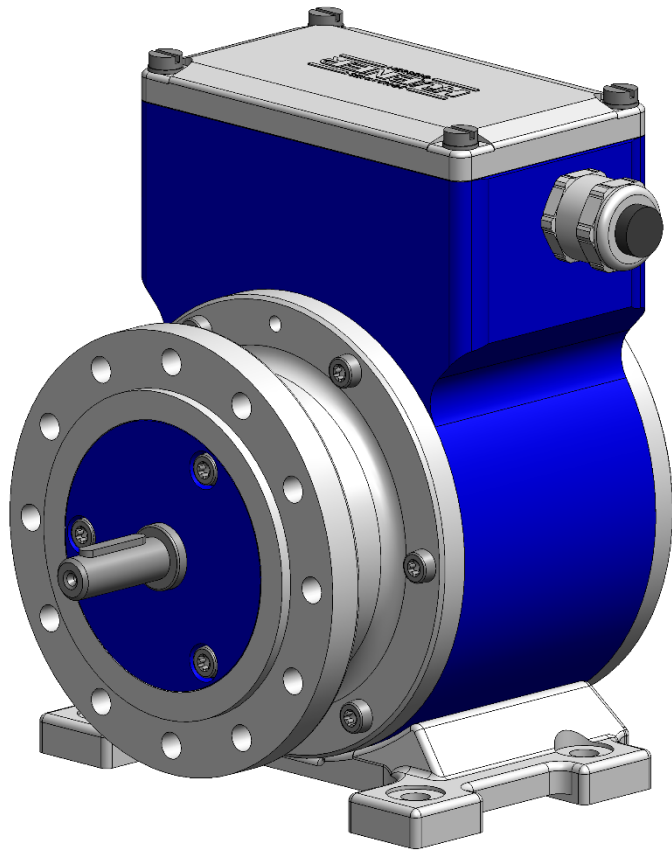




Operating and Assembly Instructions

Electronic Overspeed Switch

EGS[®] 40

Option S (integrated EGS[®] 4 technology with incremental encoder type FG)

**Read the Operating and Assembly Instructions prior to
assembly, starting installation and handling!
Keep for future reference!**

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UL certificates can be requested from us.

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<https://iq.ulprospector.com/info>

UL File Number: E351535

Type	UL model No.
EGS 40 (Vollwelle)	EGS 40 K
	EGS 40 K-FG
	EGS 40 KK
	EGS 40 KK-FG
EGSH 40 (Hohlwelle)	EGSH 40 K/x
	EGSHJ 40 K/x
	EGSH 40 K/x-FG
	EGSHJ 40 K/x-FG
	EGSH 40 KK/x
	EGSHJ 40 KK/x
	EGSH 40 KK/x-FG
	EGSHJ 40 KK/x-FG
X= 20P, 16P, 19P, 16K, 25K	

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1 General

1.1 Information about the assembly instruction

This assembly instruction provides important instructions for working with the device. It must be carefully read prior to starting all tasks, and the instructions contained herein must be followed.

In addition, applicable local regulations for the prevention of industrial accidents and general safety regulations must be complied with.

1.2 Scope of delivery

Scope of delivery includes the overspeed switch, the EGS®40-Pro programming software (CD-ROM), and the programming cable.

1.3 Explanation of symbols

Warnings are indicated by symbols in this operating manual. The warnings are introduced by signal words that express the scope of the hazard.

The warnings must be strictly heeded; you must act prudently to prevent accidents, personal injury, and property damage.

**WARNING!**

Indicates a possibly dangerous situation that can result in death or serious injury if it is not avoided.

**CAUTION!**

Indicates a possibly dangerous situation that can result in minor injury if it is not avoided.

**CAUTION!**

Indicates a possibly dangerous situation that can result in material damage if it is not avoided.

**NOTE!**

Indicates useful tips and recommendations as well as information for efficient and trouble-free operation.

**NOTE!**

Mounting and disassembly by means of a hammer or similar tools is not permitted (warranty void).

**DANGER!****Life-threatening danger due to electric shock!**

Indicates a life-threatening situation due to electric shock. If the safety instructions are not complied with there is danger of serious injury or death. The work that must be executed should only be performed by a qualified electrician.

1.4 Disclaimer

All information and instructions in this assembly instruction have been provided under due consideration of applicable guidelines, as well as our many years of experience.

The manufacturer assumes no liability for damages due to:

- Failure to follow the instructions in the manual
- Non-intended use
- Deployment of untrained personnel
- Opening of the device or conversions of the device

In all other aspects the obligations agreed in the delivery contract as well as the delivery conditions of the manufacturer apply.

1.5 Copyright



NOTE!

Content information, text, drawings, graphics, and other representations are protected by copyright and are subject to commercial property rights.

It is strictly forbidden to make copies of any kind or by any means for any purpose other than in conjunction with using the device without the prior written agreement of the manufacturer. Any copyright infringements will be prosecuted.

1.6 Guarantee terms

The guarantee terms are provided in the manufacturer's terms and conditions.

1.7 Customer service

For technical information personnel are available that can be reached per telephone, fax or email, see manufacturer's address on page 2.

2 Safety



This section provides an overview of all the important safety aspects that ensure protection of personnel, as well as safe and trouble-free device operation. If these safety instructions are not complied with significant hazard can occur.

2.1 Responsibility of the owner

The device is used in commercial applications. Consequently the owner of the device is subject to the legal occupational safety obligations, and subject to the safety, accident prevention, and environmental protection regulations that are applicable for the device's area of implementation.

2.2 Intended use

The device has been designed and constructed exclusively for the intended use described here.

Series EGS®40 overspeed switches are used for speed monitoring, for instance of electrical and mechanical drives, hoisting gear, and conveying machines.

Claims of any type due to damage arising from non-intended use are excluded; the owner bears sole responsibility for non-intended use.

For UL and CSA: For the use in NFPA 79 applications only.

2.3 Improper use

- Do not use the device in potentially explosive areas.
- The device must not be subjected to mechanical loads in addition to its own weight and unavoidable vibration and shock loads that arise during normal operations.

Examples for non-permitted mechanical loads (incomplete list):

- Fastening transport or lifting tackle to the device, for example a crane hook to lift a motor.
 - Fastening packaging components to the device, for example ratchet straps, tarpaulins etc.
 - Using the device as a step, for example by people to climb onto a motor.
- It is not permitted to use the device in locations higher than 3000 m above sea level.

2.4 Personal protective equipment

For tasks such as assembly, disassembly or commissioning the use of personal protective equipment such as safety footwear and protective work clothing is required.

The regulations specified by the owner and that are locally specified apply.

2.5 Special dangers

Residual risks that have been determined based on a risk analysis are cited below.

2.5.1 Electrical current



DANGER!

Life-threatening danger due to electrical shock!

There is an imminent life-threatening hazard if live parts are touched. Damage to insulation or to specific components can pose a life-threatening hazard.

Therefore:

Immediately switch off the device and have it repaired if there is damage to the insulation of the power supply.

De-energize the electrical equipment and ensure that all components are connected for all tasks on the electrical equipment.

Keep moisture away from live parts. Moisture can cause short circuits.

2.5.2 Rotating shafts



WARNING!

Danger of injury due to rotating shafts!

Touching rotating shafts can cause serious injuries.

Therefore:

Do not reach into moving parts/shafts or handle moving parts/shafts during operation.

Do not open covers during operation. Prior to opening the covers ensure that all parts have come to a standstill.

2.5.3 Safeguarding against restart



DANGER!

Life-threatening danger if restarted without authorization!

When correcting faults there is danger of the power supply being switched on without authorization.

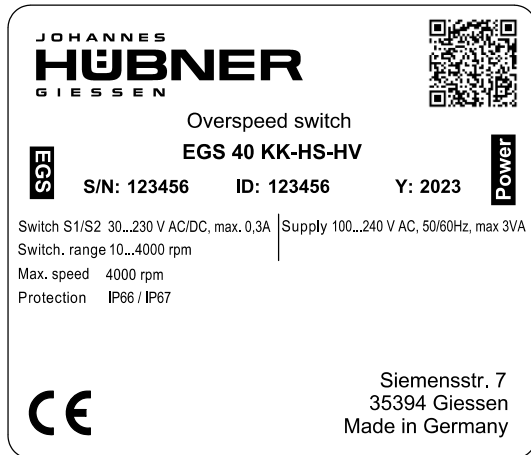
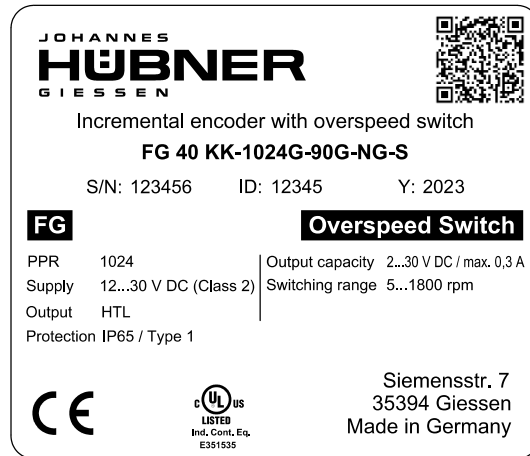
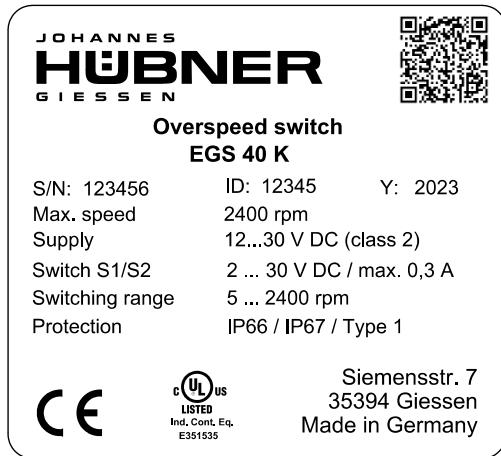
This poses a life-threatening hazard for persons in the danger zone.

