Assembly Instruction HIPERDRIVE HDA
- with PROFIBUS DP
- with cable adapter

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Translation of the original instructions

These operating instruction is part of the product. Read these instructions carefully, follow our instructions and pay particular attention to safety instructions. The instructions should be available at all times.

The manufacturer owns the copyright to this instruction manual. It contains technical data, instructions and drawings detailing the device's features and how to use them. It must not be copied either wholly or in part or made available to third parties.

The instruction manual is part of the product. Please read this manual carefully, follow our instructions, and pay special attention to the safety information provided. This instruction manual should be available at all times. Please contact the manufacturer if you do not understand any part of the instructions.

The manufacturer reserves the right to continue developing this device model without documenting such development in each individual case. The manufacturer will be happy to determine whether this manual is up-to-date.

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1. Safety precautions

This section provides an overview of all the important safety aspects for optimum protection of personnel and for safe and trouble-free operation.

1.1. Qualified personnel

These operating instructions are intended for qualified electricians and fitters who are authorized to install, electrically connect, commission and label devices and systems in accordance with safety standards, as well as for the operator and manufacturer of the system on which the drives are installed.
The personnel must be provided with all applicable accident prevention and safety regulations that arise during commissioning or installation of the system.
It must be ensured that the personnel are familiar with all applicable accident prevention and safety regulations.

1.2. Explanation of symbols

In these operating instructions, the following highlights are used to draw attention to the hazards described below when handling the system:

⚠ DANGER	**DANGER!** Indicates a situation of imminent danger, which will lead to a fatality or serious injuries if not prevented.
⚠ WARNING	**WARNING!** Indicates a potentially dangerous situation, which may lead to a fatality or serious injuries if not prevented.
⚠ CAUTION	**CAUTION!** Indicates a potentially dangerous situation, which may lead to minor/slight injuries if not prevented.
NOTICE	**NOTICE** Indicates a potentially harmful situation, which may lead to material damage if not prevented.

1.3. Appropriate use

Positioning systems are especially suitable for automatically setting tools, stops or spindles for wood-processing equipment, packing lines, printing equipment, filling units and other types of special machines.

Hiperdrive positioning systems are not stand-alone devices and may only be used if coupled to another machine.

⚠ WARNING!

Personal injury and property damage due to incorrect use of the products!

The positioning systems are designed for use in an industrial environment and may only be used as intended. If they are not used as intended, situations may arise that result in damage to property and personal injury.

NOTICE

The device is used as intended if all instructions and information in these operating instructions are observed.

- Only operate the device in perfect technical condition.
- When attaching to a machine, observe the current safety regulations.
- Do not operate the product in all installed state unless all necessary protective measures have been taken.
- Observe the relevant regulations for the prevention of accidents (e.g. accident prevention regulations).
- In order to avoid the risk of accidents due to contact with moving parts, appropriate separating or non-separating guards must be provided.
- Use appropriate protective equipment (e.g. safety helmet, safety goggles, safety shoes, protective gloves).
- Use appropriate assembly and transport equipment.
- Store and transport the product in its original packaging, reuse protective caps for plugs if necessary.
- Adequate ventilation must be provided at the point of use to avoid excessive heating.
- During project planning, ensure that the device is always operated within its specifications.
- If the device is equipped with a brake, it is not a safety brake that may be used for safety functions.
- In special areas of application such as the chemical, pharmaceutical or food sector, the positioning system in stainless steel design is possible.

1.4. Inappropriate use

The use of the positioning devices outside of the operating conditions and technical data and specifications described in the documentation is considered “improper”.

The drives are designed for intended operation under normal ambient conditions (according to EN / IEC / UL 61010-1), with the exception of an extended temperature range.

