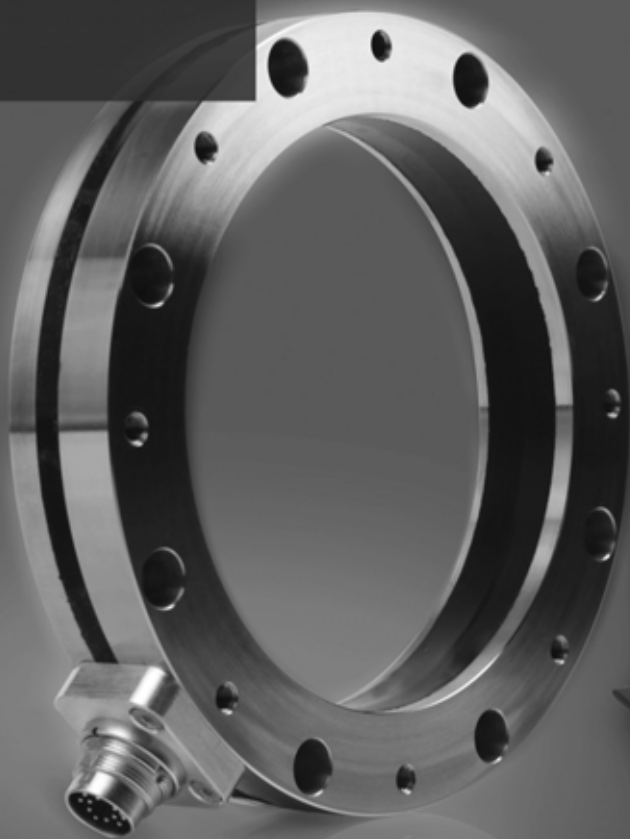




WITTENSTEIN

torqXis - SFR

Operating Manual



A36022-D000235

Revision: 02

Revision history

Revision	Date	Comment	Chapter
01	07.05.2009	New Version	All
02	14.09.2009	Zero point calibration, Declaration of conformity	6.3, 8.5

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1 About this manual




This operating manual contains necessary information to safely use the torqXis - SFR sensor system, referred to in the following as sensor.

The operator must make sure that this operating manual is read through by all persons assigned to install, operate or maintain the sensor and that they understand the manual.

Store the operating manual within reach of the sensor.

1.1 Signal words

The following signal words are used to bring your attention to dangers, prohibitions, and important information:

	<div data-bbox="655 562 1002 622">  DANGER </div> <div data-bbox="456 629 1382 696"> <p>This signal word points out to an imminent danger that can cause serious injuries and even death.</p> </div>
	<div data-bbox="655 730 1031 790">  WARNING </div> <div data-bbox="456 797 1350 864"> <p>This signal word points out to a possible danger that can cause serious injuries and even death.</p> </div>
	<div data-bbox="655 898 1011 958">  CAUTION </div> <div data-bbox="456 965 1430 1032"> <p>This signal word points out to a possible danger that can cause slight to serious injuries.</p> </div>
	<div data-bbox="730 1066 1011 1126">CAUTION</div> <div data-bbox="456 1133 1398 1200"> <p>This signal word (without warning symbol) points out to a possible danger that can cause material damage.</p> </div>
	<div data-bbox="730 1234 1166 1294">INFORMATION</div> <div data-bbox="456 1301 1430 1368"> <p>This signal word draws your attention to application tips or especially important information when handling the sensor.</p> </div>

1.2 Safety symbols

The following safety symbols are used to bring your attention to dangers, prohibitions, and important information:



General danger



Hot surface



Suspended loads



Danger of being pulled in



Environment protection



Information



Electric voltage



Electrostatic discharge sensitive component

1.3 Information symbols

The following information symbols are used:

- requires you to carry out an action
- ➡ indicates the results of an action
- ① provides additional information on handling

2 Safety

This operating manual, especially the safety instructions and the rules and regulations valid for the operating site, must be observed by all persons working with the sensor.

In addition to the safety specifications mentioned in this operating manual, the general and also the local regulations on the prevention of accidents and on environmental protection should be observed.

2.1 EC directive on electromagnetic compatibility (EMC)

The sensor has been constructed in accordance with EC directive 89/336/EEC. During installation and connection of the electrical components, the relevant regulations have to be observed (for example screening, fuses).

Meeting all requirements for the entire system is the responsibility of the system's manufacturer.

The EC declaration of conformity can be found in the appendix (see Chapter 8.5 "EC Declaration of conformity").

2.2 Dangers

The sensor has been constructed according to current technological standards and accepted safety regulations.

To avoid danger to the operator or damage to the machine, the sensor may be put to use only for its intended usage (see Chapter 2.4 "Intended use") and in a technically flawless and safe state.

2.3 Personnel

Only persons may carry out work on the sensor if they have read and understood this operating manual.

2.4 Intended use

The sensor is constructed for attachment to machines in industrial environments to register measurements there.

The sensor is suitable for all industrial applications that do not fall under article 2 of the directive 2002/95/EC (usage restriction of certain dangerous materials on electro and electronic equipment).

The sensor is no safety component within terms of the EC Machinery Directive.

The sensor registers the following indicators:

- Torques
- Radial forces
- Temperature





2.5 Guarantee and liability

Guarantee and liability claims are excluded for personal injury and material damage in case of

- ignoring the information on transport and storage
- improper use (misuse)
- improper or neglected maintenance and repair
- improper assembly / disassembly or improper operation
- operation of the sensor when safety devices and equipment are defective
- operation of a heavily soiled sensor
- modifications or reconstructions that have been executed without written approval of

WITTENSTEIN AG.

2.6 General safety instructions

	<p>! WARNING</p> <p>Objects flung out by rotating components can cause serious injuries.</p> <ul style="list-style-type: none">• Remove objects and tools from the sensor before putting the whole machine into operation.
	<p>! CAUTION</p> <p>The sensor housing can get hot during operation. Burns are possible if touched.</p> <ul style="list-style-type: none">• Touch the sensor housing, when hot, only with protective gloves.
	<p>CAUTION</p> <p>Damaged cables or plugs can cause damage to the whole machine due to nonconforming or missing signals.</p> <ul style="list-style-type: none">• Immediately replace damaged cables or plugs.
	<p>CAUTION</p> <p>Solvents and aggressive detergents may damage cables and plugs.</p> <ul style="list-style-type: none">• For cleaning, use only cleaning agents with low alkaline or acidic content.

3 Description of the sensor

3.1 General information

The sensor is constructed for attachment to machines to register measurements there.

The sensor registers the following indicators:

- Torques
- Lateral forces
- Temperature

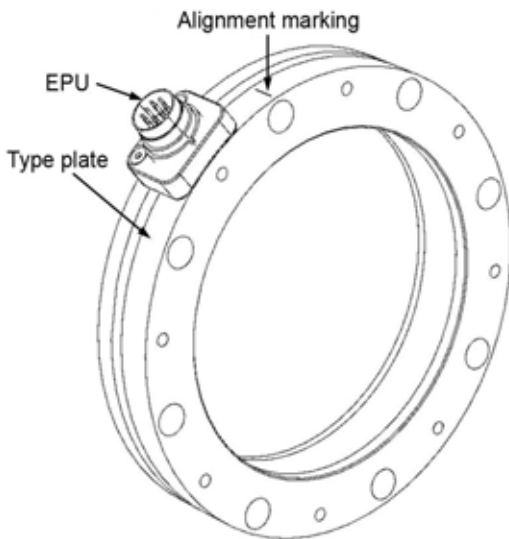
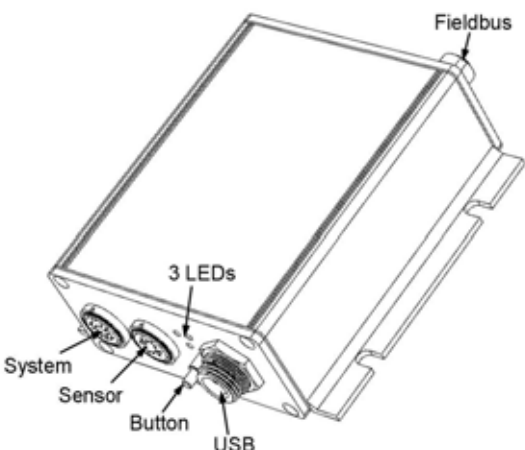
The sensor is designed as a compact ring, which is mounted between the machine bed and drive component.

