

Operating and Assembly Instructions

Hollow Shaft Absolute Encoder

AMSH 40 K-1312

ASSH 40 K-13

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



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1 General

1.1 Information about the Operating and Assembly Instructions

These Operating and Assembly Instructions provide important instructions for working with the device. They 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

Hollow Shaft Absolute Encoder AMSH 40 K / ASSH 40 K, Operating and Assembly Instructions.

1.3 Explanation of symbols

Warnings are indicated by symbols in these Operating and Assembly Instructions. 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.



NOTES!

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



NOTES!

Do not use a hammer or similar tool when installing the device due to the risk of damage occurring to the bearings or coupling!



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 these Operating and Assembly Instructions 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 Operating and Assembly Instructions
- 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



NOTES!

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 is available that can be contacted by telephone, fax or email. See manufacturer's address on page 2.

2 Safety



DANGER!

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 AMSH 40 K / ASSH 40 K Hollow Shaft Absolute Encoders are used for measurement of rotations, for instance of electrical and mechanical drives and shafts.

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

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.

2.4 Personnel

Installation and commissioning as well as disassembly routines must be carried out by skilled technical staff only.

2.5 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.

2.6 Special dangers

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

2.6.1 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.

2.6.2 Rotating shafts/hot surfaces



WARNING!

Danger of injury due to rotating shafts and hot surfaces!

Touching rotating shafts can cause serious injuries.

Therefore:

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

Close to protect from injury all access openings in flanges with the corresponding plug screw, and provided you exposed rotating components with protective covers.

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

The encoder can become hot during prolonged use.

In case of contact risk of burns is existing.

2.6.3 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 plate

Example type plate:

JOHANNES HÜBNER CE GIESSEN Siemensstrasse 7 · 35394 Giessen / Germany www.huebner-giessen.com	
Absolutwertgeber / <i>Absolute encoder</i> AMSHJ 40 K-1212/20P	
S/N 123456	C/N ID 22344
Bj./Y 2014	IP 66
max. Drehzahl <i>max. speed</i> 2000 rpm	Versorgungsspg./ <i>Supply voltage</i> 12...30 V DC
Singleturn 12 bit	<i>interface</i> SSI
Multiturn 12 bit	<i>code</i> Graycode
Made in Germany	

The type plate is located on the outside of the housing and contains the following information:

- Manufacturer, Address
- Type, Year of construction
- CE marking
- Serial number (S/N)
- Commission number (C/N) ID Number
- Resolution Singleturn
- Resolution Multiturn (not at ASSH)
- Protection class
- Supply voltage
- Interface
- Code

3.2 Electrical and mechanical data

Connection data				
Supply voltage	12...30 V DC			
No-load power consumption	approx. 1 W			
Resolution singleturn	Max. 13 bit (8192 steps per revolution) see type plate			
Resolution multiturn	Max. 12 bit (4096 revolutions) see type plate			
Data format	SSI, binary/gray code (see type plate)			
SSI-Interface				
Clock input	RS 422 / 5V			
Input current	5 mA			
Clock frequency	80kHz ... 1MHz			
Clock rate/transmission	25 / 13 (multiturn / singleturn)			
SSI – time out	> 30 µs (without data repetition) < 20 µs (with data repetition)			
Data interface	RS 422 / 5V			
Control signals				
V/R, Z (input)	5...30V / 5mA			
State (output)	HTL			
Encoder temperature range				
Standard	-25°C...+ 85°C			
Protection class acc. to DIN EN 60529	Sealing	Permissible speed	Rotor moment of inertia	Breakaway torque
IP66	with labyrinth seal	≤ 4000 rpm (*) ≤ 3000 rpm	approx. 1325 gcm ²	approx. 10 Ncm
IP66	with axial shaft seal	≤ 2000 rpm (*) ≤ 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 (*) ≤ 2000 rpm	approx. 1175 gcm ²	approx. 30 Ncm
(*) with isolated bearings – hybrid bearings –				
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)			150 g (=1500 m/s ²)
Weight	Type AMSH 40 K / ASSH 40 K			approx. 4,2 kg



NOTES!

The hollow shaft device AMSH 40 / ASSH40 reduces the degree of protection to IP 65, if the captive cover screw is not mounted. At maximum speed the permissible ambient temperature will be reduced to 60°C.

3.3 Type code

	AM	S	H	J	40	K	1312	20P
Absolute encoder M = multiturn S = singleturn								
SSI Interface								
Hollow shaft design								
With isolated bearings – hybrid bearings –								
Series								
Connections K = Terminal box S = 15 pole EMC industrial plug T = 12-pole plug M 23								
Resolution (see type plate) Singleturn 13 bit Multiturn 12 bit (not at ASSH)								
Inner diameter hollow shaft 20 P (standard) 16 K (optional) P: feather key K: clamping								

4 Transport, packaging and storage

4.1 Safety instructions for transport



CAUTION!

Material damage caused by improper transport!

Observe the symbols and information on the packaging:

- Do not throw - risk of breakage
- Keep dry
- Do not expose to heat above 40 °C or direct sunlight.

4.2 Incoming goods inspection

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

Inform the forwarder directly on receipt of the goods about existing transport damages (prepare pictures for evidence).

4.3 Packaging / disposal

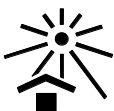
The packaging is not taken back and must be disposed of in accordance with the respective statutory regulations and local guidelines.