- Operation inside buildings
- Operartion at altitudes up to 2000m above sea level
- Ambient temperatures deviating from standard: 0°C to 45°C
- Maximum relative humidity 80% at temperatures up to 31°C, decreasing linearly to 50% relative humidity at 45°C
- Fluctuations in the supply voltage up to ± 10% of the nominal voltage at 50% relative humidity at 45°C
- The IP-protection rating is a manufacturer specification.

Any use of the device that goes beyond the intended use and/or is used differently can lead to dangerous situations

- Underwater usage is not allowed.
- The positioning system cannot be used for certain applications, such as the tranport of people and animals or as a press-bending device for cold processing of metal.
- If the operation requirements stated in chapter 6. Technical Data are exceeded, personal injury or property damage may occur.
- The positioning system cannot be used in hazardous areas.
- The holding brake must not be used to brake the motor.
- Under no circumstances may the housing cover be used for power transmission purposes, e.g. for supporting, climbing or similar.

1.5. Limitation of liability

The device may only be operated in accordance with these operating instructions. All information and instructions in these operating instructions have been compiled taking into account the applicable standards and regulations, the state of the art and our many years of experience and knowledge.

The manufacturer accepts no liability arising from improper or unintended use. Warranty claims also expire in this case:

- non-observance of the operating instructions
- improper use
- improper installation
- improper use
- Use by untrained personnel
- Modifications to the device
- Technical modifications
- Unauthorized modifications

The user is responsible for carrying out commissioning in accordance with the safety regulations of the applicable standards and all other relevant national or local regulations regarding conductor dimensioning and protection, grounding, circuit breakers, overcurrent protection, etc. The person who carried out the assembly or installation is liable for any damage caused during assembly or connection.

1.6. Faults, maintenance, repair, disposal

Faults or damage to the appliance must be reported immediately to the specialist personnel responsible for the electrical connection.

The appliance must be taken out of operation by the responsible specialist personnel until the fault has been rectified and secured against accidental use.

The appliance requires no maintenance.

Repair work that requires the housing to be opened may only be carried out by the manufacturer.

The electronic components of the appliance contain environmentally harmful substances and are also recyclable materials. The device must therefore be recycled after its final decommissioning. The environmental guidelines of the respective country must be observed.

1.7. Product labeling

Warning symbol	Meaning
	**Reference to further documentation** Read the operating instructions and safety instructions before transportation, installation or commissioning
	**Warning of hot surface** The appliance can become very hot during operation. Temperatures of over 70°C can occur. In the event of a fault, internal components may be overloaded. Use personal protective equipment or wait long enough for the appliance to cool down.
	**Warning of dangerous electrical voltage** Before working on the product, check that all power connections are de-energized**!**
	**Disposal of batteries, electrical and electronic equipment** • In accordance with international regulations, batteries, rechargeable batteries and electrical and electronic equipment must not be disposed of with household waste. • The owner is legally obliged to dispose of these devices properly at the end of their service life. • WEEE: This symbol on the product, its packaging or in this document indicates that a product is subject to these regulations.
	**CE marking** CE stands for "Conformité Européenne". The CE marking expresses the conformity of a product with the relevant EC directives.
	**UKCA marking** UKCA stands for "UK Conformity Assessed". The UKCA marking expresses the conformity of a product with all applicable legal requirements of the United Kingdom.
	**GROUNDING** Chassis grounding

2. Personal Protection

WARNING!

Please ensure that the voltage or power source with which the HIPERDRIVE is operated is designed in accordance with the technical and statutory guidelines which apply to your plant.

Before carrying out work on the drives themselves, or the components operated by them and the parts of the plant affected, the plant must be switched off in accordance with the professional Safety and Accident Prevention Regulations applicable to your country. In addition to the main circuits, attention must be paid to any additional or auxiliary circuits which may be present.

WARNING!

Caution when the drive is touched by personnel. The temperature of the HIPERDRIVE housing may become high, depending on the mode of operation, because of the integrated motor and the power electronics.

Therefore, during installation, ensure that a sufficiently large distance from flammable materials and/or cables is maintained.