The evaluation unit (EPU) is connected via the supplied cable. The connections are constructed in the protection class IP65.

The evaluation unit registers, processes and forwards the sensor data. For this it features the following communication interfaces:

- USB
- 12-pin socket (sensor connection)
- 19-pin system socket:
 - Supply
 - Analog interfaces (optional)
 - Digital interfaces (optional: RS232 / RS485; not possible with simultaneous integrated fieldbus connection)
- Fieldbus interface (optional):
 - EtherNet/IP or Profibus DP (optional, further protocols upon request; not possible with simultaneous RS232 or RS485 interface)

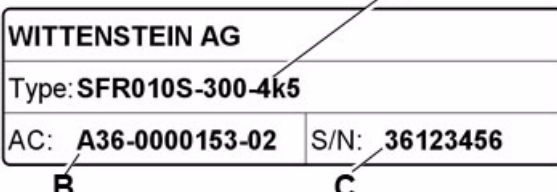
3.2 Sensor components overview

		Sensor components
	A	<div>Sensor ring with:</div> <ul style="list-style-type: none">- Alignment marking- Connection for evaluation unit (EPU)- Type plate
	B	<div>Evaluation unit (EPU) with:</div> <ul style="list-style-type: none">- Connection for fieldbus (optional)- 19-pin socket (system)- Connection for sensor ring (sensor)- LEDs- Button- USB connection

Tbl-1: Sensor components overview

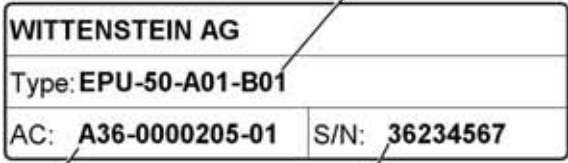
3.3 Type plates

A type plate is attached to the sensor.

		Designation
	A	Ordering code (see Chapter 3.4 “Ordering code”)
	B	Article code
	C	Serial number

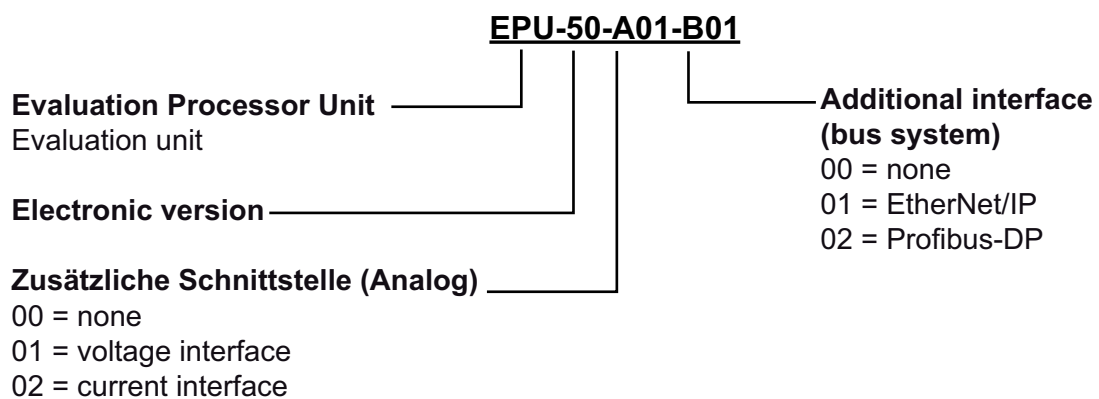
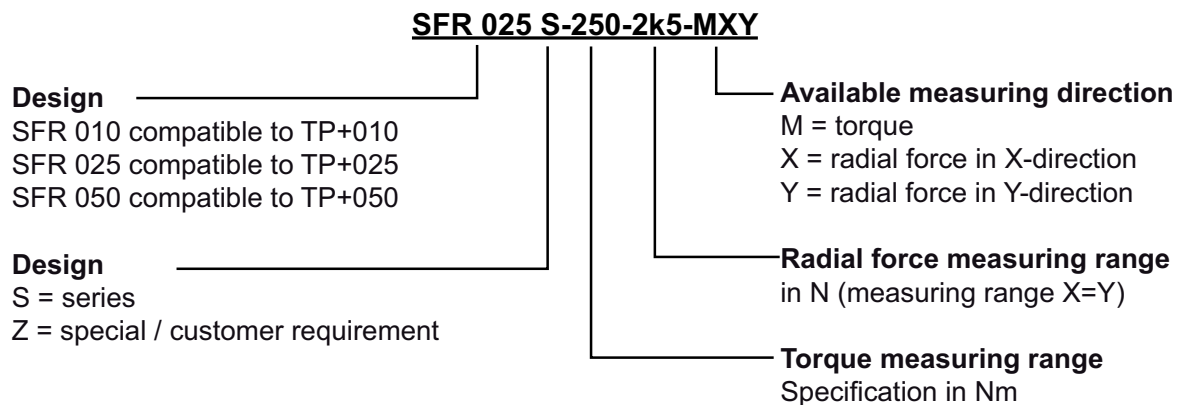
Tbl-2: Type plate sensor ring (sample values)

A further type plate is attached to the evaluation unit.

		Designation
	A	Ordering code (see Chapter 3.4 "Ordering code")
	B	Article code
	C	Serial number

Tbl-3: Type plate, evaluation unit (sample values)

3.4 Ordering code



3.5 Performance statistics

Please refer to Chapter 8.4 "Technical specifications" for the maximum permitted forces and torques.

3.6 Weight

The average weights of the sensors are listed in table "Tbl-4". Depending on the features, the actual weight can deviate by up to 10%.

Design SFR	010	025	050
	0.75	1.0	1.5

Tbl-4: Weight [kg]

4 Transport and storage

4.1 Scope of delivery

- Check the completeness of the delivery against the delivery note.
 - ① Missing parts or damage must be notified immediately in writing to the carrier, the insurance company, or **WITTENSTEIN AG**.

4.2 Packaging

The sensor is delivered packed in foil and cardboard boxes.

- Dispose of the packaging materials at recycling sites intended for that. Observe the locally valid regulations for disposals.

4.3 Transport

	<p style="text-align: center;">CAUTION</p> <p>Hard impacts, for instance because of falling or hard dropping, can damage the sensor.</p> <ul style="list-style-type: none">• Transport the sensor with appropriate care.
---	--



Specifications on the weights, refer to Chapter 3.6 “Weight”. There is no special position intended for transporting the sensor.

4.4 Storage

Store the sensor in horizontal position and dry surroundings at a temperature of -40 °C to +85 °C in the original packaging. Store the sensor for no more than 2 years.

For storage logistics, we recommend the “first in – first out” method.