4.4 Storage of packages (devices)



Keep dry

Keep packages dry and free from dust; protect from moisture.



Protect against heat

Protect packages from heat above 40 °C and direct sunlight.

If you intend to store the device for a longer period of time (> 6 months) we recommend you use protective packaging (with desiccant).



NOTES!

Turn the shaft of the hollow shaft absolute encoder every 6 month to prevent the bearing grease solidifying!

5 Installation and commissioning

5.1 Safety instructions



NOTES!

Observe the safety instructions contained in **Chapter 2** when installing or working on the device!

Personnel

Installation and commissioning must be carried out by skilled technical staff only.

5.2 Technical information



NOTES!

Do not use a hammer or similar tool when installing the device due to the risk of damage occurring to the bearings or coupling!

Ambient temperature

The max. permissible ambient temperature depends on the speed and degree of protection of the device, the signal frequency, the length of the signal cable and the place of installation (please refer to chapter 3.2).

Degree of protection

To fulfill degree of protection requirements the diameter of the connection cable must correspond to that of the cable gland (please refer to chapter 13 dimension drawings)

Deep groove ball bearings

The hollow shaft absolute encoder AMSH 40 K / ASSH 40 K is fitted with maintenance-free, greased "for-life" deep groove bearings. Bearings must be changed by the manufacturer only. Opening the encoder renders the guarantee null and void.

Screw retention

We recommend using Loctite® 243 threadlocker (medium strength) on all fastening screws to prevent loosening.

5.3 Required tools

- Spanners: 10 mm, 13 mm, 22 mm, 24 mm
- Allen keys: 5 mm
- Flat-blade screwdrivers:
- Assembly grease
- Loctite® 243 (medium strength threadlocker)

5.4 Mounting preparations

1. Ensure all accessories are available (please refer to chapter 13 dimension drawings).

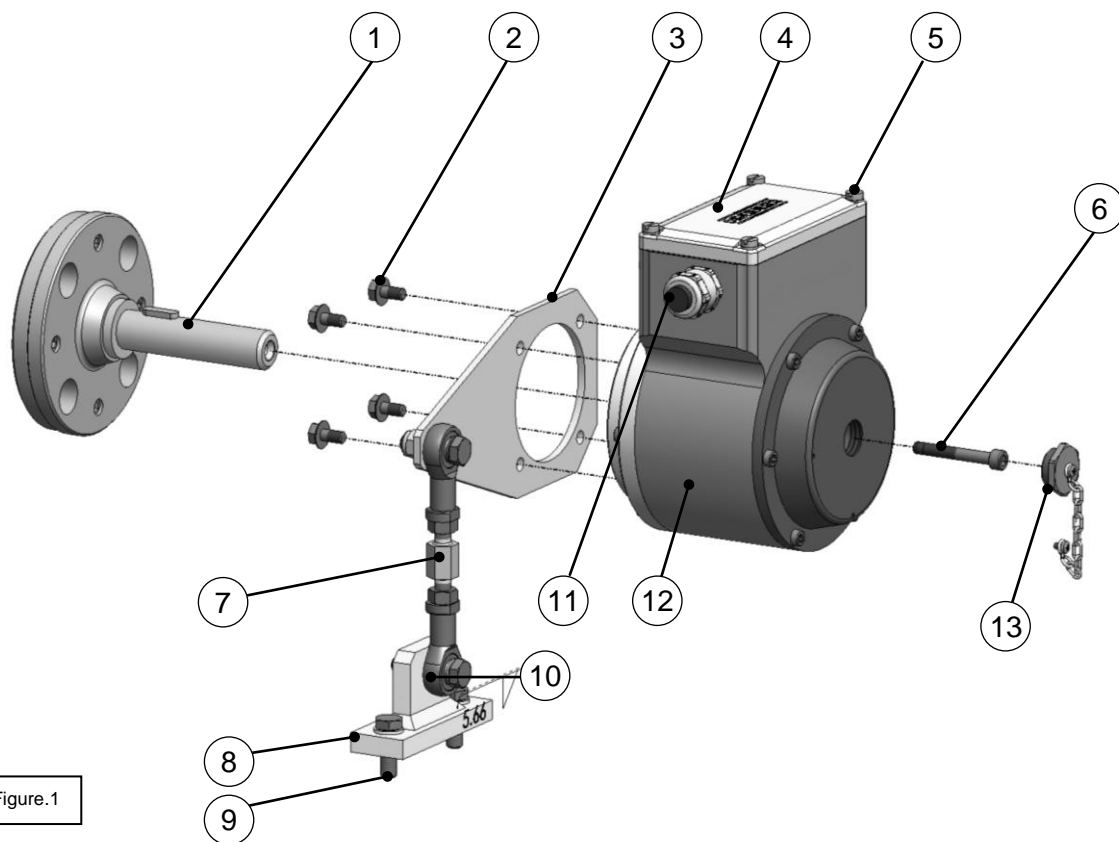


NOTES!

Fastening screws and earth cable are not included in the range of supply.

2. Preparing the place of attachment: Clean the (motor) shaft, centering, bolting surfaces and fastening threads; check for damage. Repair any damage!

5.5 Mounting hollow shaft type absolute encoder



1. Mount adapter shaft (1) and align using dial gauge.

NOTES!

