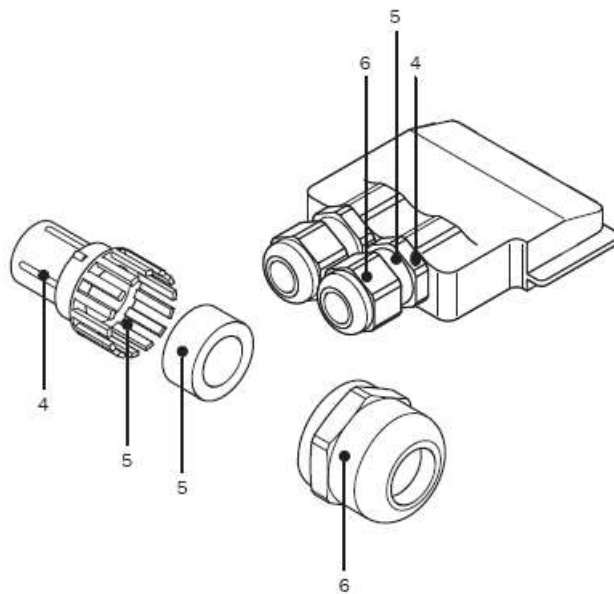
Attention! Risk of personnel injury and damage to the machine!

Avoid unwanted motion of the drive during commissioning!

Before connecting the supply voltage for the first time, ensure that the power to the Hub and the drive can be shut off using a suitable emergency stop switch.



1. Remove the cover **(1)** from the housing **(3)**, by loosening both screws **(2)** with a Tx10 key.
2. Remove the sheathing of the supply voltage connection cable.



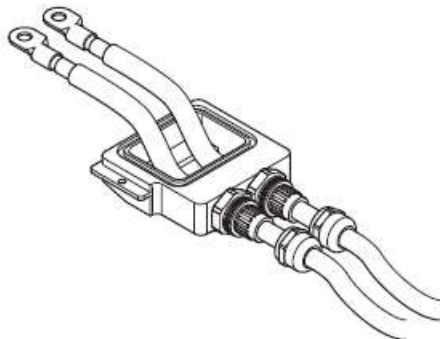
3. Slide the prepared cable with crimped cable ends through the M16 PG gland assembly consisting of Locking nut **(6)**, plastic grommet with seal **(5)** and the cable fitting **(4)**.

Advice: Please check the polarity!

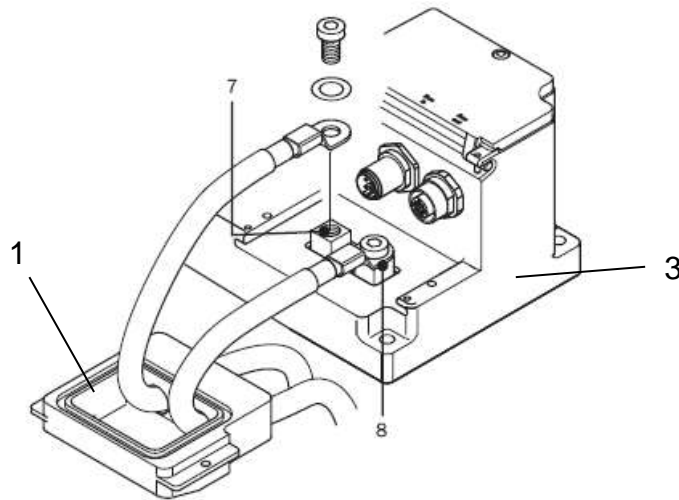
The left fitting is for the positive connection **(+)**, the right for the negative **(-)**.

Tip

In the event that you select a cable with a very large diameter and it is very difficult to pass it through the PG gland, take the sealing ring out of the plastic grommet and position it separately over the cable. Ensure that you do it in the correct sequence: Locking nut **(6)**, Seal and plastic grommet **(5)**, cable fitting **(4)**.