Therefore:

Prior to starting work, switch off the system and safeguard it from being switched on again.

3 Technical data

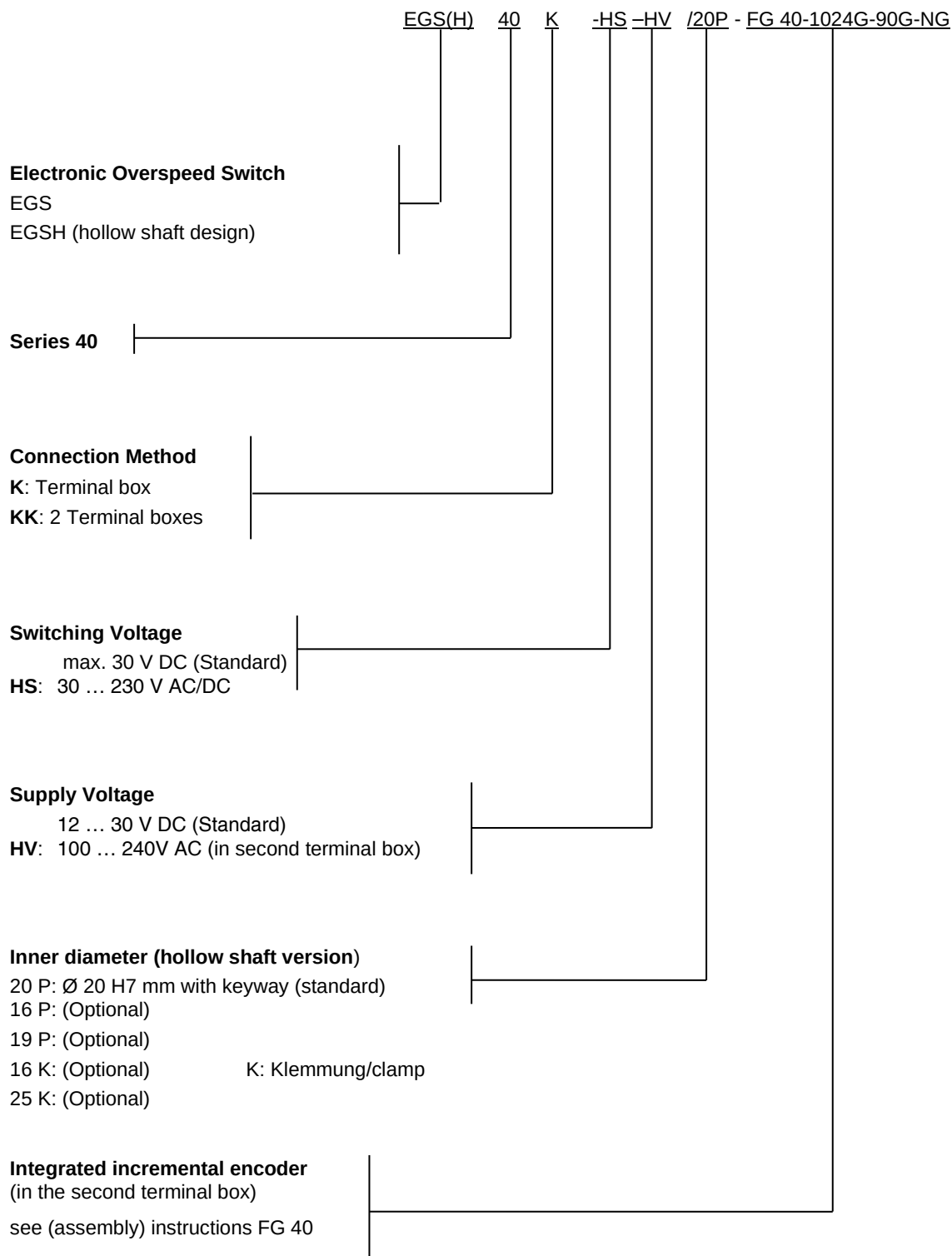
3.1 Type plates



The nameplate and UKCA label are located on the side of the housing.
Type plate information:

- Manufacturer, Address
- Type, year of construction
- CE mark
- Serial number (S/N)
- Commission number (C/N)
- Degree of protection
- Supply voltage
- Switching speed programmable
- Switching voltage/max. switching current
- Certification UL
- QR-code

3.2 Type key



3.2.1 Mechanical Data

Description		Data	
Vibration resistance		DIN EN 60068-2-6 / IEC 68-2-6 (10 ... 2000 Hz)	20 g (=200 m/s ²)
Shock resistance		DIN EN 60068-2-27 / IEC 68-2-27 (6 ms)	100 g (ca. 1000 m/s ²)
EGS 40	Max. encoder shaft load	F _{a max.} (axial) = 100 N F _{r max.} (radial) = 120 N	
	Shaft end	11j6 x 30 mm (standard) 14j6 x 30 mm (optional)	
	Weight	EGS 40 K EGS 40 KK	Approx. 3.3 kg Approx. 3.6 kg
EGSH 40	Weight	EGSH 40 K EGSH 40 KK	Approx. 3,5 kg Approx. 3,8 kg

3.3 Connected loads and values

3.3.1 Dimensions, connected loads, environment

Specification	Value	Unit
Weight	approx. 3,5	kg
Dimensions	see dimensions sheet page	
Supply voltage	12 ... 30 For UL and CSA Class 2 supplied	V DC
Power consumption	80	mA
Switching voltage see type plate (Special switching voltage, see type plate)	2 ... 30 30 ... 230	V DC V AC/DC
Switching current	max. 300	mA
Device temperature range	-25 ... +85 For UL/CSA max. +70	°C
max. shaft stress, shaft 11j6 x 30 and 14j6 x 30 (up to speed 3000 rpm)	axial, 100, radial, 120 on a half shaft length	N

3.3.2 Electrical Outputs

Variant	Switching Contacts	Error Outputs	Incremental Output	Supply Voltage	Connection Diagram See chapter 13.1
EGS(H) 40K (HS)	2	1		12 30 VDC	PN132-400
EGS(H) 40KK (HS)	4	2		12 30 VDC	PN132-400
EGS(H) 40KK – FG 40	2	1	6/8	12 30 VDC	PN132-420 + Connection diagram for FG40 see Operating manual FG40
EGS(H) 40KK (HS) – HV	2	1		100 .. 240 V AC	PN132-420 + PN100-400a
Option S	2	1			PN132-420

3.3.3 Speeds

Programmable switching speeds (see type plate)		
min.	max.	Unit
0.63	300	rpm
1,25	600	rpm
2,5	1200	rpm
5	2400	rpm
10	4800	rpm
20	7000	rpm
Supplemental mechanical restriction (continuous operation)		
EGS® 40 in IP 66/IP67	4000	rpm
EGS® 40 in IP65	6000	rpm

Protection classes in accordance with EN 60 529

3.3.4 Switching performance

Specification	Value	Unit
Adjustment resolution	to 99.9 : 0.1 starting from 100 : 1	rpm
Switching accuracy	see diagram	
Switching hysteresis	programmable, min. 10	%
Switching delay	programmable, 0 ... 300	ms
Function as direction of rotation switch (right/left)	programmable	on/off
Monitoring of the switch functions	programmable	on/off

3.3.5 Degree of protection

Protection class acc. to DIN EN 60529		Sealing	Permissible speed	Rotor moment of inertia	Breakaway torque
EGS 40	IP65	Standard	≤ 6000 rpm	approx. 510 gcm ²	approx. 6 Ncm
	IP66	with labyrinth seal	≤ 6000 rpm	approx. 580 gcm ²	approx. 6 Ncm
	B5 IP66/IP67 B5/B14 IP66	with axial shaft seal with axial shaft seal B14	≤ 4000 rpm	approx. 510 gcm ²	B5 approx. 8 Ncm
	B5 IP66/IP67 B5/B14 IP66	with radial shaft seal (for special applications, e.g. wet areas in rolling mills) B14 axial shaft seal	≤ 3000 rpm	approx. 510 gcm ²	B5 approx. 9 Ncm
EGSH 40	IP65	Standard	≤ 4000 rpm	approx. 1175 gcm ²	approx. 10 Ncm
	IP66	with labyrinth seal	≤ 4000 rpm	approx. 1325 gcm ²	approx. 10 Ncm
	IP66	with axial shaft seal	≤ 2000 rpm	approx. 1175 gcm ²	approx. 25 Ncm
	IP66	with radial shaft seal (for special applications, e.g. wet areas in rolling mills)	≤ 2000 rpm	approx. 1175 gcm ²	approx. 30 Ncm
	(UL/CSA Type 1)				



NOTES!

If the cover plate is not fitted to the hollow shaft device EGS® 40 the IP rating is reduced to IP65.



NOTES!

At maximum speed the permissible ambient temperature will be reduced to 60°C.