The maximum radial run-out of the adapter shaft is 0.05 mm.

If necessary, use the ball thrust adjustment screw to align the adapter shaft. Secure ball thrust screws with Loctite® 243. Remove unused ball thrust screws or secure with Loctite® 243. Max. tightening torque for M12 approx. 25 Nm, for M16 approx. 35 Nm.

Use feather keys to DIN 6885.

Please also observe the supplement data sheet *Mounting accuracy for hollow shaft encoders*. You should also observe the installation instructions supplied with the adapter shaft when installing!



2. Grease lightly the adapter shaft (1).
3. Secure the torque bracket (3) to the hollow-shaft device (12) with 4 tensilock screws (2).



NOTES!

When fitting to the device is possible to align the torque bracket in four different directions. If possible fit the device in a manner that ensures the cable gland points downwards! Exchange the position of the cable gland (11) and the blanking plug on the opposite side, if necessary.

4. Mount the hollow-shaft device to the adapter shaft.

The hollow shaft device must slide easily onto the adapter shaft. Never use excessive force, otherwise the bearings may be damaged. If necessary, use emery cloth or a file to produce a better fit between the adapter shaft and the key. Do not allow the device to hit hard against the collar of the shaft.

5. Secure the hollow-shaft device with the hexagon socket head cap screw (6). (Fig. 1).



NOTES!

The axial tensioning disc is supplied with several hexagon head socket cap screws of different lengths. To select the suitable hexagon head socket cap screw please refer to the dimensioning drawings in Chapter 13

The hexagon head socket cap screws are coated with a microencapsulated adhesive as locking agent.

6. Mount the captive cover screw (13).
7. Fastening the torque bracket:
The ideal angle of the torque bracket (3) to the link rod (7) is 90°.

Fastening without base plate:

Secure the link rod head (10) of the link rod (7) to a fixed point (for example on the motor housing).

Fastening with base plate:

Secure the base plate (8) to a fixed point with two hexagon head screws (9), (for example on the motor housing or the foundations).



NOTES!

Once fitted the link rod must rotate easily around the link rod heads! Failure to observe this point may result in damage to the bearings!



NOTES!

The link heads are maintenance free. However, ensure they remain free from soiling and paint!



NOTES!

Mount the unit when possible, so that the cable entry points downwards. If necessary, swap the position of the cable gland (11) and the blind plug (opposite side).

5.6 Electrical connection and start up



NOTES!

You must observe applicable EMC guidelines when routing cables!

5.6.1 Preparing cables

1. Strip cable insulation.
2. Crimp wire-end ferrules.

5.6.2 Electrical connection

1. Open the terminal box cover (4 Fig. 1).



CAUTION!

Do not allow moisture to enter the terminal box when the cover is open!

2. Remove the cap of the cable gland (11 Fig.1).
3. Feed the cable into the terminal box trough the cable gland.



NOTES!

The signal cable shielding can be connected directly to the housing via the EMC cable gland. A coil spring integrated in the cable gland ensures all-round contact is made with the bare cable shielding to ensure a good shield connection. This type of shield connection should be preferred.

Alternatively, if equipotential bonding currents are anticipated it is possible to connect the cable shielding to a shield terminal in the terminal box. A capacitor between the shield terminal and the encoder housing prevents the flow of equalizing current. To achieve an effective shielding the cable shield must also be connected in the electrical cabinet.

4. Tighten the cable gland and blanking plugs using a spanner.



NOTES!

Prior to delivery cable glands and blanking plugs are tightened finger tight only. To ensure that the terminal box is reliably sealed tighten all cable glands and blanking plugs before starting up for the first time.

5. Use a spanner to tighten the cable gland until the cable is securely clamped and properly sealed.



NOTES!

Prevent lateral pulling forces acting on the cable and plugs so as not to impair the degree of protection of the cable gland.

6. Connect the supply voltage and signal cable (please refer to the connection diagrams, chapter 7).



CAUTION!

Do not apply supply voltage to the signal outputs, as this will destroy the device!

7. Applicable to alternative shield connection only: fit cable lug to cable shield and connect to the shield terminal (please refer to the connection diagrams, chapter 12).



NOTES!

To achieve a good shielding effect the cable shield be kept as short as possible.

8. Close the terminal box cover.



NOTES!

Before closing the terminal box cover check and if necessary clean both seal surfaces and the gasket.



CAUTION!

Ensure when closing the terminal box cover that no cable becomes jammed.

9. Secure earth cable to earth terminal (see dimension drawing chapter 13).

6 Dismantling

6.1 Safety instructions

Personnel

Dismantling must be carried out by skilled technical staff only.



WARNING!

Observe the safety instructions contained in **Chapter 2** when dismantling the device!



NOTES!

Do not use a hammer or similar tool when installing the device due to the risk of damage occurring to the bearings or coupling!

6.2 Dismantling the absolute encoder

To dismantling the absolute encoder follow the instructions given in chapters 5.5, and 5.6 in the reverse order.

6.3 Connecting the encoder (electrically)

6.3.1 Connections

Cable glands are closed with a stopper to protect the devices on transport and storage.

Cable connections have to be executed according to the encoder type.

Connection diagrams have to be considered!

See connection diagram and in the terminal box.

Use of connection cables with diameter of min. 9 mm – max. 13 mm is essential to ensure the protection class. Cable outlet should show preferably downwards.