5 Assembly

	<div data-bbox="730 226 1013 282">CAUTION</div> <p>Loose or overloaded screw connections can cause damage to the sensor.</p> <ul style="list-style-type: none">• Use a calibrated torque wrench to tighten and check all screw connections for which a tightening torque has been specified.
	<div data-bbox="730 474 1013 530">CAUTION</div> <p>Strong tensions during mounting can damage the sensor and the whole machine.</p> <ul style="list-style-type: none">• Use a centering device for the sensor installation (see Chapter 8.1.2 “Accessories concerning the machine bed”).• In case you have any questions, contact our Customer Service Department.

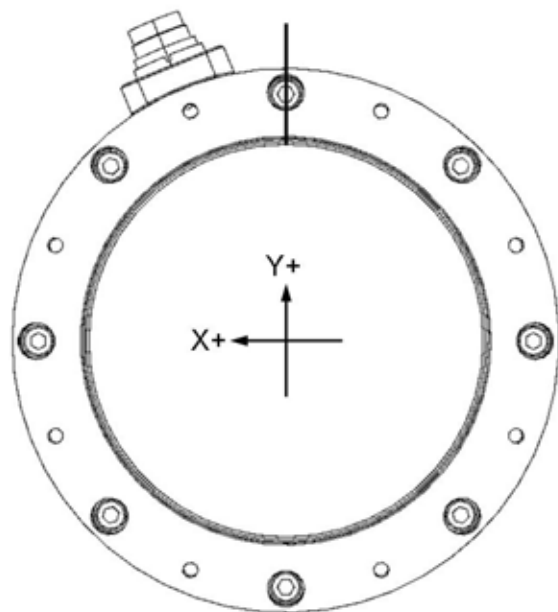
3D models can be downloaded at www.wittenstein-sensors.com.

5.1 Preparations

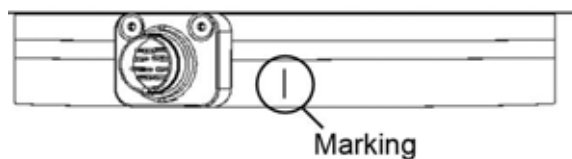
- Clean / De-grease the following components with a clean and lint-free cloth and grease-dissolving, **non-aggressive** detergent:
 - All fitting surfaces to neighboring components
 - Centering / Centering device
 - Machine bed
 - Drive component
 - Spacer ring (if needed)
- Dry all fitting surfaces to neighboring components in order to achieve the proper friction values of the screw connections.
- Check the fitting surfaces additionally for damage and impurities.

5.2 Aligning the sensor

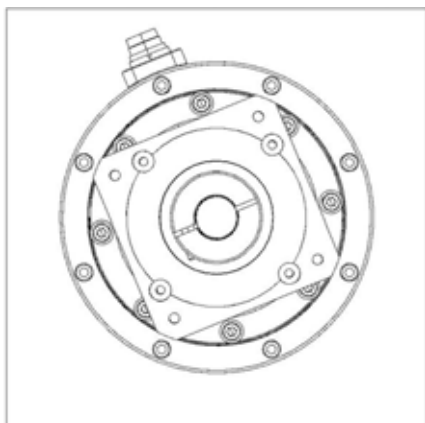
5.2.1 Standard alignment



The standard alignment is suitable for a subsequent installation of the sensor into an existing system, because no mechanical adjustments are necessary. (View from the drive in the direction of the machine bed)



The sensor needs to be applied in such a way that the alignment marking is in the vertical and can be seen from above.

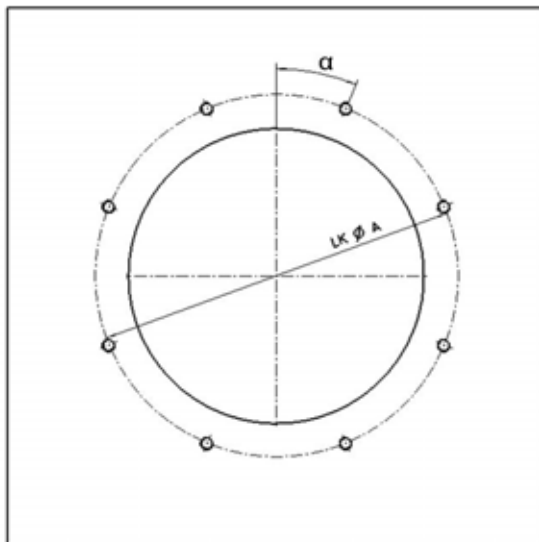
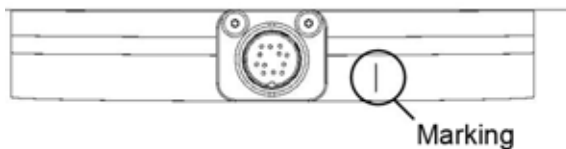
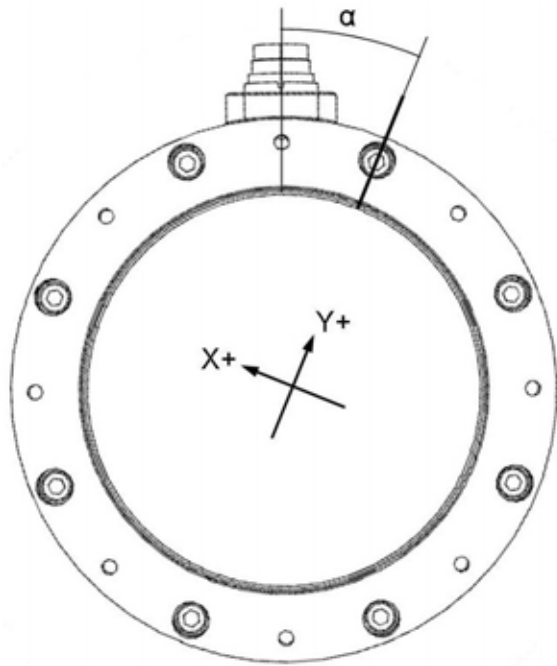


It needs to be taken into account on a standard alignment of the sensor that the application (e.g. gearhead) needs to be turned at a certain angle (see table "Tbl-5") depending on the product size in comparison to an application without sensor. The reason for that is the arrangement of the fastening bores in the sensor.

Sensor type	Turned angle [°]
SFR010S	22.5
SFR025S	22.5
SFR050S	15

Tbl-5: Turned angle of the application

5.2.2 Variable alignment



The sensor can be aligned to any angle. This angle needs to be known however and the radial force results need to be converted using the formulas given below.

$$F_{X'} = F_X \cdot \cos \alpha - F_Y \cdot \sin \alpha$$

$$F_{Y'} = F_X \cdot \sin \alpha + F_Y \cdot \cos \alpha$$

whereas:

$F_{X'}$ = converted/actual radial force in X-direction

$F_{Y'}$ = converted/actual radial force in Y-direction

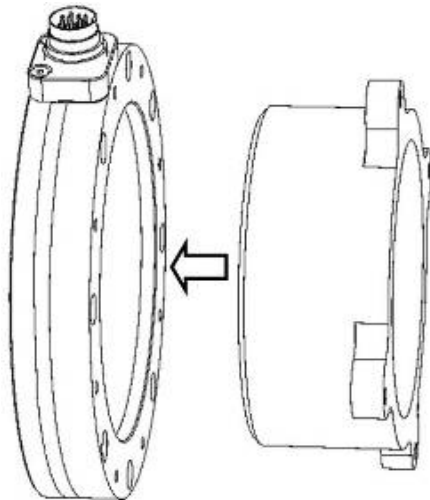
F_X = displayed/output radial force in X-direction

F_Y = displayed/output radial force in Y-direction

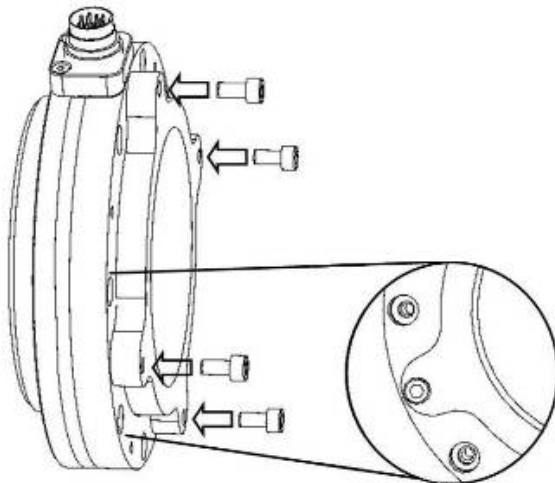
α = offset angle in degrees

At any alignment of the sensor, it needs to be ensured that the hole circle for fastening the sensor has to be turned by the angle mentioned above with respect to the hole fastening of the gearhead.