The output shaft of the HIPERDRIVE rotates at up to 280 1/min. In addition to the care that is generally required, please pay attention to the hazards which can result from pieces of clothing, hair and the like becoming entangled.

2.1. Safety advice for mounting and commissioning

WARNING!

The HIPERDRIVE positioning drive is an electromechanical subassembly.

The device must be mounted and connected with voltage/current switched off.

In the event of improper handling, electrical short circuits with permanent consequential damage may occur.

WARNING!

We must point out expressly that the mounting, electrical and mechanical installation and the repair of the HIPERDRIVE may be undertaken only by trained specialist staff with fundamental mechanical, electrical and programming knowledge.

- Always perform mounting/repair work in compliance with the professional Safety and Accident Prevention Regulations applicable to your country.
- Before completing the mounting/repair work and/or before the functional test, ensure that the fixing screws are firmly tightened and that the cable connection is mounted correctly.
- Test the correct functioning of the safety devices (e.g. emergency off switch/safety clutches etc.).

2.2. Device safety

⚠ WARNING!

The positioning drive may be operated only within the values predefined in the technical data.

Commissioning is prohibited until it has been established that the plant/machine in which the integrated drive has been incorporated complies with the regulations, which have to be applied to the plant/machine. Make sure that no torques hazardous to persons and environment arise as a result of the mounting, commissioning or as a result of test adjustments.

Opening the drive is forbidden. Any repairs or inspections must only be carried out by the manufacturer's Service Department.

3. Mechanical mounting

The installation position is as desired. However, the preferred mounting position is horizontal. When the drives are installed with the output shaft pointing upwards, it is necessary to prevent liquids from remaining on the output shaft for relatively long time periods since, in spite of a shaft seal, it is not possible to completely prevent the penetration of liquids into the drive along the output shaft.
The drives are fixed flush to the mounting surface via the centering attachment by means of 4 pieces M5 screws. Please ensure that there is sufficient thread length (at least 10 mm) in the mounting surface (Fig. 1).
The shaft connection using a key makes a form fit. When mounting mechanical coupling elements, it is necessary to note the permissible axial and radial forces in accordance with the technical data. If necessary, in order to compensate for the axial and radial tolerances, use a suitable coupling element.

Fig. 1

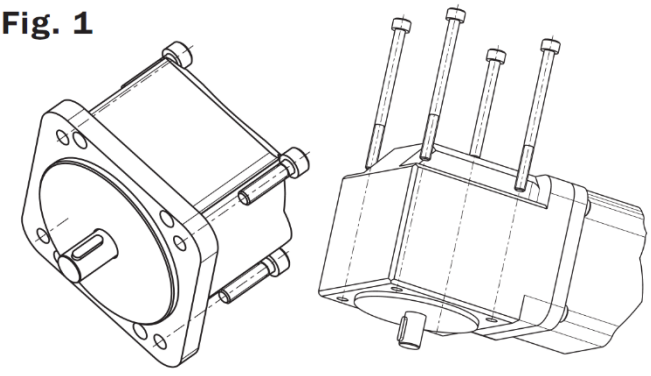


Figure 1: output shaft

NOTICE

In order to prevent damage to the electromechanical components, please avoid shocks and impacts on the output shaft.

3.1. Electrical installation HIPERDRIVE with PROFIBUS adapter

⚠ WARNING!

Always disconnect system completely prior to fitting the connecting cables.

- Connecting the voltage supply for motor and bus interface ①
  (1 x M20 cable screw connection) and the bus cables ②
  (2 x M16 cable screw connections) via the PROFIBUS adapter (**Fig. 2**).