Wiring arrangement and shielding:

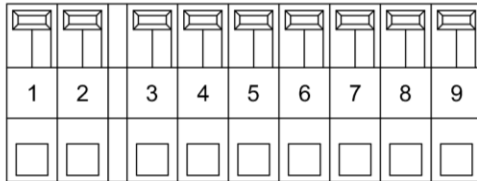
(EMC measurement)

The cable shielding has to be connected on both ends!

The shield of the signal cable can be connected directly to the housing of the encoder by the cable gland.

The common guidelines for EMC concerned cable routing have to be considered!

7 Connection diagram



Anschlussdaten:

K1,K2

Aderquerschnitt
0,25-1,5 [mm²]

K3...K9

Aderquerschnitt
0,25-0,5 [mm²]

Connection data:

K1,K2

wire section
0,25-1,5 [mm²]

K3...K9

wire section
0,25-0,5 [mm²]

Connection diagram PN178-410	
Internal connector	Function
1	GND
2	+UB
3	CLCK
4	CLCKG
5	DATA
6	DATAG
7	STATUS
8	V/R
9	Z

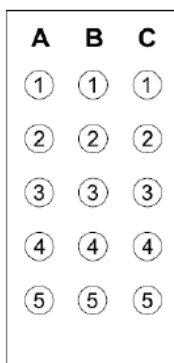
AMSH / ASSH 40

Standard

Terminal box

Ansicht auf Steckdoseneinsatz

Socket insert view



Anschlussdaten:

Crimpkontakte für Drahtquerschnitte
0,75-1,0 [mm²]

Connection data:

Crimp contacts for cross-sectional data of wire
0,75-1,0 [mm²]

Schirmung:

Der Schirm der Signalleitung muss über die Kabelverschraubung direkt mit dem Gehäuse verbunden werden.

Shielding:

The shield of the signal cable has to be connected directly to the housing of the encoder by the cable gland.

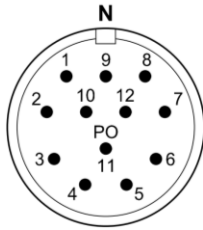
EMV-Industriestecker EMC industrial plug		Anschlussplan Connection diagram		PN178-440 PN178-440	
C5	0V		GND	GND	
A5	12...30V		Versorgungsspannung	Power Supply	
A1	-		-	-	
A2	-		-	-	
A3	-		-	-	
A4	-		-	-	
B1	V/R		Steuereingang V/R	Control input V/R	
B2	Z		Steuereingang Z	Control input Z	
B3	-		-	-	
B4	-		-	-	
B5	STATUS		Status-Ausgang (Low aktiv)	Status output (Low active)	
C1	DATA		Daten	Data	
C2	DATAG		Daten invers	Data inverse	
C3	CLCK		Takt	Clock	
C4	CLCKG		Takt invers	Clock inverse	

AMSH / ASSH 40

PN178-440

EMC industrial plug

Ansicht auf Geräteanschluss
 Socket insert view



Schirmung:
 Der Schirm der Signalleitung ist direkt mit dem Steckergehäuse zu verbinden.

Shield:
 The shield of the signal cable is connected at the socket housing.

M23-Stecker M23 plug		Anschlussplan Connection diagram		PN178-460 PN178-460
1	GND	GND		GND
2	+UB	Versorgungsspannung		Power Supply
3	CLCK	Takt		Clock
4	CLCKG	Takt invers		Clock inverse
5	DATA	Daten		Data
6	DATAG	Daten invers		Data inverse
7	Z	Steuereingang Z		Control input Z
8	V/R	Steuereingang V/R		Control input V/R
9	STATUS	Status-Ausgang (low aktiv)		Status output (low active)
10	-	-		-
11	-	-		-
12	-	-		-

**AMSH 40
 ASSH 40**

12-pole plug M 23

8 Faults

8.1 Fault table

Faults	Possible cause	Remedy
Moisture in the terminal box cover	Soiled gasket or seal surfaces of terminal box cover	Clean gasket of terminal box cover and seal surfaces
	Damaged gasket of terminal box cover	Replace gasket of terminal box cover
	Cable gland/blanking plug not tightened	Tighten cable gland/blanking plug
	Unsuitable cable for cable gland	Use suitable cable and cable glands

9 Inspections

9.1 Safety instructions



WARNING/PERSONNEL!

Skilled technical staff only are permitted to inspect the device and its installation. Observe the safety instructions contained in **chapter 2** when inspecting or working on the device!

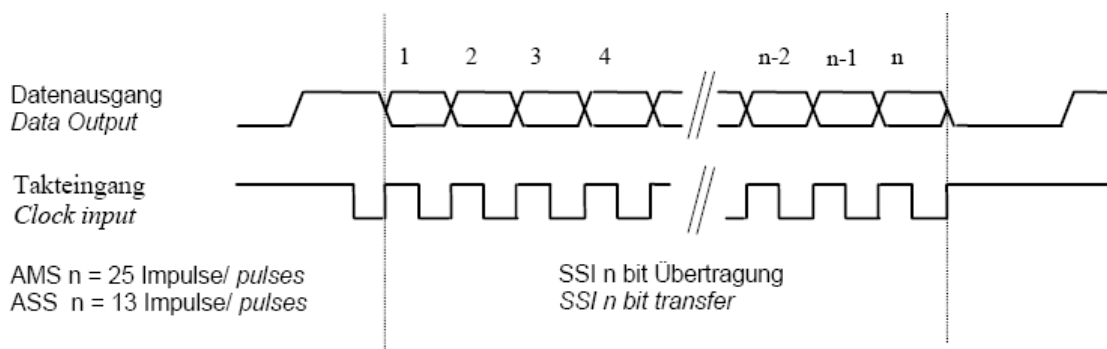
10 Data transmission

Data transmission:

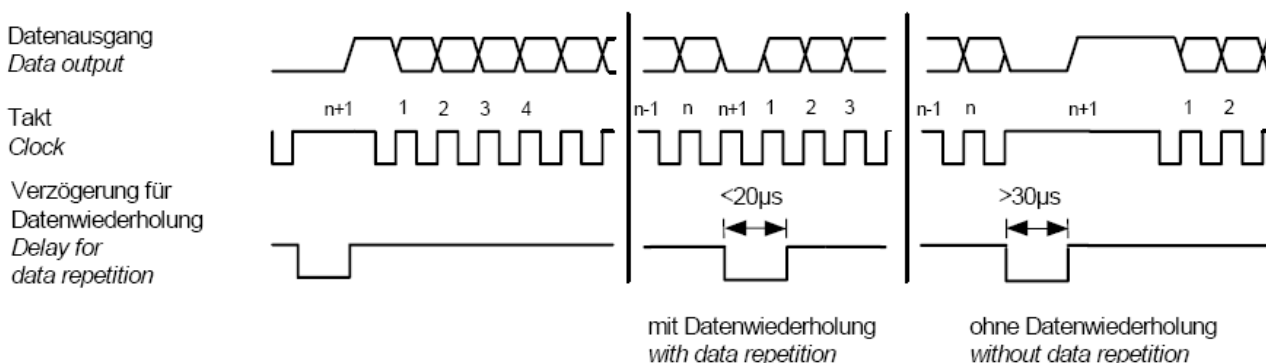
Data transmission is effected acc. to SSI processing (Serial Synchronous Interface). This means the encoder input „CLCK“ and CLCKG“ (inverted) will be supplied with sets of 25 clockpulses (AMSH) or 13 clockpulses (ASSH) through an opto coupler input for electrical isolation. Synchronously 25 data bits (AMSH) or 13 data bits (ASSH) will be available at the output „DATA“ and inverted signals at the output „DATAG“ through Interface RS422.

The inactive level of clock signal is normally set at HIGH. On first falling edge the encoder position will be read from the code discs. The first transmission bit will then be supplied to the encoder output with the rising edge of clock 1 enabling the receiver unit to read the transmission bit with the falling edge of clock 1. This procedure will be repeated up to clock 25 (AMSH) or up to clock 13 (ASSH) and in this manner all data bits will be transmitted.

Data transmission will end at rising edge of clock input. In normal operation the output will be set to level „HIGH“ after approx. 25 μ s and readiness for next data transmission will be indicated to the receiver unit.



If a new data transfer is started within 20 μ s, no data reading from the code discs will be made but data of the previous cycle will be transmitted again (data repetition).



Status-output

A signal indicating operation of the encoder will be generated on the output „Status“ as follows: While operating accurately a high level will be generated on „Status“. Low on signal „Status“ indicates non-correct operating of the SSI encoder.

Control input V/R

Position values when the shaft rotates clockwise.

Standard:

0 V to terminal V/R

or no available connection : Position increasing ↑

Reversion:

U_B to terminal V/R: Position decreasing ↓



Picture shows encoder with solid shaft

Control input Z

The current position data is set to the preset value when having a pulse from min. 100 ms length (+10 V ... +30 V)

10.1 Maintenance information

The device is maintenance-free. However, to guarantee optimum fault-free operations we recommend that you carry out the following inspections.

10.2 Inspection schedule

Interval	Inspections
Yearly	Ensure the fastening screws are properly tightened
	Ensure cable connections and connection terminals are securely seated
Following approx 16 000 ... 20 000 hours of operation / higher levels of continuous load	Check deep groove ball bearings are running smoothly and listen for running noises

11 Disposal

11.1 Disposal procedure

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.