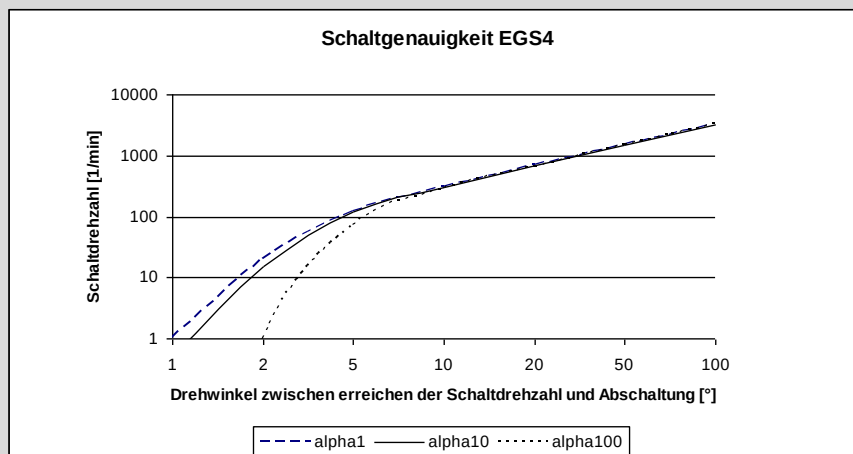
Switching accuracy:

Fig. 1: Diagram – switching accuracy EGS® 4 (α : Angular acceleration in rad/s^2).

3.3.6 Outputs

Variant	Switching contacts	Error outputs
EGS® 40 K	2	1 System Check
EGS® 40 K	4	2 System Check

3.3.7 incremental encoder type FG with integrated EGS® 4 technology (option S)

The connections for the EGS® 40 technology are placed in a second terminal box of the incremental encoder of type FG....

The terminal boxes are clearly marked with labels.

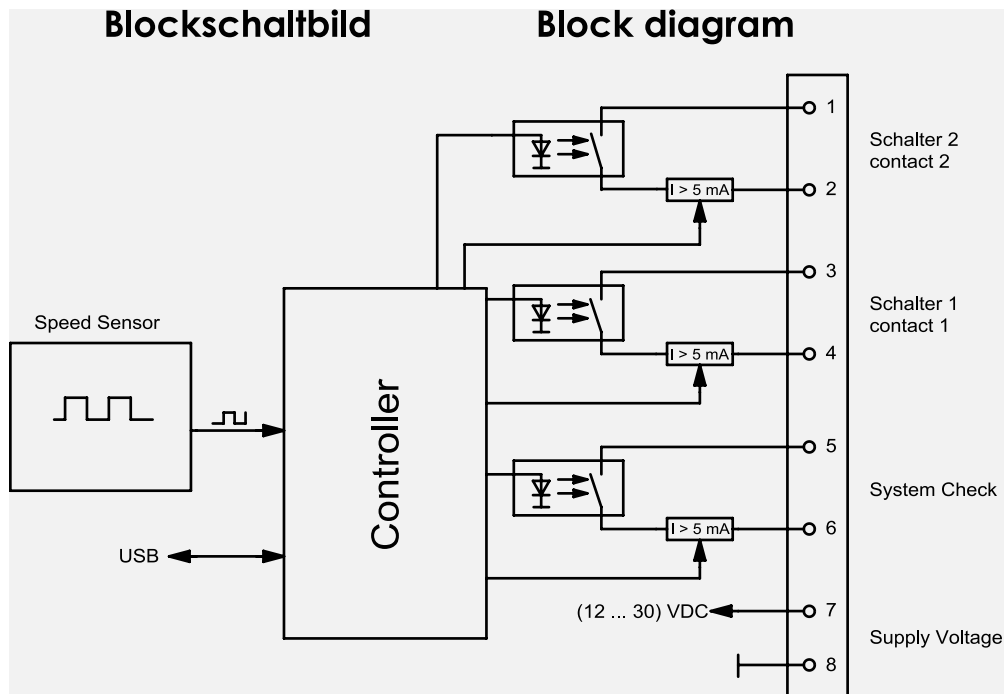
The functioning of the option S and all technical data correspond to the standard version EGS® 40 K.

**NOTE!**

For the function of the electronic overspeed switch the power supply of the FG 40 has to be connected in the first terminal box.

4 Structure and function

4.1 Block diagram



4.2 Brief description

The integrated speed sensor consists of a pulse disk with optical scanning, and it generates a speed-proportional frequency. The analysis unit (controller) further processes this frequency.

The actual speed is continuously compared with the programmed limit speeds in the read-only memory (EEPROM). When a limit value is reached the analysis unit triggers the associated switch.

Analysis unit:

After applying the supply voltage there is a plausibility check and there after the device is ready for operation.

Read-only memory:

The following data are stored in the programmable EEPROM read only memory:

- The switching points / limit values for the switching speeds.
- The switching performance (hysteresis, switching delay).
- Date and time the last switching speed was programmed, with user ID.
- A 8-digit user-defined device ID.
- The device password.

(Details: ⇨ Chapter 7 Programming instruction)

The programmed data are saved with the appropriate checksum and verified at each device start.

Serial interface:

The device is programmed via the RS232-interface using the supplied programming cable and the EGS® 40-Pro software.

Switch

The EGS® 40 overspeed switch is equipped with two switches and one System Check output. These are galvanically separated from the analysis unit via optocoupler.

If the respective limit value is exceeded switch 1 or 2 opens.

If the "switching monitoring" function (Chapter 7 Programming) is activated then switch 1 and 2, as well as the System Check switch will be monitored for function.



NOTE!

A load current of at least 5 mA for switch monitoring is prerequisite.

The system check switch is closed in normal operating and opens in the event of:

- Internal malfunctions
- Switch malfunction (if monitoring is activated)
- Power supply failure

If the System Check switch malfunctions (with activated monitoring) then switches 1 and 2 open concurrently.



NOTE!

An interruption of the supply voltage for more than 20 ms causes a system reset (switch 1 and 2 as well as "System Check" switch open).

5 Transport, packaging, and storage

5.1 Instructions for transport

Improper transport



CAUTION!

Improper transport can cause property damage!

Comply with the symbols and warnings on the packaging.

5.2 Symbols on the packaging



Protect from moisture

Keep packed goods dry and protected against moisture.



Protect from heat

Protect packaged goods from heat over 40°C and direct sunlight.

5.3 Transport inspection

Check delivery immediately upon receipt for completeness and possible transport damage.

5.4 Packaging

Handling packaging materials

The packaging is not taken back and must be disposed of in accordance with the respective statutory regulations and local guidelines.

Storage of packed goods

- Store in a dry and dust-free location.
- If stored for longer periods (> 6 months) we recommend sealing the devices in foil, possibly with a desiccant.
- Do not expose to aggressive media.
- Storage temperature: - 15 °C ... +40 °C.
- For storage periods longer than 6 months: Contact the manufacturer.

6 Installation and commissioning

6.1 Versions



CAUTION!
Consider chapter 2

EGS 40K standard version

1 terminal box, 2 programmable switching points, system check, switching voltage: 2 V ... 30 VDC, optional 30 ... 230 VAC/DC, max. switching load 0.3 A.

EGS 40KK optional (partially redundant) version

2 terminal boxes, 2 + 2 programmable switching points, two-fold system check, switching voltage: 2 V ... 30 VDC, optional 30 ... 230 VAC/DC, max. switching load 0.3 A.

EGS® 40K... devices must only be used for the monitoring of overspeeds in safety-relevant machinery and installations when applicable rules, regulations and laws are observed and they have to be periodically tested. The tests must be recorded and have to be periodically tested. The tests must be recorded and have to be evidenced (see test schedule 9.2).

Furthermore we wish to draw your attention to the relevant nationally applicable laws, regulations and standards as well as the operating instructions that govern the safety and commissioning of individual components and the complete installation as well as the periodically testing (electrical and mechanical function tests).

6.2 Installation tasks

6.2.1 Device execution for flange design (B5) or foot design (B35)

1. Use a play-free coupling.
2. Ensure precise catered attachment, particularly with foot design B35 (double coupling HKD5 is recommended).
3. Fix device in place via flange or foot.
4. Make the connections in the terminal box (⇒ Appendix, Connection diagrams).

6.2.2 Assembly instruction no. 54690 for coupling type HK....5

1. Select coupling bore with G7 fit (tolerance field is above the zero line).
2. Push the coupling onto the shaft with easy movement. Finishes ream the associated bore if necessary.
3. Secure the hub against axial offset with M4 radial set screw (with tip). The set screw presses on the feather key so that the shaft is not damaged.

Consider the permissible compliance:

Type	Axial	Radial	Angular
HK 5 ...	$\pm 1 \text{ mm}$	-	approx. 0.5°
HKD 5 ...	$\pm 1,5 \text{ mm}$	0.5 mm	-

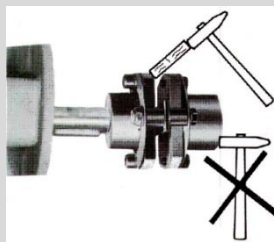


Fig. 1

CAUTION!



Danger of damage or breakage if the coupling is not improperly handled (⇒ Fig. 1).