4. Fit a cable lug with a bore hole suitable for an M6 screw to the end of each cable core (e.g. Klauke part no. 16526).



5. Screw the cable to the contacts “+” **(7)** and, “-” **(8)** so that the flat part of the cable lug points down. **Check that the contact is firmly made** (max. tightening torque 2.5 Nm).

Advice! Take care not to over tighten the screws!

6. Fit the cover **(1)** back onto the housing **(3)**. Withdraw excess cable from the housing to ensure it is of the correct length.

Advice! Ensure that the cable is not under tension!

7. Securely screw the cover **(1)** onto the housing **(3)**.
8. Cable length: max. 15 m according EN 60204-1/13.5
Cable cross section: max. 10 mm² (AWG 8)

AUX 24 V DC- / Bus In- and Bus Out Cables

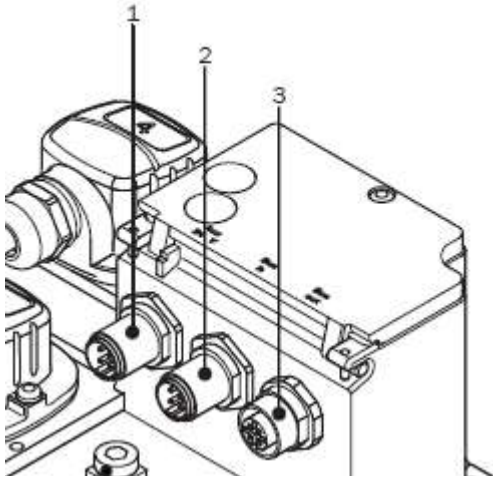


Fig. 5

- Feed the socket of the AUX 24 V DC cable into the plug (1) and screw together the plug and socket.
- Feed the socket of the Bus In cable into the plug (2) and screw together the plug and socket.
- Insert the plug of the Bus Out cable into the socket (3) and screw together the plug and socket.

If the device is the only bus subscriber or if it is the last subscriber on the line, then the bus termination resistor must be connected to this plug connection, instead of to the plug of the Bus Out cable!

Plug / socket pin assignment

Plug connections	Pin number	Function	
X-B1 AUX 24 V DC M12, 4-pol A-coded	1	UB (24 V)	
	2	-	
	3	GND (0 V)	
	4	-	
X-B2 Bus In M12, 5-pol B-coded	1	-	
	2	Sig - A (gn)	
	3	-	
	4	Sig - B (rt)	
	5	Screen	
X-B3 Bus Out M12, 5-pol B-coded	1	2P5 (+ 5 V)	
	2	Sig - A (gn)	
	3	2M (0 V)	
	4	Sig - B (rt)	
	5	Screen	

Connecting drive cables

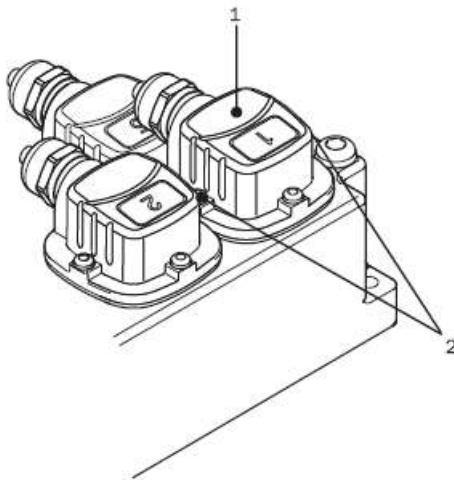


Fig. 6

- Undo (e.g. to connect drive 1) the screw (2) and remove the cover of the plug connector X-D1 (1).