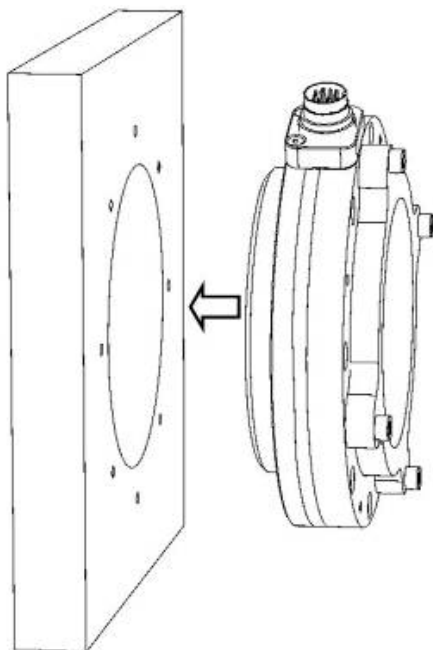
5.3 Installing the sensor into the machine bed



- Slide the centering device all the way onto the sensor.



- Fasten the centering device with 4 screws on the sensor. Tighten the screws manually.
 - ① Screw sizes, refer to Chapter 8.1.1 "Assembly material concerning machine bed", table "Tbl-7".

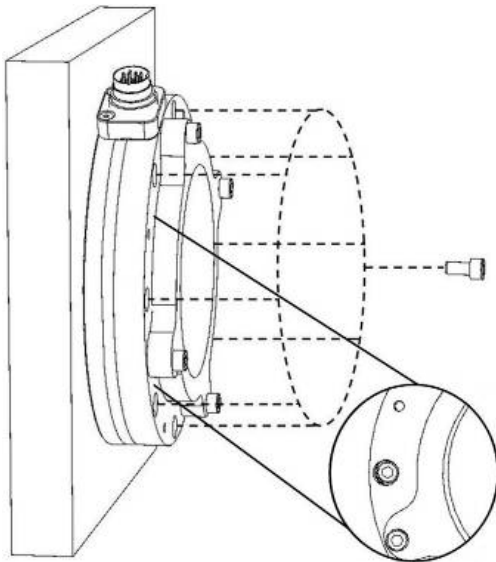


- Insert the sensor into the machine bed with the aid of the centering device.
- Align the sensor according to the alignment marking.

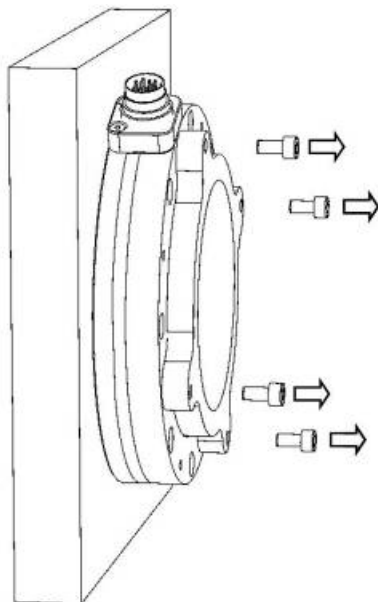
X = horizontal direction of force

Y = vertical direction of force

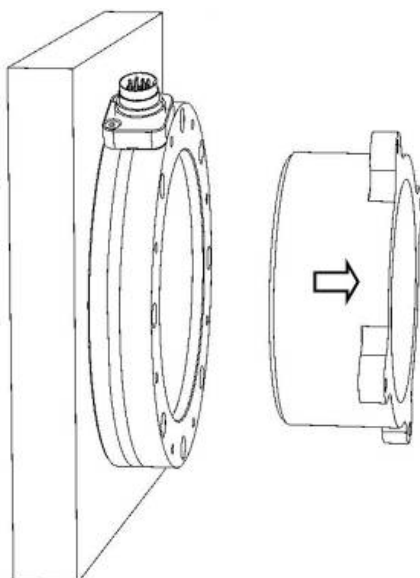
- ① Refer to Chapter 5.2 "Aligning the sensor".



- Screw the sensor to the machine bed and tighten the screws with a torque wrench.
 - ① For bolt sizes and specified torques refer to Chapter 8.1.1 "Assembly material concerning machine bed", table "Tbl-7".



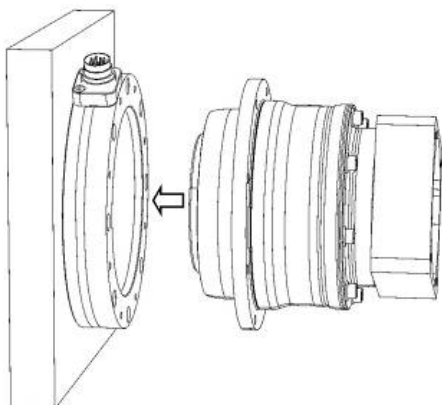
- Loosen and remove the screws of the centering device.



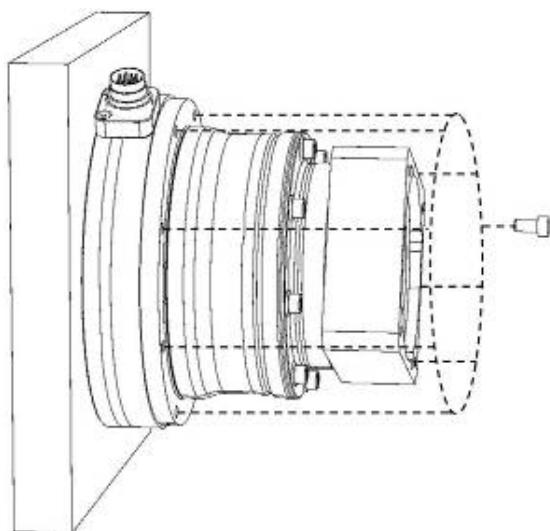
- Remove the centering device from the sensor.
 - ➔ This concludes the mounting of the sensor.

5.4 Mounting the drive component to the sensor

The mounting of a drive component is presented here using a TP standard gearhead of **WITTENSTEIN AG** as an example. Individual assembly steps may deviate for other drive components.