- No hard impacts on coupling and shaft
- Do not deform the coupling
- Do not exceed compliance as specified
- Precisely align coupled machines



NOTE

The more precise the attachment,

- the longer the service life of the coupling and bearing encoder
- and the lower the degree of influence on encoder signal quality (harmonics)

Additional instructions on couplings are provided in the current Hübner Giessen catalog "Torsion-resistant stiff couplings for encoders".

7 Programming instruction

When the device is connected to a PC via a USB port for the first time it will be recognized as new hardware.

7.1 Preparing the computer

System prerequisites:

Windows® 98 / NT / 2000 / XP, for transfer of administrator rights to the program: Vista-compatible Windows 7

CD-ROM drive, USB interface.

Use the supplied CD-ROM or download the current version of the EGS®40-Pro from our homepage (see page 2).

7.2 Installation of a new driver



Connect the device to your PC using the supplied USB to mini USB cable.
Pay attention to the fact that you have Administration Rights.



The "New hardware found pop-up" is displayed informing you that a new "USB device" or a HJG device is connected.



The Hardware Update Wizard window opens automatically.
In response to the question requesting a Windows update select "No, not this time", then click "Next".



Select the option "Install software from a list or another source", then click "Next".



Select only the "Browse the following source also" option as the source, then click "Browse". Select the "Win 2000 XPVISTA" directory from the driver package, then click "OK" to confirm. To install the "USB Serial Converter" driver click "Next".



Click "Continue installation".

When the USB Serial Converter has been installed click "Finish".

Installing the SERIAL USB Driver

The New hardware found pop-up displays immediately after USB driver has been installed.



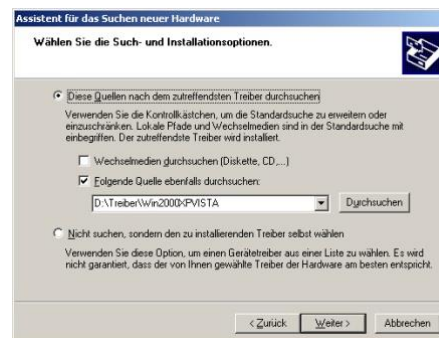
Now you must install the USB Serial Port driver. The Installation Wizard window should open automatically.



In response to the question requesting a Windows update select "No, not this time", then click "Next".



Select the option "Install software from a list or another source", then click "Next".



Select only the "Browse the following source also" option as the source, then click "Browse". Select the "Win2000 XPVISTA" directory from the driver package, then click "OK" to confirm. To install the "USB Serial Port" driver click "Next".



Click "Continue installation".



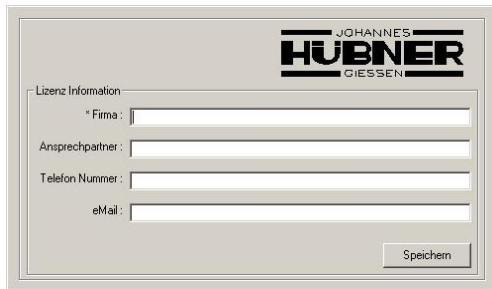
Once the installation process is complete click "Finish".



The device is now ready for use.

7.3 Starting the software

The "License information" dialogue box is displayed the first time you launch the software EGS4Pro



The "Company name" text box is obligatory, this dialogue box will be displayed repeatedly if you fail to include this detail.



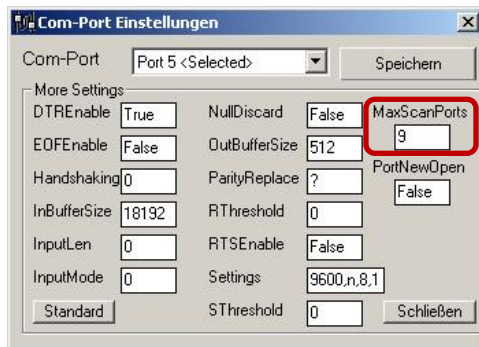
You must click the "Accept" button to confirm your details, otherwise the software will shut down.



In the next step you will need to set the "COM-Port"; to do so proceed as follows:
File Settings COM-Port.



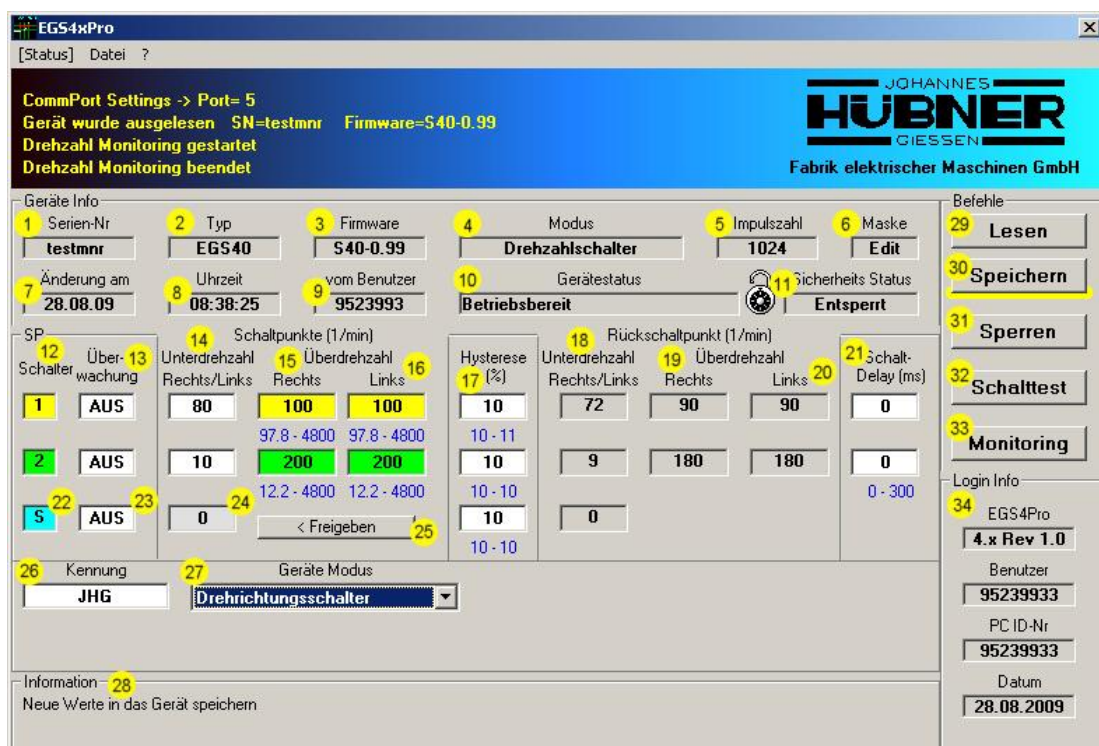
If you are unsure of the exact COM-Port to which the PC has assigned your "USB Serial Device" click "Scan" to search for the device. Ensure the device is connected to the operating voltage. A max. of 9 COM-Ports are scanned; if the assigned COM-Port is numerically higher you will need to adapt the search parameters under "Settings"



COM-Port settings

Here you can change the value "MaxScanPorts" so that the scanning process also scans more than 9 ports. If there are no entries (maximum 16) before you click "Standard" button. Then leave with "Speichern".

7.3.1 EGS4xPro Main window



Device information

1. Serial number (S/N) of the device
Please state this S/N in all correspondence.
2. Basic type of device
Displays the different basic types (EGS32, 32, 33, EGS4, EGS40).
3. Firmware version
Please state the FW version in all correspondence.
4. Present mode
Indicates if the EGS 40 is operating as an overspeed switch or a direction of rotation switch.
5. Hardware pulse number
Important in combination with pulse output.
6. Mask change status
"Edit" is displayed if you have changed a value in any box, but have yet to save your changes.

7. Date of last programming.
8. Time of last programming.
9. From user
This is where the device displays the internal S/N of the connected PC.
10. Device status
Indicates if the device is currently operating or is available and ready for operations.
11. Security status
Indicates if the device is password locked or if you permitted to programme changes without a password.
12. Switch designation
Switch 1, Switch 2 and system switch.
13. Monitoring mode
Activate or deactivate the monitoring mode here. The monitoring mode functions only if a minimum load current of 5 mA flows.
14. Underspeed
Set the desired underspeed here; meaning, at which speed the switch (1, 2, sys.) should start to operate.
15. Overspeed "clockwise"
Displays only if device mode "direction of rotation switch" is selected. Enter the desired switching point here.
16. Overspeed "anticlockwise"
Applies to "anticlockwise-clockwise" if device mode "overspeed switch" is selected. Enter the desired switching point here.
17. Hysteresis
Here you can set the device deactivation in percent when decelerating.
18. Underspeed right/left: Details for the release point in rpm.
19. Overspeed right: Details for the release point in rpm.
20. Overspeed left: Details for the release point in rpm.
21. Switch delay (ms): Switching delay for plant with overshoot.
22. System switch. Switches when errors occur or at programmed underspeed.
23. System switch monitor. Can be switched ON/OFF with a double-click operation
24. System switch underspeed (see point 14).
25. System switch underspeed release. To set this requires prior enabling of the system switch.
26. Identification: User definable device ID (maximum 8 characters).
27. Device mode: Overspeed switch / direction of rotation switch. As overspeed switch treats anticlockwise/clockwise rotation the same. As direction of rotation switch other switching points for anticlockwise and clockwise rotation can be entered.
28. Information: Information texts displayed here.
29. "Read": Read in read-only data from the device.
30. "Save": Write read-only data to the device.
31. "Lockout": Block or release unauthorised/authorised access to the device.