12 Spare Parts

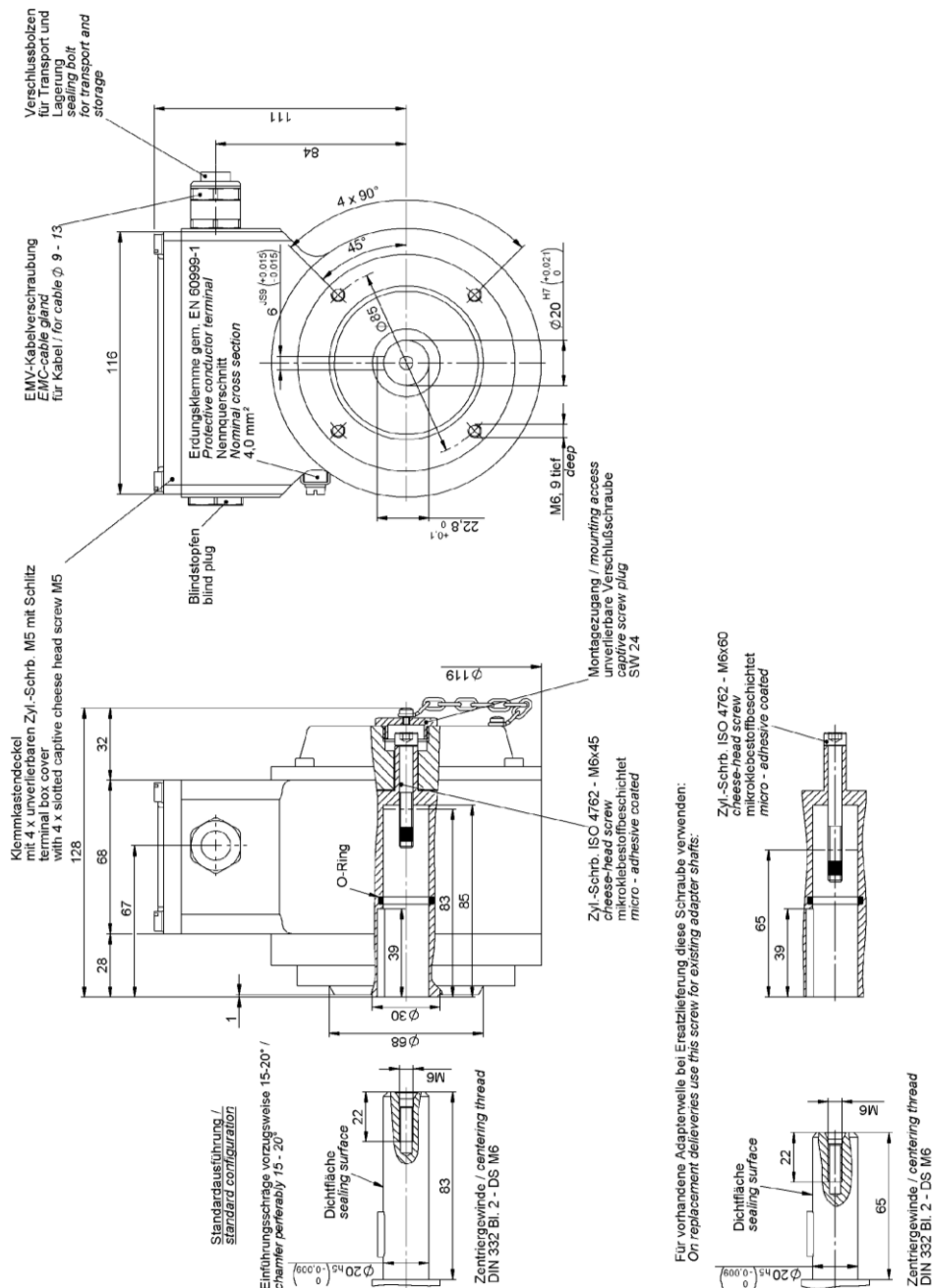
The in the following listed spare parts can be covered when required about the service address on the page 2.

Spare part	Remark
Cover	Cover of the hollow- shaft bore (non drive end)
Cable gland	M20 x 1,5
Terminal box cover	Incl. o-ring and screws

13 Dimension drawings

Further dimension drawings on our website or on request.

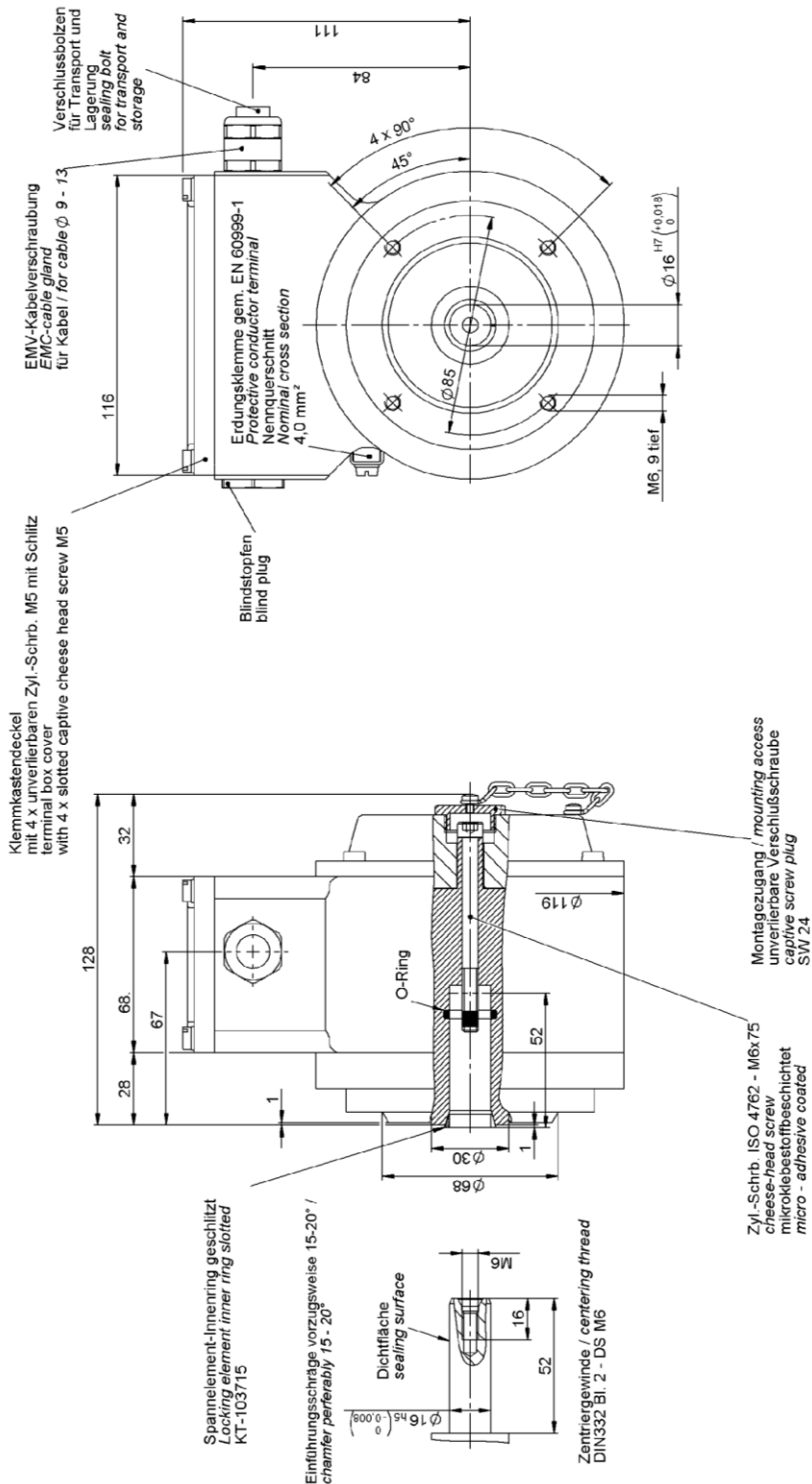
13.1 Construction type hollow shaft design