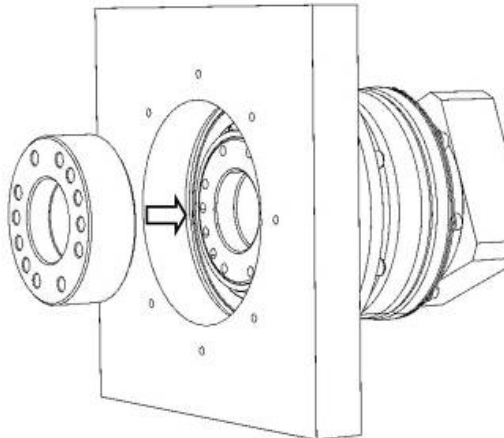
- Place the TP gearhead into the sensor.
 - ① Respective gearhead sizes, refer to Chapter 8.2.1 “Assembly material concerning drive component”, table “Tbl-9”.
 - ① The drive component is centered by the centering diameter of the sensor ring.



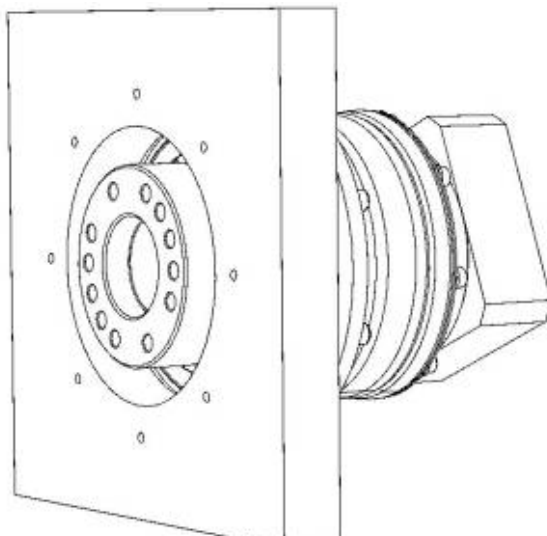
- Screw the gearhead to the sensor and tighten the screws with a torque wrench.
 - ① For bolt sizes and specified torques refer to Chapter 8.2.1 “Assembly material concerning drive component”, table “Tbl-9”.
 - ➡ This concludes the mounting of the drive component.

5.5 Attaching the spacer ring

In case the sensor is retroactively installed between a TP standard gearhead and your application, the offset that is created by the sensor's thickness can be evened out by a spacer ring.







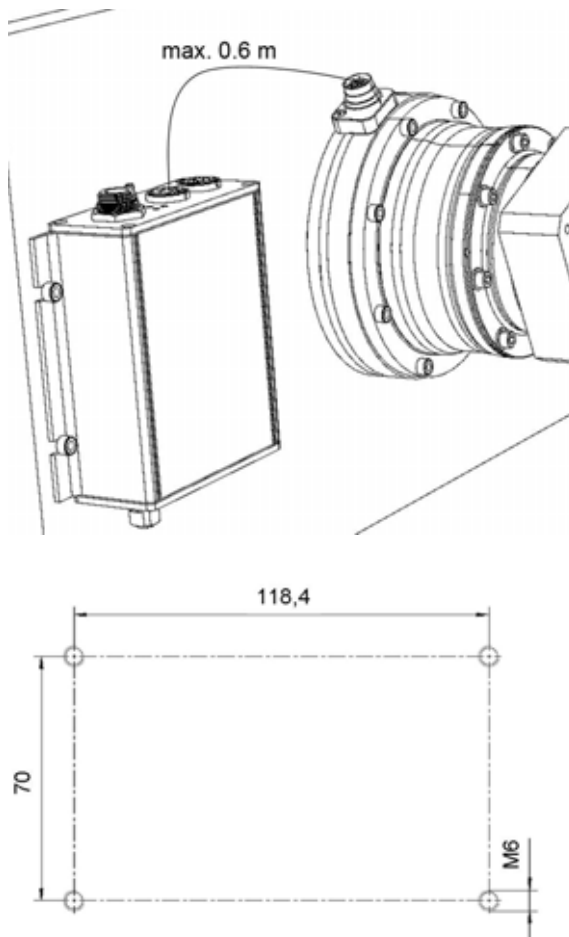
- Slide the spacer ring all the way onto the gearhead.
 - ① Respective spacer rings, refer to Chapter 8.2.2 "Accessories concerning drive component", table "Tbl-10".



- Fasten the spacer ring directly to the application, whereby longer screws are needed.
 - ① Extensions, refer to Chapter 8.2.2 "Accessories concerning drive component", table "Tbl-10".





5.6 Installing the evaluation unit (EPU)

	<div data-bbox="659 208 936 264">CAUTION</div> <p>Electrical work with moisture can cause damage to the machine due to nonconforming or missing signals.</p> <ul style="list-style-type: none">• Execute the electric assembly only in dry areas.• Place the respective protective cap on unused plugs to ensure the specified protective class.
	<div data-bbox="659 506 936 562">CAUTION</div> <p>Many electronic components are sensitive against electrostatic discharge (ESD). This concerns in particular integrated circuits (IC), semiconductors, resistors with a tolerance of less than one percent, as well as transistors and other components such as encoders.</p> <ul style="list-style-type: none">• Work only at ESD-suited work sites.• Always wear an approved antistatic wrist band, a protective coat and suitable shoes or overshoes.• Never touch the components by their connections or feed lines.• Avoid the use of plastic tools and plastic component parts.
	<div data-bbox="659 943 1090 999">INFORMATION</div> <p>The cables of the sensor need to be arranged according to the specifications on the dimensional drawing of the evaluation unit (refer to Chapter 8.4.4 "Dimensions EPU").</p>
	<div data-bbox="659 1155 1090 1211">INFORMATION</div> <p>For reasons of the signal quality, the cable between the sensor ring and the evaluation unit may not be extended.</p>



- Mount the evaluation unit with 4 screws (M6) to a location with the least possible vibration in your application (e.g. machine bed).
 - Please observe the maximum signal cable length of 0.6 m.
 - Connect the sensor ring with the signal cable to the evaluation unit.
 - Depending on the model, connect a system cable, a bus cable or a USB cable to the evaluation unit.
- ① You can find the cable assignment and electric specifications in Chapter 8.4 "Technical specifications".

6 Startup and operation

	<div style="background-color: #f4a460; padding: 5px; text-align: center;">  WARNING </div> <p>Objects flung out by rotating components can cause serious injuries.</p> <ul style="list-style-type: none"> • Remove objects and tools from the sensor before putting the whole machine into operation.
	<div style="background-color: #ffff00; padding: 5px; text-align: center;">  CAUTION </div> <p>The sensor housing can get hot during operation. Burns are possible if touched.</p> <ul style="list-style-type: none"> • Touch the sensor housing, when hot, only with protective gloves.

Operational conditions and requirements for the surroundings:

- Unused sockets need to have their protective caps.
 - The sensor is weatherproof.
 - Strong UV rays, solvents, strong acids or alkalines can damage the and must be avoided.
 - Because of the materials used, the operational temperature may not lie below -20 °C nor above +80 °C.
- ① For other conditions of use, please consult our Customer Service Department.
- Use the sensor only up to its maximum limit values, see Chapter 8.4 “Technical specifications”.

6.1 Installing the software

The software is supplied on a CD.

- Insert the CD into the CD drive and start setup.exe. Local administrator rights are required for this.
 - Select the installation directory.
 - Start the software by the corresponding icon on the desktop.
- ① A detailed function description can be found in the corresponding help file of the software.

6.1.1 Overview of the software's functionalities

Configuration

- Zero point calibration
- Alarm thresholds
- Load values for load spectrums

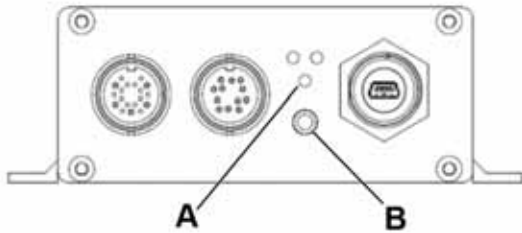
Measuring functionality

- Visualizing mode for realtime operation
- Measurement of selected channels
- Triggered measurement
- Interval measurement
- Data export

6.2 Function test (LED)

The evaluation unit is ready for operation when the status LED (A) lights up green.