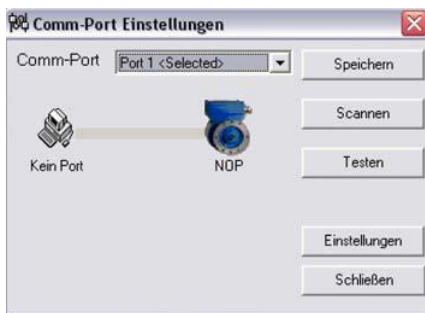
32. "Switch test": Switch test programme dialog box to test the switch.
33. "Monitoring": Monitoring programme dialog box to monitor the actual speed.
34. Login info: EGS40 Pro, User, PC ID No., Date. PC/ laptop information window including software version



NOTE

Displayed min. - max. input limits. Values above or below these values not permissible.
Below the input fields 15, 16, 17 and 21.

7.4 Setting up the software



In the main overview select menu item file settings select COM-Port.

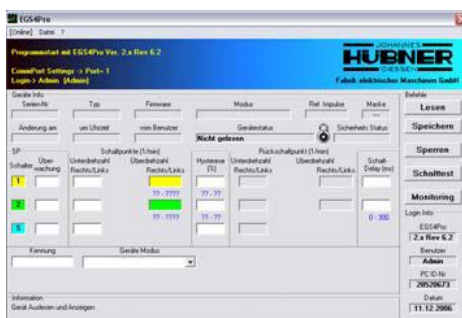
The Com-Port settings dialog will open. Select the COM-Port used and click on Save.

7.5 Preparing the device

Preparations on the device.

1. Open the terminal box to access the serial interface.
2. Connect the computer via the supplied USB connection cable.

7.6 Reading out and saving data

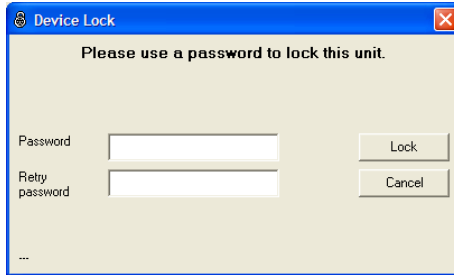


NOTE!

The device must be at a standstill.

1. Reading data out of the device. To do these activate the "Read" button.
 2. Specify switch speeds, direction of rotation detection, switching performance by entries in the appropriate fields. The numbers below the fields indicate the permissible setting range.
 3. Transfer the entered values into the device's read-only memory. To do this activate the "Save" button.
- After this step the device will work with the updated values.

7.7 Locking the device



The EGS®40 can be safeguarded against unauthorized write access via a device password. The device password is stored in the read-only memory of the respective connected device.

1. To specify the device password activate the "Lock" button. The "Lock device" dialog will open.
2. Enter the desired password. The password can consist of up to eight alphanumeric characters.

3. Disable the device by activating the "Lock" button. The lock icon and a text in the "Security status" field in the main screen indicate that the currently connected device has been locked.

Switch: Designation of the switch contact.

Current test: Status of switch monitoring.

Current status: Status of the switch contact

Switch to..... Changing the status of the switch contact.

7.8 Switch test



If the device is at a standstill all switches can be activated separately and thus can be checked for function.

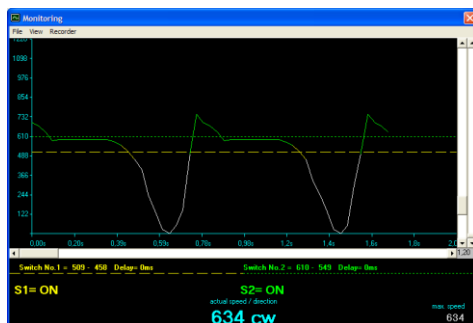
NOTE!

The device must be at a standstill. The manually changed switch states are set to their normal (current) state as soon as the device shaft start to rotate. To perform a switch test, activate the "Switch test" button. The "Switch test" dialog will open.

NOTE!

The prerequisite in this regard is a load current of at least 5 mA (⇒ chapter Structure and function).

7.9 Monitoring



The monitoring function shows the current values. To activate the monitoring functions use the "Monitoring" button.

The "Monitoring" dialog will open.

The movement states of the device will be presented:

Lower window: Programmed values

Upper window pane: Speed/time diagram

Horizontal lines: Limit speeds

7.10 Customer support

Additional information about EGS® 40-Pro software functions is available on the manufacturer's homepage.

8 Faults

Contact the manufacturer if there are faults that cannot be corrected by following the instructions below; see the service address on page 2.

8.1 Safety

Troubleshooting tasks should only be performed by trained, specialized personnel.



DANGER!

Basics / Injury hazard posed by improper fault correction!

If components have been removed, ensure that they are properly re-installed, that all fastening elements are re-installed, and that all threaded connections are tightened with the specified torque.



Rotating shafts

DANGER!

Danger of injury due to rotating shafts!

Do not reach into moving parts / shafts or handle moving parts / shafts during operation. Do not open covers during operation. Prior to opening the covers ensure that all parts have come to a standstill.



Safeguarding against restart

DANGER!

Life-threatening danger if restarted without authorization!

Prior to starting work with switch off the system and safeguard it from being switched on again.



Electrical current

DANGER!

Life-threatening danger due to electric shock!

Immediately switch off the device and have it repaired if there is damage to the insulation of the power supply.

De-energize the electrical equipment and ensure that all components are disconnected, for all tasks on the electrical equipment.

Keep moisture away from live parts. Moisture can cause short circuits.

8.2 Fault table

Malfunction	Possible cause	Trouble shooting
Switch do not close.	No power	Check connection cable and power supply.
	Switch monitoring is activated and switch current < 5 mA	Deactivate switch monitoring or ensure switching current > 5 mA.
Switches do not close in stillstanding	Underspeed is programmed	Set underspeed monitoring (switch activation) to zero.
System Check (error) switch has opened.	Switch 1 or 2 defective	Send the device to the manufacturer to have it checked.
System Check (error) switch has opened.	Internal malfunction	Send the device to the manufacturer to have it checked.
Bearing generates noises or has seized.	Mounting error or coupling problem	Check the attachment precision; Send the device to the manufacturer to have it checked.
Other faults	Contact the Manufacturer (see on page 2)	

9 Tests



CAUTION
Consider Chapter 2

The device is maintenance-free. However the following tests are recommended to ensure optimal, problem free operation.

9.1 Safety

The testing tasks listed below should only be performed by trained, specialized personnel.

9.2 Test schedule


NOTE!

No interventions other than the cyclic tests described in the test schedule are necessary on the device. Any intervention on the device renders all guarantee claims null and void!

Interval	Tests	To be executed by
Every 12 month (after app. 8000 operating hours)	Check the torque brackets (only for hollow shaft devices): Check the link heads of the torque brackets for ease of movement; link rod must be capable of being turned by hand. If movement is impaired, lightly oil the link heads or treat them with glide spray.	Specialist
	Check the fastening screws for firm seat.	Specialist
	Check the cable connections	Specialist
	Perform a switch test (section 7.9, p. 22)	Specialist
Every 2 to 3 years (after app. 20000 to 35000 operating hours)	Check deep-groove ball bearing for ease of movement and noise. Only have ball bearings replaced by the manufacturer.	Specialist

10 Disposal

The manufacturer is not obliged to take back the device.

The device is classed as electronic equipment and subject to the WEEE Directive; observe local, country-specific laws when disposing of the device.

For information on environmentally sound disposal please contact your local authority or a specialist disposal company.

11 Replacement parts

The replacement parts listed below can be obtained via the service address on page 2.

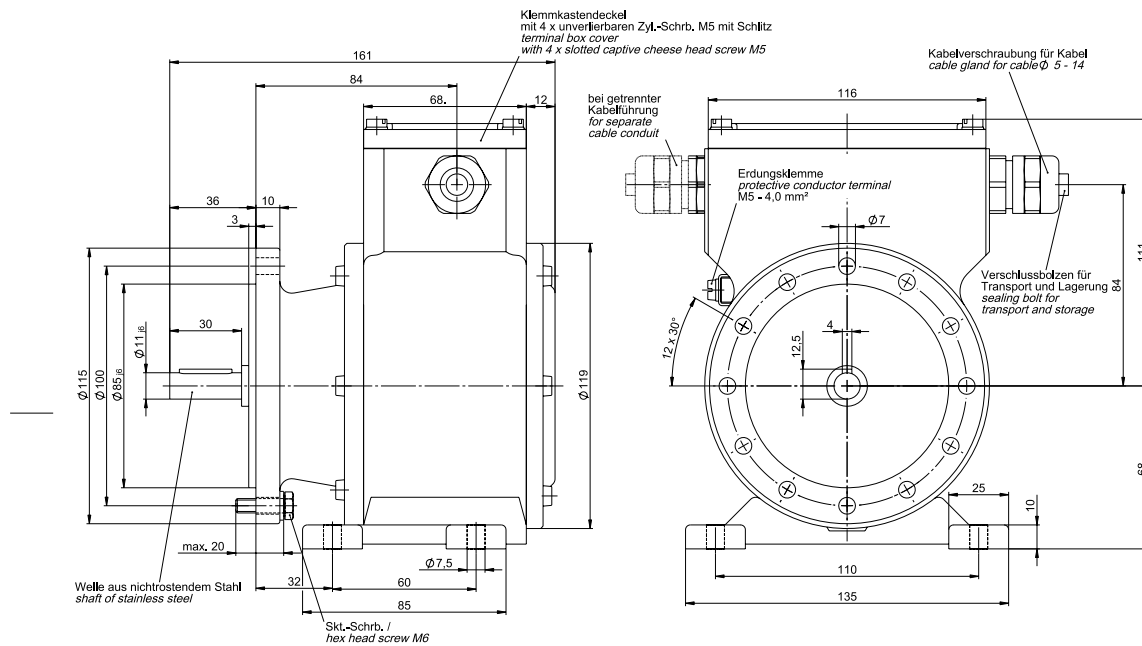
Replacement parts	Comment
Terminal box cover	Including flat seal and screws
Feather key	Specify shaft dimensions or feather key dimension
Cable gland	M 20 x 1.5
Terminal box – screw plug	Specify shaft dimensions or feather key dimension
Cover	Cover for the 2nd shaft end or for the hollow shaft bore (gAS)
Axial tensioning disk / ring	For hollow shaft design
Screw plug	For hollow shaft combinations To seal access to the axial tensioning disk
Programming cable and software	



NOTE!