AMSH(J) 40K / 20P
ASSH(J) 40 K / 20 P

With radial terminal box

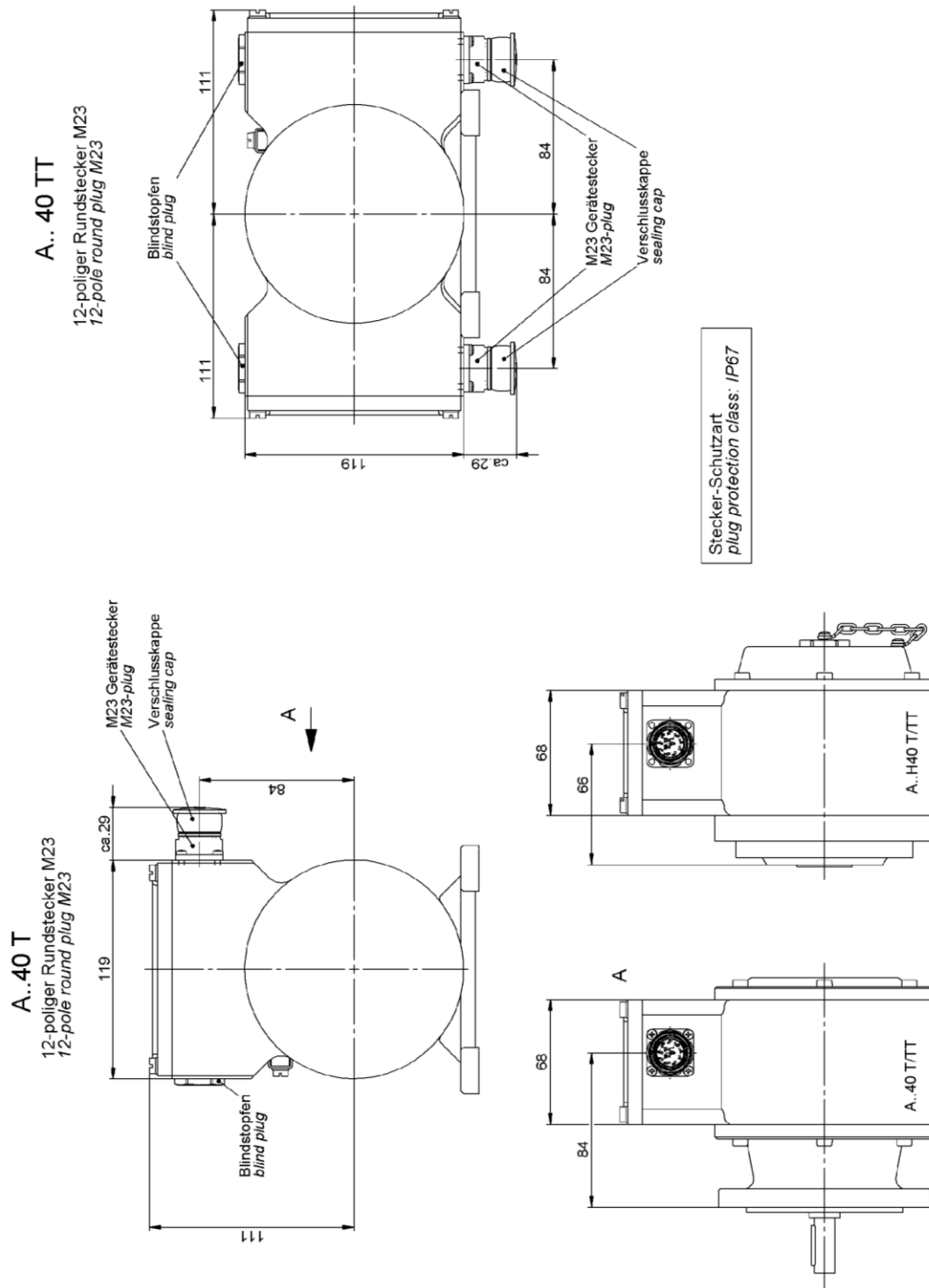
HM 13 M 106280
HM 15 M 108973



AMSH(J)40K / 16K
ASSH(J)40K / 16K

With lateral terminal box

HM 12 M 105299
HM 15 M 109066





AMS 40 T / ASS 40 T

Additional dimension drawing
12-pole plug M 23

HM 15 M 109157

14 Declaration of incorporation

	<p style="text-align: center;">EG-Einbauerklärung für unvollständige Maschinen (EG-Richtlinie 2006/42/EG)</p> <p style="text-align: center;">EC-Declaration of Incorporation for partly completed machinery (EC-Directive 2006/42/EC)</p>
<p>Hersteller / Manufacturer: Johannes Hübner Fabrik elektrischer Maschinen GmbH</p> <p>Anschrift / Address: 35394 Giessen, Siemensstrasse 7</p> <p>Produktbezeichnung / Product designation:</p> <p>AMSH 40 K / ASSH 40 K AMSH 40 K / ASSH 40 K</p> <hr/> <p>Die oben genannten Produkte entsprechen folgenden grundlegenden Anforderungen der Richtlinie 2006/42/EG:</p> <ul style="list-style-type: none"> 1.1.2 Grundsätze für die Integration der Sicherheit 1.1.3 Materialien und Produkte 1.1.5 Konstruktion der Maschine im Hinblick auf Handhabung 1.3.2 Bruchrisiko bei Betrieb 1.3.3 Risiken durch herabfallende oder herausgeschleuderte Gegenstände 1.3.4 Risiken durch Oberflächen, Kanten und Ecken 1.5.1 Elektrische Energieversorgung 1.6.1 Wartung der Maschine 1.7.1 Informationen und Warnhinweise an der Maschine 1.7.2 Warnung vor Restrisiken 1.7.3 Kennzeichnung der Maschinen <hr/> <p>The above mentioned products meets the following essential requirements from directive 2006/42/EC:</p> <ul style="list-style-type: none"> 1.1.2 Principles of safety integration 1.1.3 Materials and products 1.1.5 Design of machinery to facilitate its handling 1.3.2 Risk of break-up during operation 1.3.3 Risks due to falling or ejected objects 1.3.4 Risks due to surfaces, edges or angles 1.5.1 Electricity supply 1.6.1 Machinery maintenance 1.7.1 Information and warnings on the machinery 1.7.2 Warning of residual risks 1.7.3 Marking of machinery <hr/> <p>Die bezeichneten Produkte stimmen in der von uns in Verkehr gebrachten Ausführung mit den Vorschriften folgender Europäischer Richtlinien überein:</p> <p>The products described above in the form as placed on the market are in conformity with the provisions of the following European Directive:</p>	