① A detailed function description can be found in the corresponding help file of the configuration software or at www.wittenstein-sensors.com.




6.3 Zero point calibration hardware

Prerequisite: EPU is ready for operation (green LED lights)

- Hold the push button, to start the zero position calibration process.
 - ➔ After validation, the LED light turns red (4sec.).
- If the red LED light starts flashing (1sec.), release the push button.
 - ➔ If the first validation process has been successful, the LED light starts flashing green (3sec.).
- Press the push button once shortly and release it again.
 - ➔ If the process has been successful, the LED light stays green and the calibration process is carried out.

If there occurs a problem during the calibration process, the LED lights up red for 5sec. to sign an error at the present stage of calibration. Therefore the calibration process has to be started once again, when the LED lights up green again.

7 Maintenance and disposal

	<div style="background-color: yellow; text-align: center; padding: 5px;"> ⚠ CAUTION </div> <p>The sensor housing can get hot during operation. Burns are possible if touched.</p> <ul style="list-style-type: none"> • Touch the sensor housing, when hot, only with protective gloves.
---	--

7.1 Maintenance work

The sensor requires little maintenance, because of its closed design and corresponding protection class. A regular visual inspection helps prevent damages though.

7.1.1 Visual inspection

- Check the entire sensor and all cables for exterior damage.
- Check whether the type plate is mounted and legible.

7.1.2 Checking the tightening torques

- Check the tightening torque of the fastening bolts on the machine bed and on the drive component.
- ① You can find the prescribed tightening torques in Chapter 8.1 “Specifications on mounting onto a machine bed”, table “Tbl-11” and in Chapter 8.2 “Information on mounting the drive component”, table “Tbl-8”.

7.2 Startup after maintenance work

- Clean the outside of the sensor.
- Attach all safety devices.
- Do a trial run before releasing the sensor again for operation.

7.3 Maintenance schedule

Maintenance work	At startup	After 500 operating hours (or 3 months)	Every 3 months	Yearly
Visual inspection	X	X	X	
Checking the tightening torques	X	X		X

Tbl-6: Maintenance schedule

7.4 Disposal

Consult our Customer Service Department for supplementary information on disassembly and disposal of the sensor.

- Dispose of the sensor at recycling sites intended for this purpose.
- ① Observe the locally valid regulations for disposals.

8 Appendix

8.1 Specifications on mounting onto a machine bed

The dimensions of the sensor system can be found in Chapter 8.4.3 “Dimensions, sensor system torqXis SFR”.

3D models can be downloaded at www.wittenstein-sensors.com.

8.1.1 Assembly material concerning machine bed

Assembly material and tools are not included in the scope of delivery.

Sensor size SFR	010S	025S	050S
Screws of the centering device	4 units M5 Length: 14–18 mm	4 units M5 Length: 14–18 mm	4 units M6 Length: 14–18 mm
Fastening screws DIN EN ISO 4762	8 units M5 - 12.9 Length: min. 14 mm	8 units M5 - 12.9 Length: min. 14 mm	12 units M6 - 12.9 Length: min. 14 mm
Width across flats [mm]	4	4	5
Tightening torque [Nm]	9	9	15.4

Tbl-7: Assembly material concerning machine bedmachine bed

8.1.2 Accessories concerning the machine bed

Accessories are not included in scope of delivery.

Sensor size SFR	010S	025S	050S
Centering device (Article code)	SFR010S-VOR-ZT AC: A360000167	SFR025S-VOR-ZT AC: A360000168	SFR050S-VOR-ZT AC: A360000169

Tbl-8: Accessories concerning the machine bed

8.2 Information on mounting the drive component

The dimensions of the sensor system can be found in Chapter 8.4.3 "Dimensions, sensor system torqXis SFR".

3D models can be downloaded at www.wittenstein-sensors.com.

8.2.1 Assembly material concerning drive component

Assembly material and tools are not included in the scope of delivery.

Sensor size SFR	010S	025S	050S
Gearhead type	TP 010 - F	TP 025 - F	TP 050 - F
Fastening screws DIN EN ISO 4762	8 units M5 - 12.9 Length: 14 mm	8 units M5 - 12.9 Length: 16 mm	12 units M6 - 12.9 Length: 16 mm
Width across flats [mm]	4	4	5
Tightening torque [Nm]	9	9	15.4

Tbl-9: Assembly material concerning drive component

8.2.2 Accessories concerning drive component

Accessories are not included in scope of delivery.

Sensor size SFR	010S	025S	050S
Spacer ring (Article code)	SFR010S-DIS-25 AC: A360000164	SFR025S-DIS-25 AC: A360000165	SFR050S-DIS-25 AC: A360000166
Screw extension [mm]	25	25	25

Tbl-10: Accessories concerning drive component

8.3 Tightening torques for common thread sizes in general mechanics

The specified tightening torques for headless screws and nuts are calculated values and are based on the following conditions:

- Calculation acc. VDI 2230 (Issue February 2003)
- Friction value for thread and contact surfaces $\mu = 0.10$
- Exploitation of the yield stress 90%

	Tightening torque [Nm] for threads												
Property class Bolt / nut	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24
8.8 / 8	1.15	2.64	5.24	8.99	21.7	42.7	73.5	118	180	258	363	493	625
10.9 / 10	1.68	3.88	7.69	13.2	31.9	62.7	108	173	265	368	516	702	890
12.9 / 12	1.97	4.55	9.00	15.4	37.3	73.4	126	203	310	431	604	821	1042

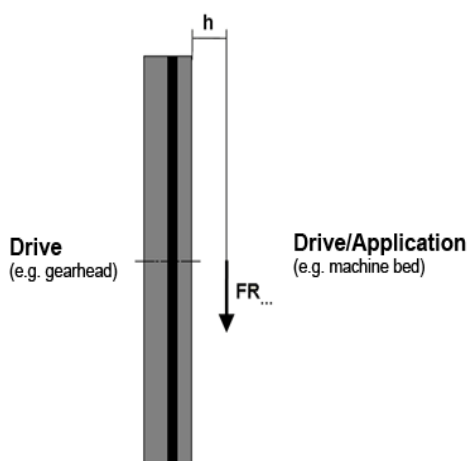
Tbl-11: Tightening torques for headless screws and nuts

8.4 Technical specifications

8.4.1 Performance statistics, sensor system torqXis SFR

Sensor size SFR	010S-		025S-		050S-	
	100-1k5	300-4k5	250-2k5	800-10k	500-5k0	1k5-15k
Torque [Nm]	100	300	250	800	500	1500
Shearing force [N]	1500	4500	2500	10000	5000	15000
Lever arm (refer to definition) [mm]	30	30	29	29	38	38
Torsional rigidity [Nm/arcmin]	1110	1770	2340	4650	5425	9450
Stiffness [Nm/μm]	1150	1800	1250	2700	1920	3570
Service life [h]	>20000	>20000	>20000	>20000	>20000	>20000
Weight [kg]	0.75	0.75	1.0	1.0	1.5	1.5
Temperature range [°C]	-20–80	-20–80	-20–80	-20–80	-20–80	-20–80
Protection class	IP65	IP65	IP65	IP65	IP65	IP65
Max. torque [Nm]	350	500	600	1200	1200	2000
Max. shearing force [N]	5500	6500	5500	14000	10000	20000
Max. axial force [N]	16000	30000	23000	50000	35000	65000