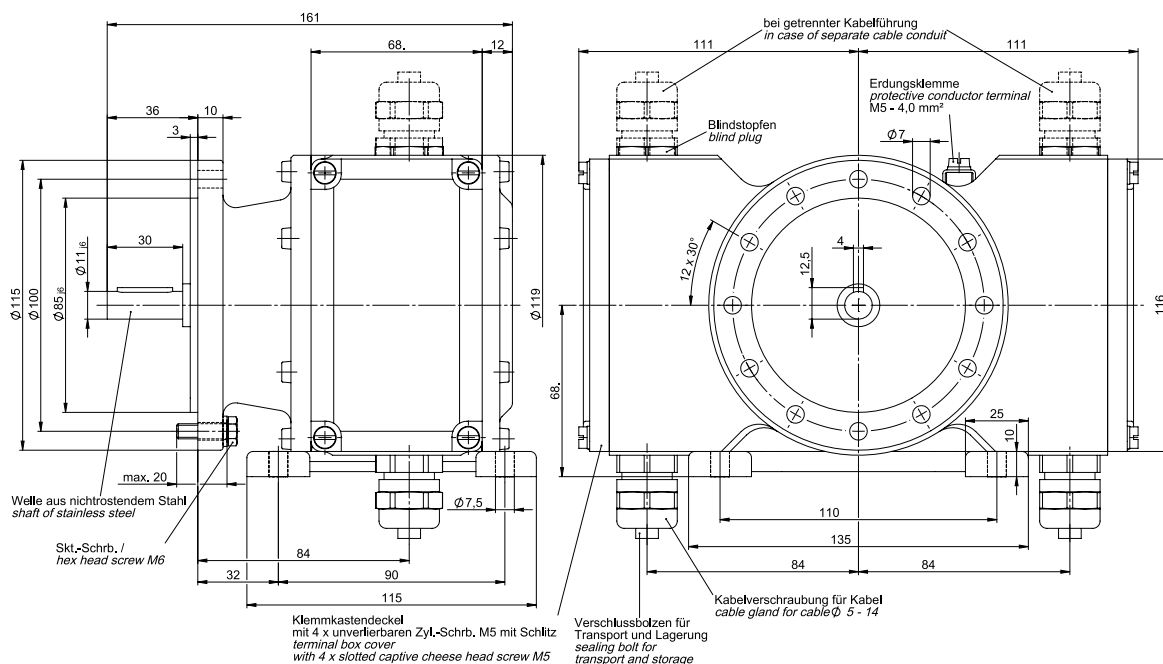
When ordering replacement parts always specify the serial number of the device!

12.2 Construction type B35 (flange and foot)



EGS® 40 K

HM 09 M 102 521



EGS® 40 KK

Redundant version

HM 09 M 102 523a

**JOHANNES
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Klemmkastendeckel
mit 4 x unverbleibaren Zyl-Schraub, M5 mit Schlitz
terminal box cover
with 4 x slotted captive cheese head screw M5

Kabelverschraubung für Kabel Ø 5 - 14
cable gland for cable Ø 5 - 14

Verschlussbolzen
für Transport und
Lagerung
sealing bolt for
transport and
storage

Blindstopfen
blind plug

bei getrennter
Kabelführung
in case of separate cable
conduit

Erdungsklemme
protective conductor terminal
M5 - 4,0 mm²

Abschlussdeckel
mit 6 x Skt.-Schrb. M6 x 20
cover
with 6 x hex. head screw M6 x 20
ET-102224

Kupplungshälfte
half coupling EK20

Elastomerkranz
elastomer insert

O-Ring
o-ring

integrierte Kupplungshälfte
integrated coupling type EK20

Skt.-Schrb.
hex head screw M6

Welle aus nichtrostendem Stahl
shaft of stainless steel

max. 20

Ø 119

Ø 115

Ø 100

Ø 85 ± 0,030 / +0,040

36

10

3

30

Ø 7

116

111

12 x 30°

12,5

4

84

154

84

45

68

8

2

12

Ø 85 ± 0,030 / +0,040

Ø 65

35,5

6

3,5

Bitte separat bestellen!
Please order separately!

HM 09 M 102591

Wellenzapfen Ø 14 ist ausführbar:
shaft extension Ø 14 can be provided:

Ø 14 ± 0,030 / +0,040

30

5

16

Zentriergewinde DS M5 DIN 332 B/L2
centering thread DS M5 DIN 332 page 2

Ansicht ohne Abschlussdeckel
View without cover

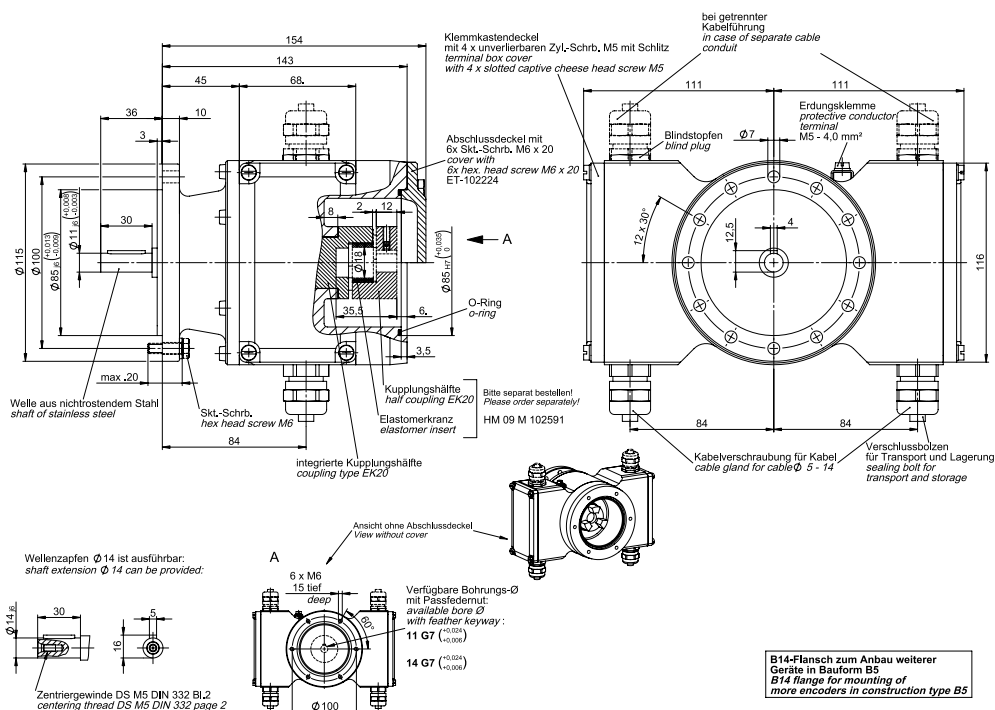
Verfügbare Bohrungs-Ø
mit Passfedernut:
available bore Ø
with feather keyway :

11 G7^{+0,024}/_{-0,006}

14 G7^{+0,024}/_{-0,006}

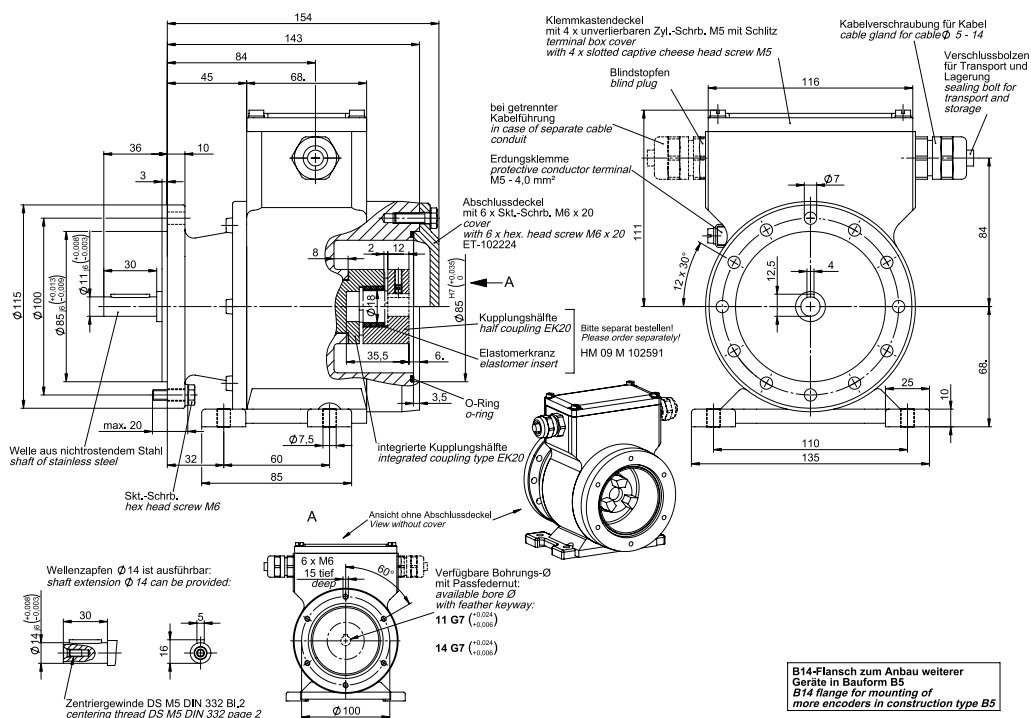
B14-Flansch zum Anbau weiterer
Geräte in Bauform B5
B14 flange for mounting of
more encoders in construction type B5