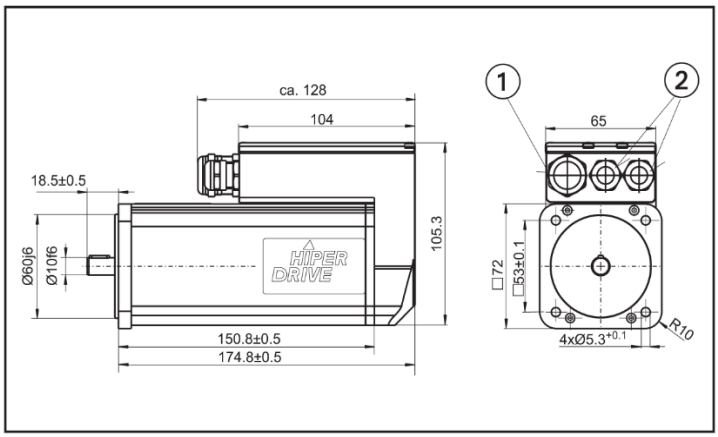


Figure 2: Connecting voltage supply

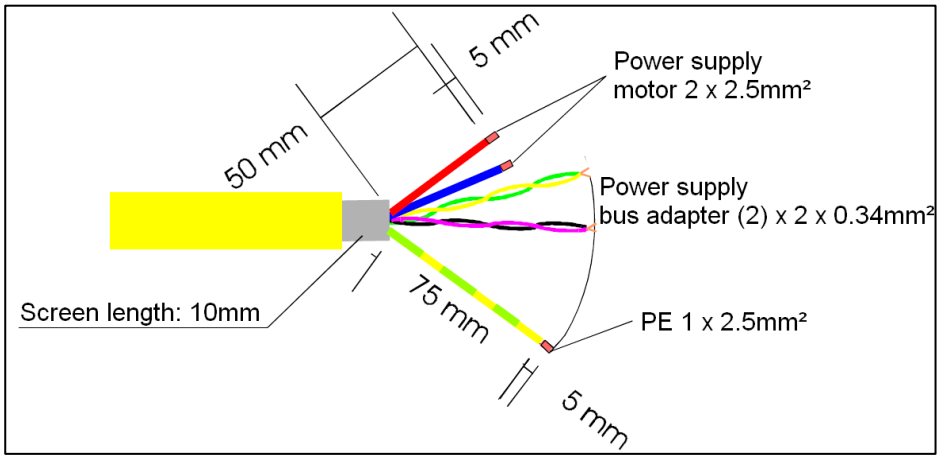


Figure 3: confection of cables for power supply

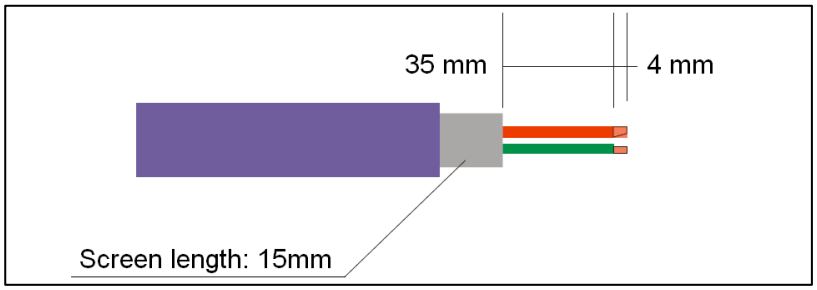


Figure 4: confection of bus cables

- Provide the ends of the wires with the cable terminations suitable for the cable used. For the protective conductor connection, an eyelet with a screw opening to suit an M3 screw is required.
- Push cable with sleeves crimped-on the end through the union nut, plastic bushing with seal and the main body of the cable screw connection. Pull the cable screen over the plastic bush and firmly tighten with the union nut.
- Connect all wires with the appropriate terminals (observe polarity!) and screw the protective conductor to the appropriately labelled screw, and firmly tighten contacts (Fig. 5).

