

POSITAL

FRABA

INSTRUCTION LEAFLET

IXARC KIT ENCODERS WITH BISS-C/SSI INTERFACE

General Information

This leaflet is provided for BiSS C / SSI Encoder Kits with type key KCD-BCxxB-xx17-xxxx-xxx / KCD-S1xxB-xx17-xxxx-xxx, with x as placeholder. The use of these kit encoders for the production of industrial rotary encoders is prohibited. Applications in rotary encoders are protected by several worldwide patents (such as WO 2004/046735 A1) and require licensing.

Safety

- The encoder must be installed by qualified personnel only, exhibiting knowledge in electronics and mechanics.
- Consider all safety and accident regulations valid for your country.
- Switch off the supply voltage of all devices connected to the encoder before installation.
- Avoid an electrical supply voltage while connecting the encoder.
- Avoid exerting shocks on motor shaft and mounting flange to prevent the encoder from being mechanically damaged.
- Rotary machine shafts may catch hair and cloths and cause injury.
- Mount the encoder in an ESD-conform fashion, avoid high voltages, e.g. static electricity discharged from a human body.
- Consider the specifications of the encoder. The device must be operated in the specified range.

Mounting

- Ensure that all device components are free of metal chips and metallic dust.
- Position the bottom shield (2) on top of the motor flange (1) with the help of the 2 alignment pins. Note, that all mechanical tolerances must be complied with.
- Screw the magnet assembly (3) in the motor shaft. Tighten the magnet assembly, by applying a torque of **1.6 Nm** to the M3 nut in the center of the magnet assembly. It is strongly recommended to use a non-magnetic bit holder (stainless steel) for tightening of the magnet assembly. For this purpose, a non-magnetic bit accessory is offered under article 10048128. It is also recommended to use a thread-locking adhesive **Loctite 221 or Loctite 222** to fix the magnet assembly in the motor shaft. At all times, prevent the magnet from undergoing any mechanical shock and/or contact with sharp objects.
- Align the magnet with the insert of the bottom shield. Take the sensor module (4) by the carrier (black plastic part), align the opening at the base of the carrier with the magnet, place it on the bottom shield. At all times, prevent the PCBA and its components from undergoing any mechanical shock and/or contact with sharp objects.
- Fasten the fixation screws, pre-mounted in the carrier of the sensor assembly, using a torque of **0.3 Nm**. Apply torque to both screws intermittently in order to avoid bending of the carrier.
- Align the connector opening of the Top Shield (6) with the connector on the PCBA (5). Place the Top Shield over the sensor assembly.
 - For Top Shield version with mounting holes for screws:
Fix the Top Shield in place with the two M3 Hex screws (7) using **1 Nm** fixation torque. Attention: Make sure the connector can be seen through the opening in the Top Shield.
 - For Top Shield version without mounting holes for screws:
Use glue for mounting the kit Top Shield inside the motor cap or press it inside. Customer is responsible for suited fixation to fulfill shock and vibration requirements.
- Connect the JST connector from the cable (8) to the PCBA.
- Fix the cable by closing the Top Shield with the clip cover (9).

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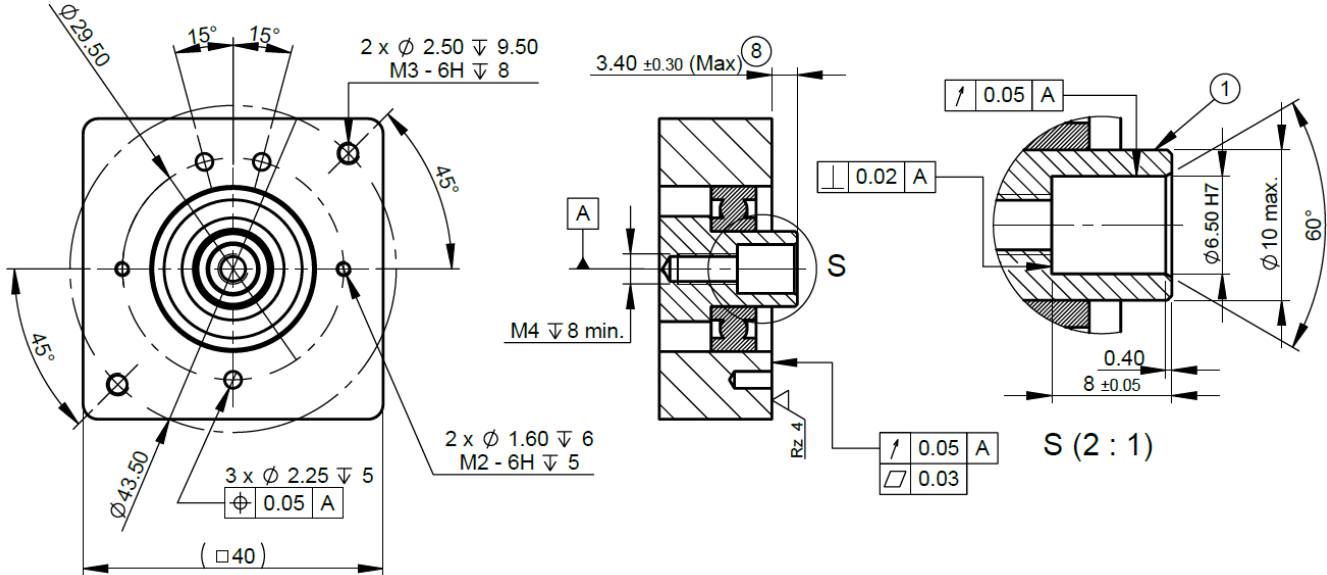
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Bottom Shield Interface and Flange