TbI-12: Output specifications torqXis SFR



Definition of the lever arm h

Drive (e.g. gearhead) – left

Gear output / Application (e.g. machine bed) – right

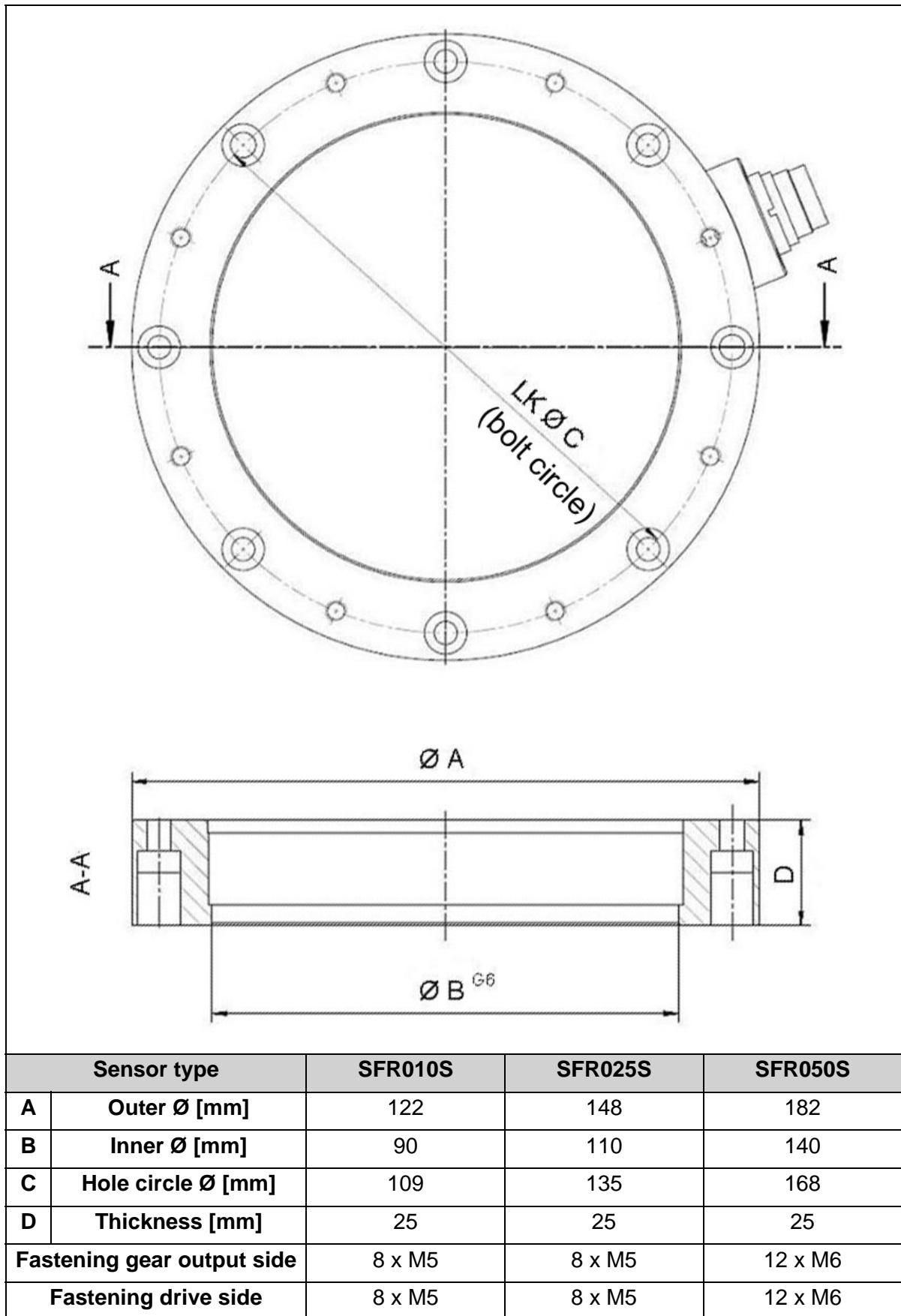
8.4.2 Electric specifications EPU

Supply voltage	24 VDC $\pm 25\%$					
Power consumption without fieldbus module	max. 200 mA					
Power consumption with fieldbus module	max. 300 mA					
Protection class	IP65 in plugged-in condition or with corresponding protective caps					
Ambient temperature range	-20 °C to +80 °C					
Storage temperature range	-40 °C to +85 °C					
Analog interface voltage	Parameter	Condition	min	Type	max	Unit
	Output voltage	Load = 0 Nm / 0 N		5		V
		Load = full scale		10		V
		Load = -full scale		0		V
	Output current I_{out}	Source	20	40		mA
	Output current I_{out}	Sink	10	20		mA
Analog interface current	Parameter	Condition	min	Type	max	Unit
	Output current	Load = 0 Nm / 0 N		10		mA
		Load = full scale		20		mA
		Load = -full scale		0		mA
	Load	$I_{out} = 0 \dots 20$ mA			900	Ohm
	Output voltage			Supply voltage		

Tbl-13: Electric specifications EPU

8.4.3 Dimensions, sensor system torqXis SFR

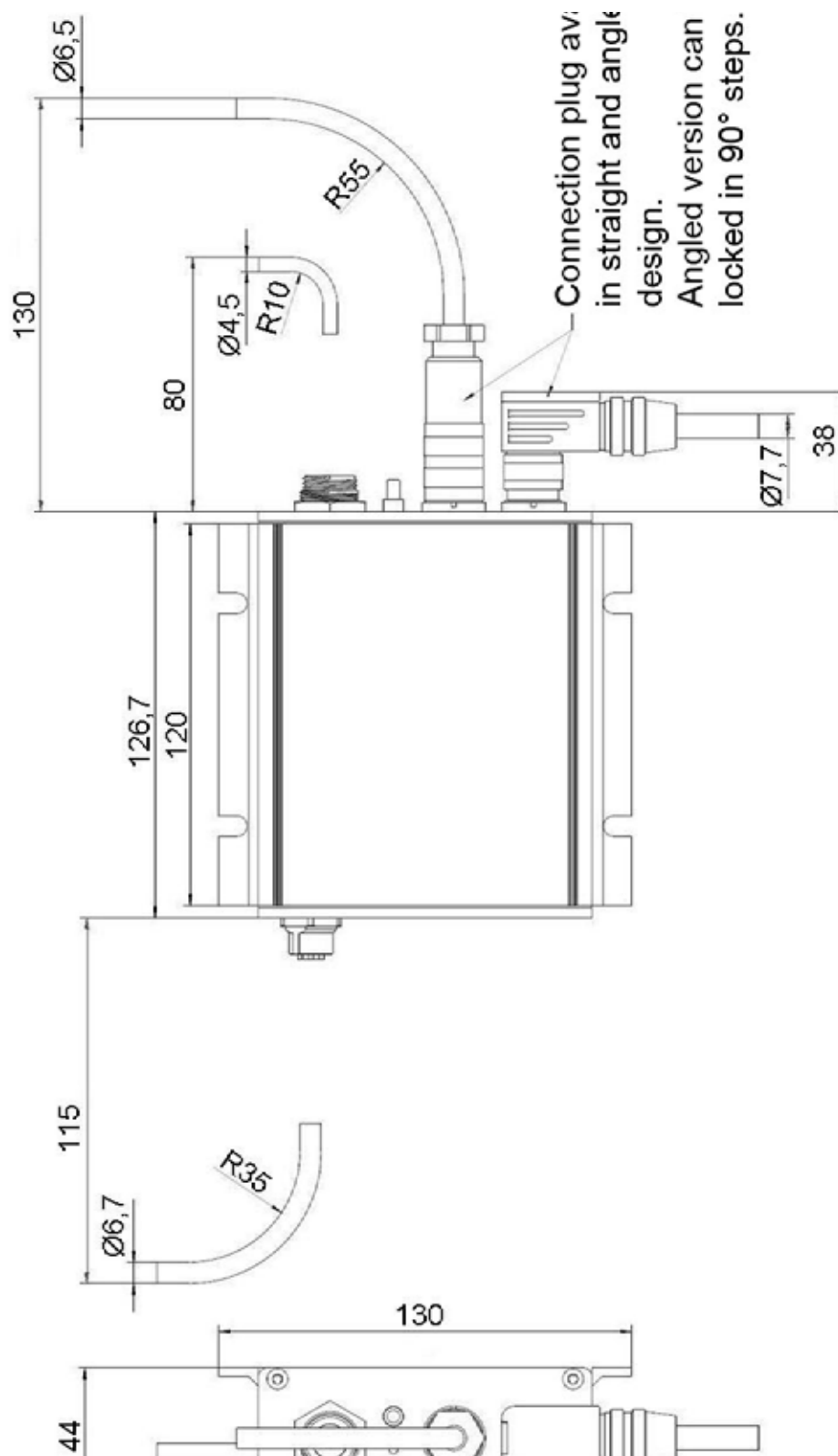
3D models can be downloaded at www.wittenstein-sensors.com.