HM 09 M 102 524



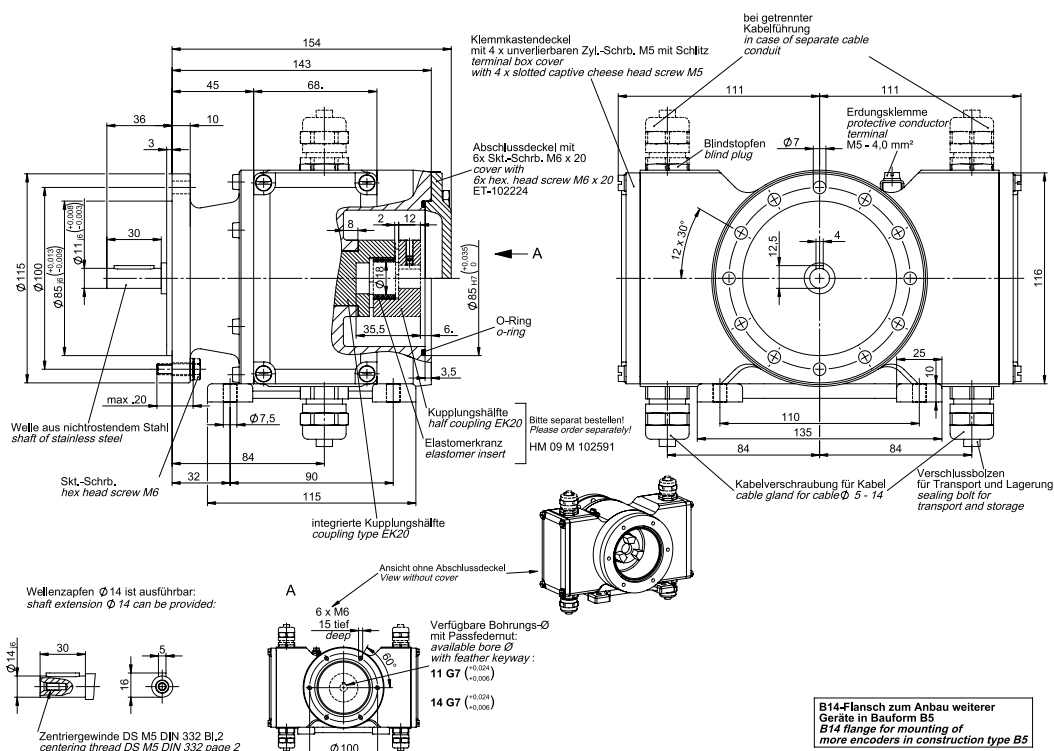
HM 09 M 102 526

12.4 Construction type B35 / B14 (flange and foot / with 2 shaft ends)



EGS® 40 K

HM 09 M 102 525



EGS® 40 KK

Redundant version

HM 09 M 102 527

Standardausführung / standard configuration
Einführungsschräge vorzugsweise 15°-20° / chamfer preferably 15° - 20°

Klemmkastendeckel mit 4 x unverlierbaren Zyl.-Schrb. M5 mit Schlitz
terminal box cover with 4 x slotted captive cheese head screw M5

Abschlussdeckel / cover mit / with O-Ring E-53 445a
Zur Einhaltung der Schutzart erforderlich
Necessary to compliance degree of protection

Lieferumfang / scope of supply

bei getrennter Kabelführung für separate cable conduit

Kabelverschraubung für Kabel
cable gland for cable Ø 5 - 14

Verschlussbolzen für Transport und Lagerung
locking bolt for transport and storage

Erdungsklemme gem. EN 60999-1
Protective conductor terminal
Nennquerschnitt
Nominal cross section
4,0 mm²

6 JSI (+0,015 / -0,015)

Axialspannscheibe axial tightening disc D - 51 5508a VII

Zyl.-Schrb. ISO 4762-M6x18
cheese head screw
mikroklebstoffbeschichtet
micro - adhesive coated

O-Ring seal

Dichtfläche sealing surface

Zentriergewinde / centering thread DIN332 Bl. 2 - DS M6
Gewindetiefe / depth of thread: 22

Abziehwinkel M25x0,75
pull-off thread

Dimensions:
105,5, 28, 68, 11, 116, 111, 84, 22,8 +0,1, 4 x 90°, 45°, Ø85, Ø20 (+0,02 / 0), M6, 9 tief, Ø119, Ø30, Ø68, 34, 83, 85, 83, 22, 83, Ø20 h5 (+0,009 / 0), M6, 22, 83.

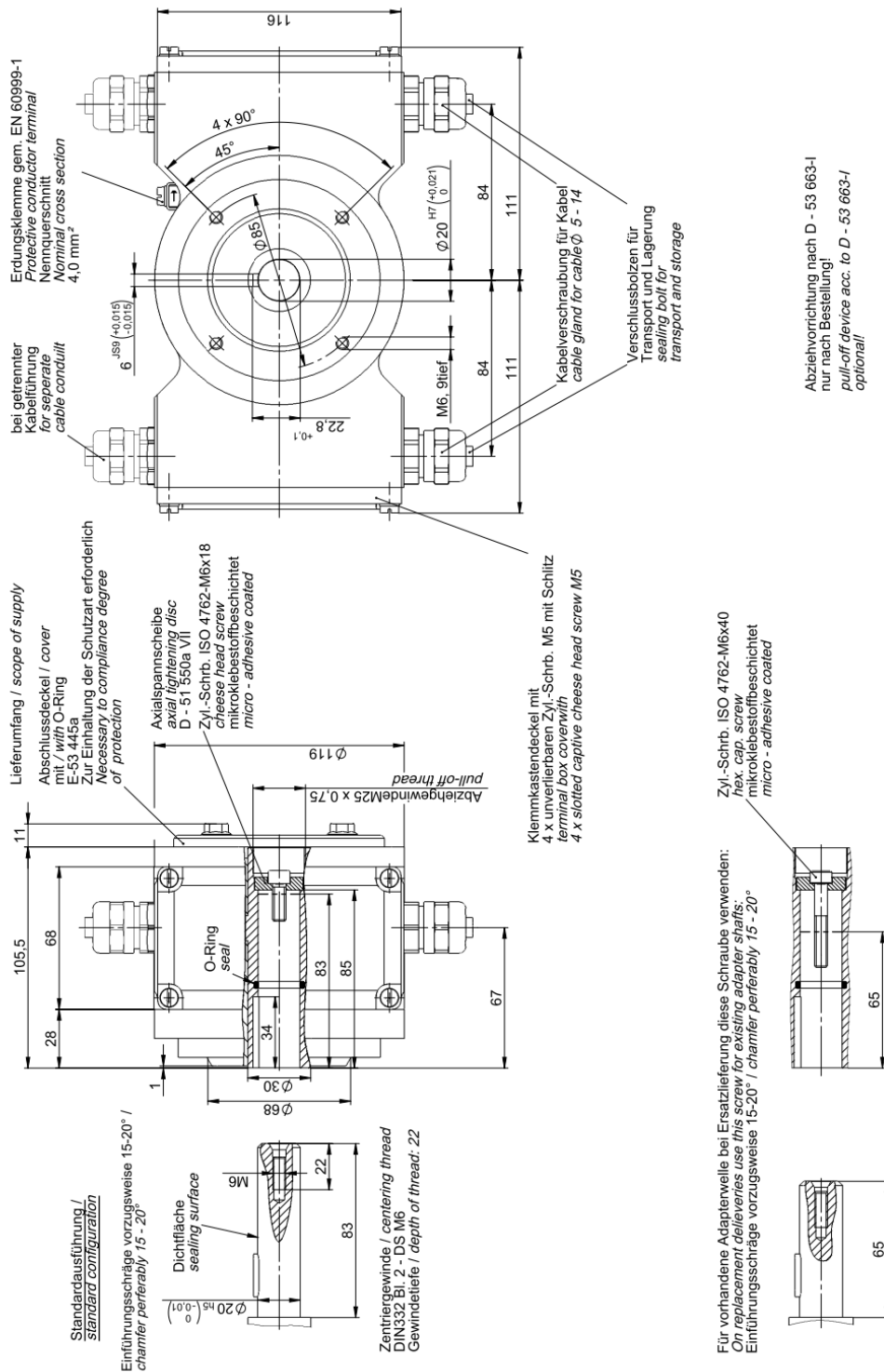
Für vorhandene Adapterwelle bei Ersatzlieferung diese Schraube verwenden:
On replacement deliveries use this screw for existing adapter shafts:
 Einführungsschräge vorzugsweise 15-20° / chamfer preferably 15 - 20°