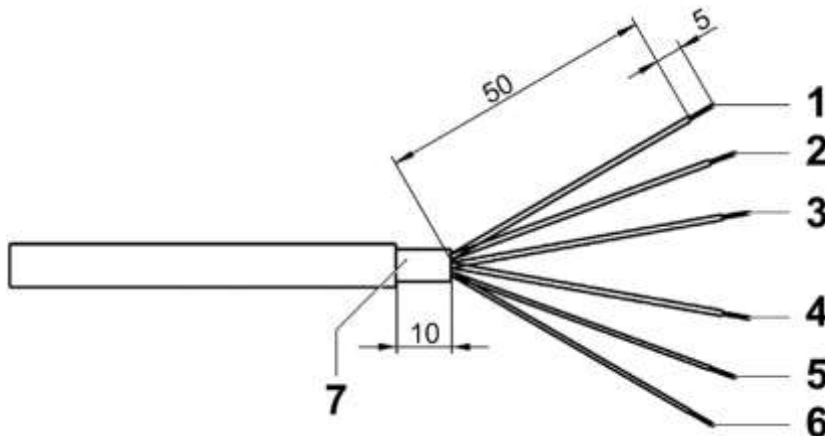


Fig. 7

- Install the cable of drive 1 to the HIPERDRIVE Hub and cut / prepare to the length required.
- According to the illustration, remove the insulation from the core ends and cable.



Fig. 8 (Image similar)

- Push the cable (1) through the (also supplied) sleeve nut[s] (5), the sealing ring (4) and the plastic ring (3).
- Put the cable screen (2) over the plastic ring (3).
Push the cable up to the stop of the plastic ring through the cable entry of the cover of the plug connector.
Screw the sleeve nut to the cable housing.

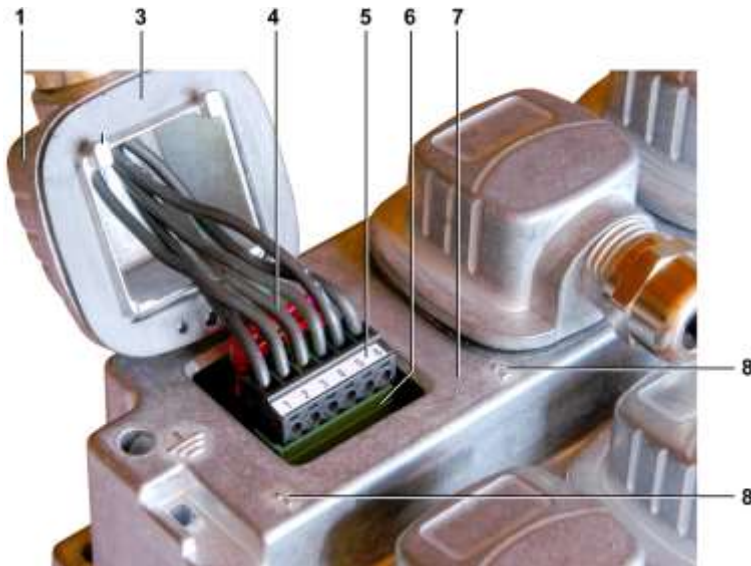


Fig. 9 (Image similar)

- Connect the cables (4) to the socket (5) also supplied. (Fig. similar)

Pin assignment of the plug connection

Pin number	Cable colour	Function
1	white	Data +
2	green	Data -
3	orange	+ 24 V
4	black	GND
5	red	+ 24 V
6	blue	GND

- Push the connected socket (5) onto the plug (6).
- Connect the cover (1)
- Ensure that the seal (3) is present and correctly seated and that no cable has been pinched and the cover was inserted correctly.

- Affix the cover with the screws (max. tightening torque 1.2 Nm).
- Connect any further drives to the HIPERDRIVE Hub, as described above.

Note

If more than four drives are to be connected to the device, start in the lower row of the plug connector (because of better access to the screws).

The drives must be connected in ascending order (1, 2, 3, 4, 5 ...) without gaps, to the slots (8) identified!