Tbl-14: Dimensions, sensor system torqXis SFR

8.4.4 Dimensions EPU

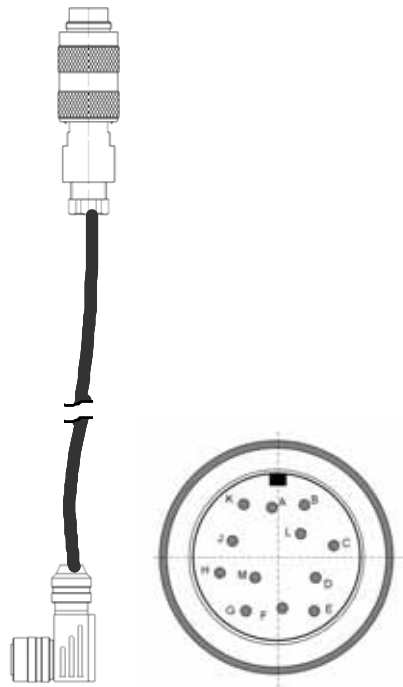
3D models can be downloaded at www.wittenstein-sensors.com.



8.4.5 Plug assignment SFR - EPU

The following plug combinations are possible.

- straight – straight
- angular – angular
- straight – angular (see illustration)

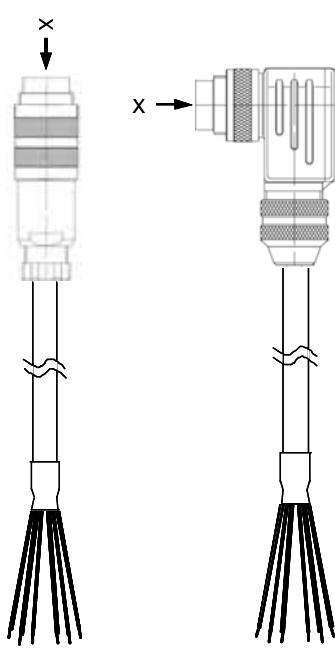
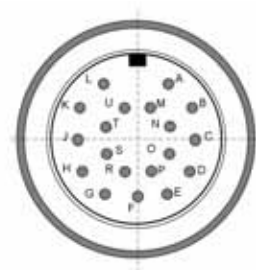
Plug and socket		Cable Color	
Pin	Description		
A	+5V supply	Red	
B	GND	Green	
C	DMS channel 1+	White	
D	DMS channel 1-	Black	
E	DMS channel 2+	Yellow	
F	DMS channel 2-	Blue	
G	DMS channel 3+	Gray	
H	DMS channel 3-	Brown	
J	Temperature+	Pink	
K	Temperature-	Violet	
L	Clock-Sig SPI	Gray-pink	
M	Data-Sig SPI	Red-blue	

Tbl-15: Plug assignment SFR - EPU

8.4.6 Plug assignment, system cable (19-pin)

The following plug combinations are possible.

- straight – open
- angular – open

Blind plug		Cable Color	
Pin	Description		
A	Vcc_in (24V)	White	
B	DGND_in	Brown	
C	RS232RX_RS485+	Green	
D	RS232TX_RS485-	Yellow	
E	DGND	Gray	
F	DGND_in	Pink	
G	Ana_out_GND_4	Blue	
H	Ana_Out_4	Red	
J	Trigg_In_2	Black	
K	Dig_Trigg_RE	Violet	
L	Trigg_In_1	Gray-pink	
M	Ana_Out_3	Red-blue	
N	Ana_out_GND_3	White-green	
O	Ana_out_GND_1	Brown-green	
P	Ana_Out_1	White-yellow	
R	Ana_out_GND_2	Yellow-brown	
S	Ana_Out_2	White-gray	
T	DIG_Out_1	Gray-brown	
U	DIG_Out_2	White-pink	

Tbl-16: Plug assignment, system cable (19-pin)

8.5 EC Declaration of conformity



EG-Konformitätserklärung

EC-Declaration of Conformity

Wir / We, WITTENSTEIN AG
 Anschrift Usserfeld
 Address CH-7214 Grüşch / Switzerland
 Tel: +41(0)81-300 10-33
 Fax: +41(0)81-300 10-33
 email: info@wittenstein-sensors.com

Erklären hiermit in alleiniger Verantwortung, dass die Erzeugnisse
 Hereby declare under our sole responsibility, that the products

Bezeichnung: Sensorsystem torqXis
 Designation: Sensorsystem torqXis

Typ / Type: SFR004, SFR010, SFR025, SFR050, SFR110, SFR300, SFR500
 SFQ060, SFQ075, SFQ100, SFQ140, SFQ180, SFQ210, SFQ240

Mit den wesentlichen Anforderungen der folgenden EG-Richtlinien und EN-Normen
 Comply with the principle demands of the following EC directives and EN standards

2004/108/EG Elektromagnetische Verträglichkeit (EMV)
2004/108/EG Electro Magnetic Compability (EMC)

EN 61000-6-4:2001 EMV Störaussendung – Industriebereich
 EN 61000-6-4:2001 EMC Emission – industrial environments

EN 61000-6-2:2001 EMV Störfestigkeit – Industriebereich
 EN 61000-6-2:2001 EMC Immunity for industrial environments

und den Prüfberichten übereinstimmt und somit den Bestimmungen entspricht.
 Die Sensorsysteme tragen das CE-Zeichen.
 and agree with the test reports and thus comply with the rules.
 The sensorsystems carry the CE sign.

Grüşch, 04.08.2009
 Ort und Datum der Ausstellung
 Place and Date of Issue


 Gerhard Horn
 Geschäftsführer/ General Manager
 WITTENSTEIN AG Schweiz


 Anna-Katharina Wittenstein
 Geschäftsführer/ General Manager
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Complaint / Reshipment

Contact

Company:	_____	Tel.:	_____
Contact person:	_____	Fax:	_____
Street:	_____		_____
City, zip code:	_____	E-mail:	_____
Country:	_____	Date:	_____

Product

Article code:	_____
Serial number:	_____
Invoice number:	_____

Error description



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Schweiz

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