<p>2014/30/EU (Ausgabe / Version 2014-02-26) Richtlinie des Europäischen Parlaments und des Rates vom 26. Februar 2014 zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die elektromagnetische Verträglichkeit <u>Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility</u></p>		
<p>2006/42/EG: Folgende harmonisierende Normen wurden angewandt: 2006/42/EC: Following harmonised standards have been applied:</p>		
<p>DIN EN ISO 12100 (Ausgabe / Version 2013-08) Sicherheit von Maschinen <u>Safety of machinery</u></p>		
<p>DIN EN 60204-1 (Ausgabe / Version 2010-05) Sicherheit von Maschinen – Allgemeine Anforderungen <u>Safety of machinery – General requirements</u></p>		
<p>2014/30/EU: Folgende harmonisierende Normen wurden angewandt: 2014/30/EU: Following harmonised standards have been applied:</p>		
<p>DIN EN 55011 (Ausgabe / Version 2011-04) Industrielle, wissenschaftliche und medizinische Geräte - Funkstörungen - Grenzwerte und Messverfahren <u>Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement</u></p>		
<p>DIN EN 61326-1 (Ausgabe / Version 2013-07) Elektrische Mess-, Steuer-, Regel- und Laborgeräte - EMV-Anforderungen - Teil 1: Allgemeine Anforderungen <u>Electrical equipment for measurement, control and laboratory use - EMC requirements -- Part 1: General requirements</u></p>		
<p>Die Erstellung der speziellen technischen Unterlagen nach Anhang VII Teil B wird erklärt. Die Unterlagen werden vom Hersteller auf Verlangen der einzelstaatlichen Stellen zur Verfügung gestellt. The preparation for relevant technical documents to appendix VII part B is declared. The documents will be made available from manufacturer to request by the competent national authorities.</p>		
<p>Die Inbetriebnahme ist so lange untersagt, bis festgestellt wurde, dass - soweit zutreffend - die Maschine, in die o.a. unvollständige Maschine eingebaut werden soll, den Bestimmungen der Maschinenrichtlinie 2006/42/EG entspricht. <u>Startup is not permitted until it has been determined, that - as applicable - the machine into which the uncompleted machine has to be incorporated, does comply with the requirement of the machine directive (2006/42/EC).</u></p>		
Unterschrift: 	Frank Tscherny (Geschäftsführer / General manager)	Datum: 27.01.2016