Fig. 10 (Image similar)

- Seal unconnected plug connectors by always pushing a blanking piece (3) into the sealing ring (2) and pushing these together into the plastic ring (1).
- Insert this combination into the cable entry of the cover and screw on the sleeve nut (4).

Commissioning

We assume that the assembly and electrical installation of the device were performed as described above.

- Now perform the functional check of the drives.
- Connect the bus cable to the controller, and connect the power supply cables for the drives to the power supply.

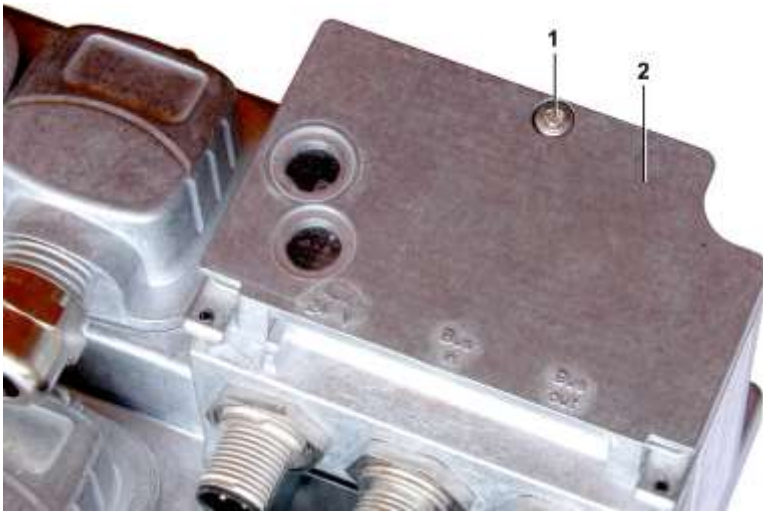
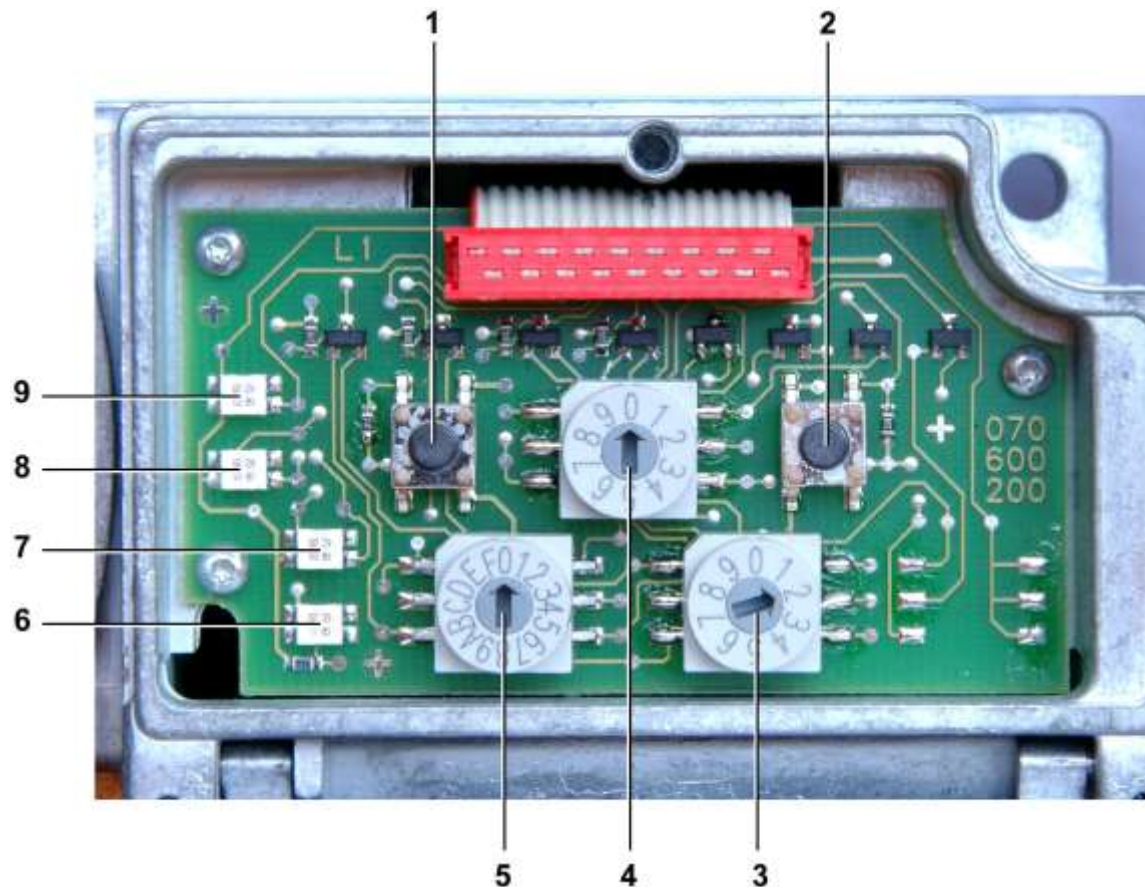