Abziehvorrichtung nach D - 53 663-I
nur nach Bestellung!
*pull-off device acc. to D - 53 663-I
optional!*

Zyl.-Schrub. ISO 4762-M6x40
cheese head screw
mikroklebestoffbeschichtet
micro - adhesive coated

Zyl.-Schrb. ISO 4762-M6x55
cheese head screw
mikrokiesstoffbeschichtet
micro - adhesive coated

Für vorhandene Adapterwelle bei Ersatzlieferung diese Schraube verwenden:
On replacement deliveries use this screw for existing adapter shafts:
 Einführungsschräge vorzugsweise 15-20° / chamfer preferably 15 - 20°

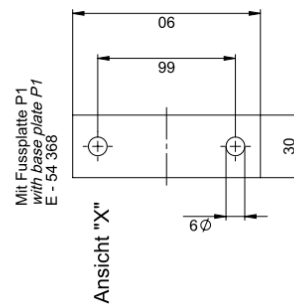


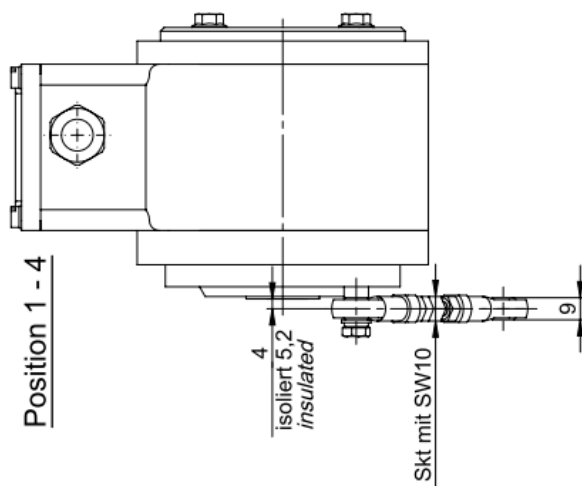
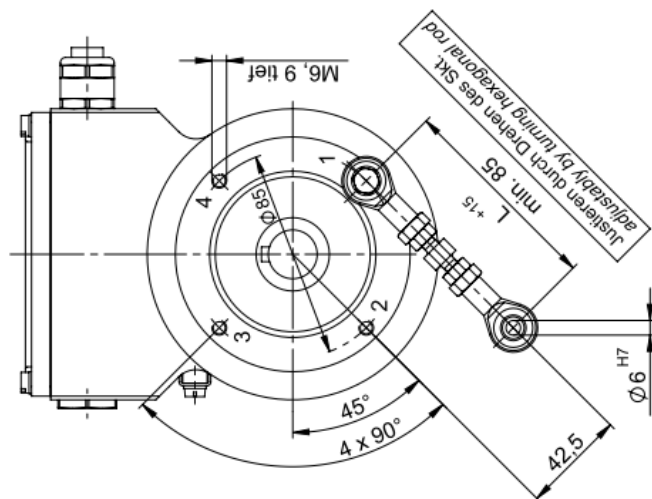
EGS® H 40 K

redundant version

HM 09 M 102131

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Länge / Length L	100; 125; 150; 200
andere Längen auf Anfrage / other lengths on request	

EGS® H 40 K

torque bracket

HM 10 M 101771

13 Connections

The connection boxes of the overspeed switches are equipped with cable glands for cable 5-14 mm in diameter. Suitable cables are important to maintain the protection class.

Comply with the information provided in the connecting diagrams (⇒ Chapter 13.1 Appendix and in the terminal box cover).



NOTES for UL and CSA!

Do only use copper cables

13.1 Connection diagrams

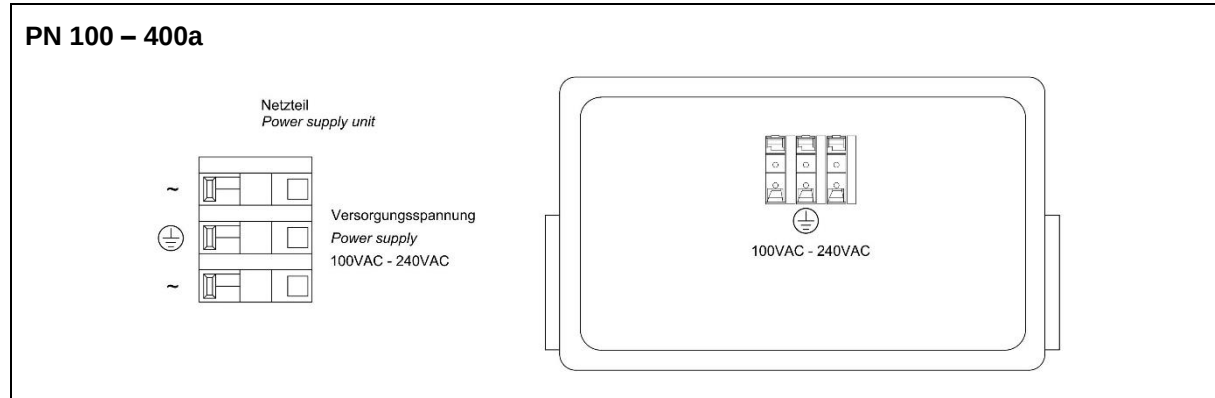


Fig. 13-1

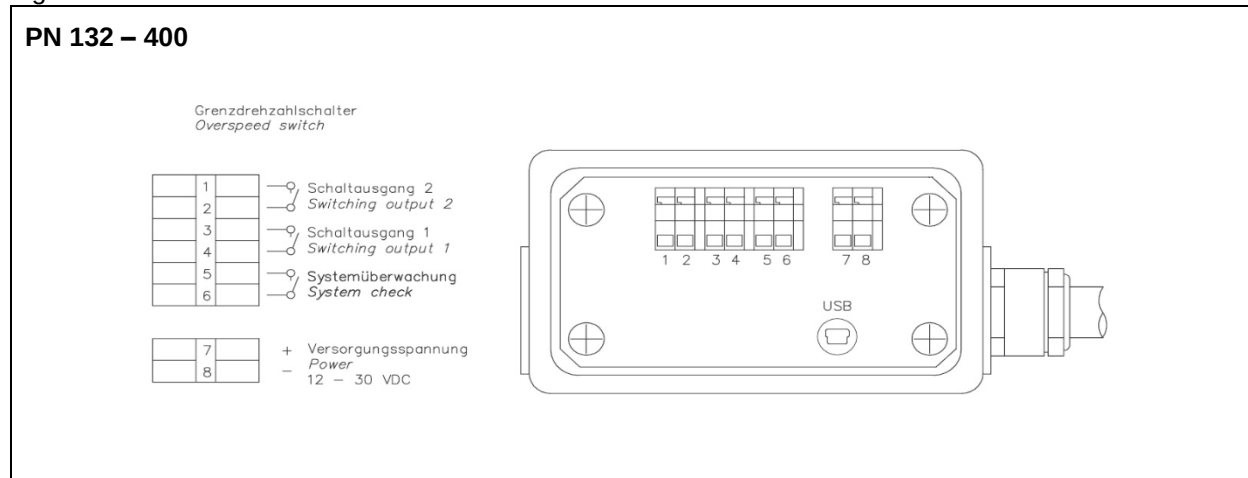


Fig. 13-2

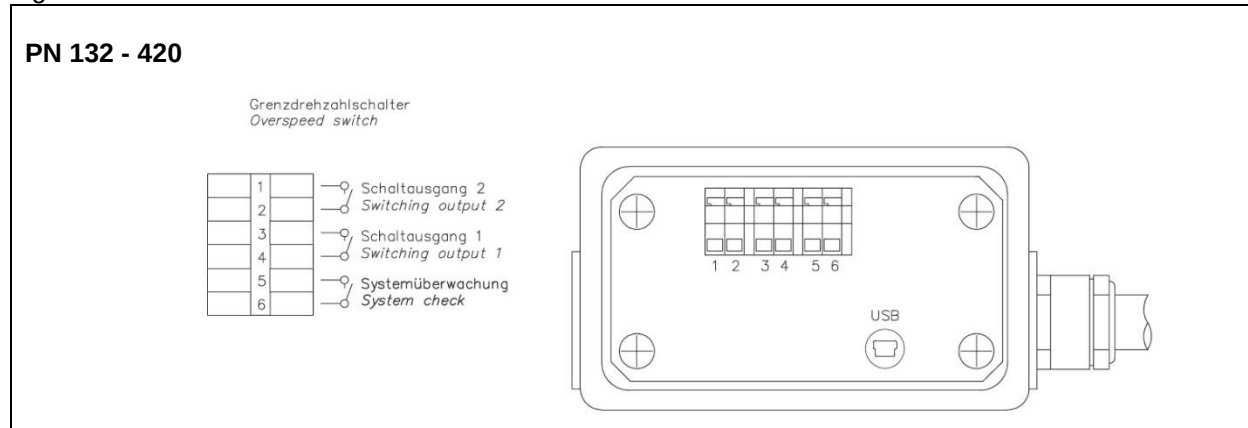


Fig. 13-3