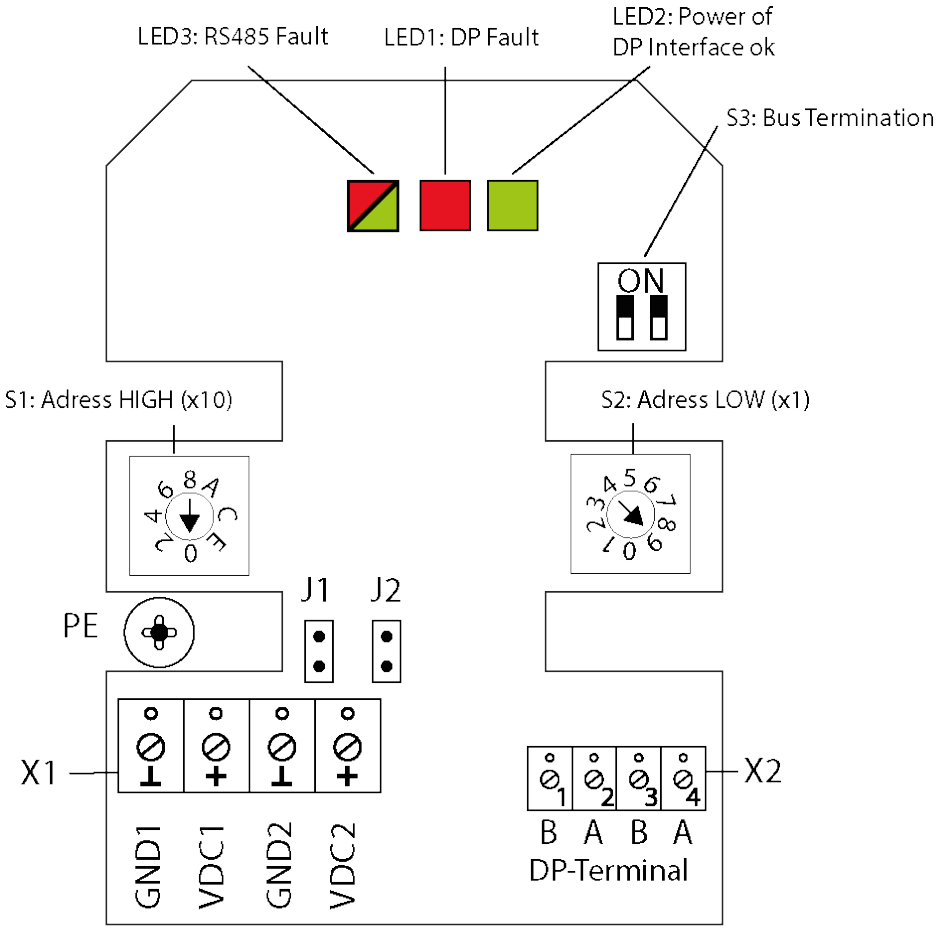


Figure 5: Position of the connection and operating elements

- Ensure correct screen connection.

3.2. Electrical installation HIPERDRIVE with cable adapter

⚠ WARNING!

Always disconnect system completely prior to fitting the connecting cables.

When operating the drive via the serial communication interface RS485, the connection of operating voltage and serial interface is made directly via the integrated plug connector. Prepared connecting cables with cable adapter and a free second cable end are available as accessories.

3.3. Connecting the connecting cable

- Remove protective foil from the drive-end plug opening. Ensure that no foreign bodies enter the plug opening. When using the cable adapter for long connecting cables (AD-H-xxMRS with xx > 10; Fig. 6):

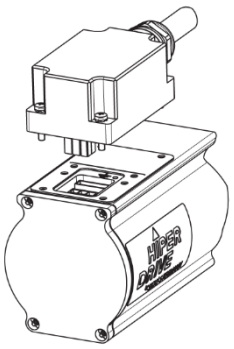


Figure 6: using the cable adapter

- Enable or disable line termination resistors at the cable end[s], depending on the line topology with DIP switches ① (Fig. 7):