Fig. 11 (Image similar)

- Undo the screw (1) and open the cover flap (2) of the operating unit.



- 1 Button S6, JOG- (counter-clockwise operation)
- 2 Button S5, JOG + (clockwise operation)
- 3 Rotary switch S2 (decimal), field bus slave address (units, 10°)
- 4 Rotary switch S4 (decimal), selection of the serial port (drive)
- 5 Rotary switch S1 (hexadecimal), field bus slave address (tens, 101)
- 6 LED 4, operational status indicator (voltage supply)
- 7 LED 3, communication status of the field bus (DP, DN, CO)
- 8 LED 2, diagnostic indicator (DIAG)
- 9 LED 1, status indicator RS485 serial communication (SR-Comm)

Fig. 12 (image similar)

Functional check in Manual Controlled Work Mode (MCWM)

To perform the functional check, the device must be in Manual Controlled Work Mode. The field bus address "129" must be set for this.

- To set this address, rotate
 - switch S1 (5) to position "C" (decimal '12') and
 - switch S2 (3) to position "9".
- To select drive 1, rotate switch S4 (4) to position "1".
- Now switch on the voltage supplies of the device and of the drives and, in doing so, observe the illuminated signals of the LED

Immediately after applying the voltages, the device performs a self-test, with

- LED 4 lit green (constant).
- LEDs 1-3 flashing red-green-red-green.

After performing the test

- LED 4 lights green (constant)
- LED 1 lights green (constant)
- LED 2 flashes green / orange

The indication of LED 3 is not relevant in MCWM.

- Now operate button S6 (1)
 - drive 1 (which you have set as described above) performs an anticlockwise operation (CCW),
 - LED 2 changes from flashing green / orange to flashing orange.
- Now operate button S5 (2)
 - drive 1 performs a clockwise operation (CW),
 - LED 2 flashes orange.
- Rotate switch S4 (4) to position "2", e.g. for selecting drive 2.
- Perform (as for drive 1) the CCW/CW functional check and again observe the indications of the LED.
- Perform this check for all drives connected.

For the "normal" mode, the device must be placed in the Auto Controlled Work Mode (ACWM)!

- For this, rotate the two switches S1 (5) and S2 (3) to the positions which correspond with the field bus address which saves the address of the device in its memory.
- Following this adjustment, screw on the cover flap (max. tightening torque 1.2 Nm).

Note:

When switching into Auto Controlled Work Mode a motor run can start immediately relating to the status word from plc. This behaviour must be considered in the plc-program. Look also the referring chapter in the operating instructions.

The functional check in Auto Controlled Work Mode (ACWM) and the statements of the LED displays are described in the following documentation:

Operating Instructions for HIPERDRIVE Hub HH7X PROFIBUS DP.