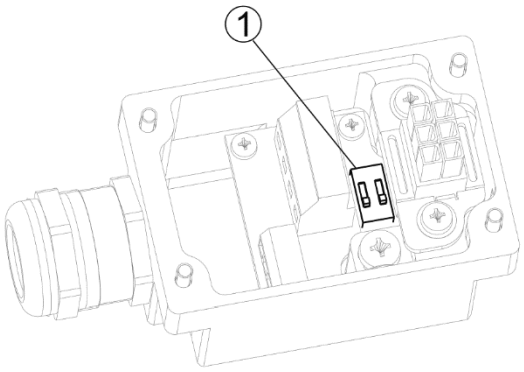
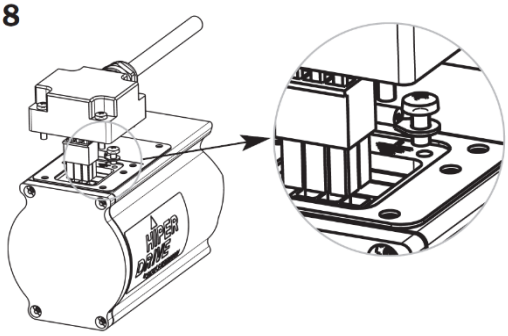


Figure 7: line termination resistors

- Ensure correct seating and cleanliness of the moulded seal.
- Plug in the connector with the supply to the cable adapter switched off.
- Firmly screw cable adapter to motor housing.
- Connect all wires with the appropriate terminals.

When using a cable adapter for **short** connecting cables
(AD-H-xxMRS with xx < 10; **Fig 8**):

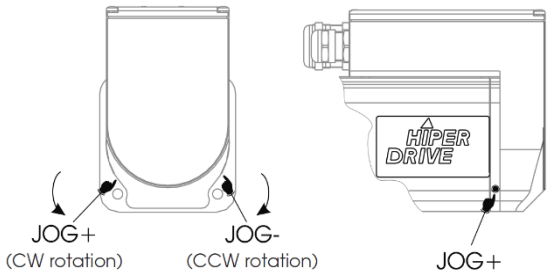
Fig. 8



- Firmly screw protective conductor connection to the screw connection provided. Place toothed washer underneath.
- Plug in the connector with the supply to the cable adapter switched off.
- Ensure correct seating and cleanliness of the moulded seal.
- Firmly screw cable adapter to motor housing.
- Connect all wires with the appropriate terminals.

3.4. Manual procedure with the JOG+/JOG- switches

The **JOG+** and **JOG-** switches located on the rear cover plate of the drive make it possible to move the drive in both directions of rotation without the control being connected, as follows (**Fig. 9**).



- Provide 24 VDC power supply for the motor. Ensure that the voltage source can meet the drive's current demand.
- Switch off the PROFIBUS connection or serial interface or remove cable connection (leave only 24 VDC connected).
- Using a cylindrical pin (3 mm Ø max.), press switch JOG+ (CW rotation, looking at the output shaft) or JOG- (CCW rotation, looking at the output shaft) until the drive has reached the position required.

4. Dismantling

WARNING!

Before dismantling the HIPERDRIVE, please ensure that

- the mechanism cannot move when the holding torque from by HIPERDRIVE is removed,
- the operating voltage of the HIPERDRIVE is switched off and switching on again has been prevented in accordance with the safety rules.

- Please isolate the wires of the voltage supply in such a way that the wires cannot touch one another and cause a short circuit.
- If a number of slaves are operated on the PROFIBUS in your plant, please make sure that after the removal of the drive, the bus line is neither interrupted nor that the termination resistors have been removed.
- Then please dismantle the motor by removing the fixing screws from the motor flange and removing the motor.

4.1. GSD file and further documentation

Further documents (assembly and operating instructions, GSD file) are available as downloads from http://www.halstrup-walcher.com