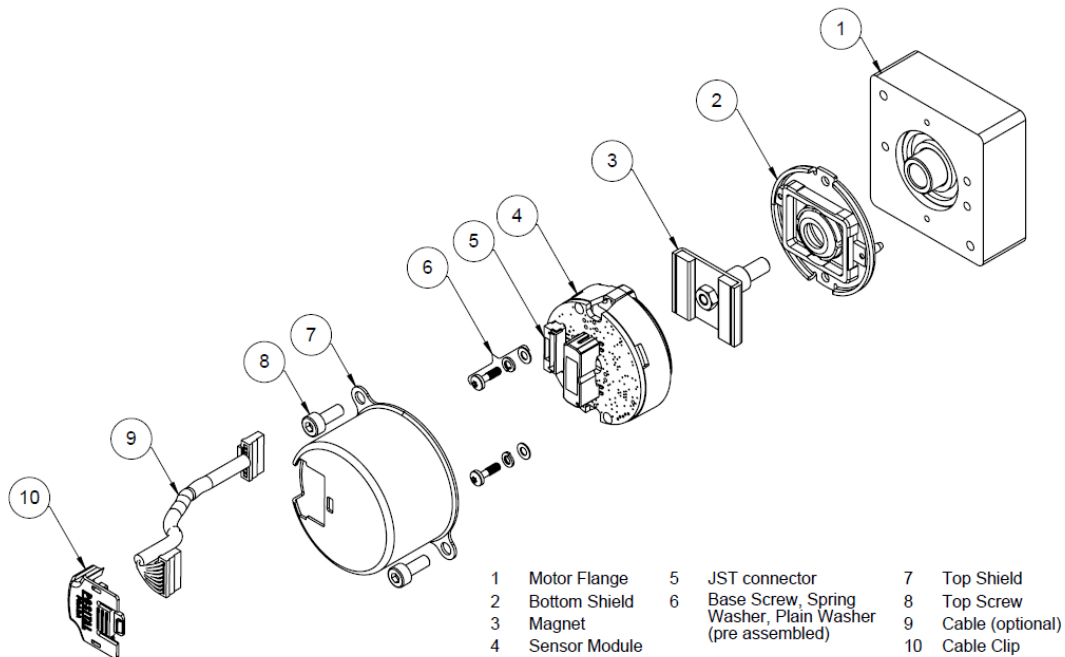


A = Center of Rotation

1 = Different Shaft Sizes can be adapted

8 = Including static and dynamic tolerances, in order to keep the specified accuracy, the dynamic part of the tolerance need to stay below ± 0.1 mm (movement of shaft after calibration)

Complete Mechanical Assembly



Installation Video

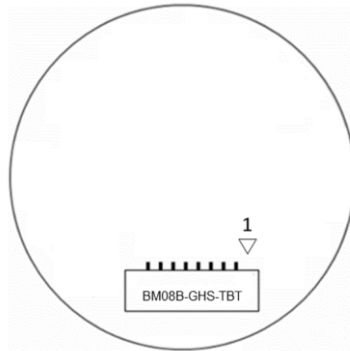
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<https://www.youtube.com/watch?v=Fd0UMg0a5u4>

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Pin Assignment



PCB view and connector orientation

Pin	Signal	
	BiSS C Type key: KCD-BCxxB-xx17-xxxx-xxx	SSI Type key: KCD-S1xxB-xx17-xxxx-xxx
1	GND	GND
2	Preset (default 0 position value)	Preset (default 0 position value)
3	Config (Kit Control box, serial communication)	Config (Kit Control box, serial communication)
4	Data + (SLO+)	Data +
5	Data - (SLO-)	Data -
6	CLOCK - (MA-)	CLOCK -
7	CLOCK + (MA+)	CLOCK +
8	VCC	VCC

Electrical Connection

Connection Orientation	Axial
Connector	JST BM08B-GHS-TBT

Interface

Interface	KCD-BCxxB-xx17-xxxx-xxx – BiSS C KCD-S1xxB-xx17-xxxx-xxx - SSI
Programming Functions	Electronic Calibration, Wiegand Sensor Test, Preset
Min Interface Cycle Time	50 μ s

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Electrical Data

Supply Voltage	4.75-15 VDC
Power Consumption	≤ 0.3 Watt
Start-up time	Max 100 ms
Clock Input	RS 422
Clock Frequency	KCD-BC01B: 300 kHz - 10 MHz KCD-BC03B: 80kHz – 10MHz KCD-S1xxB: 300 kHz - 1 MHz
Reverse Polarity Protection	Yes
Short Circuit Protection	Yes
Max. Permissible Electrical Speed	12 000 RPM
Config Pin	VOL: Output Low level: 0 V ... 0.4 V DC VOH: Output High Level: 2.4 V ... 3.3 V DC VIH: Input High Level: 2 V ... 3.3 V DC VIL: Input Low Level: 0 V ... 0.8 V DC +5 V DC level tolerant, do not exceed.
Preset Pin	Low level: 0 V ... 0.8 V DC High Level: 2 V ... 15 V DC
EMC	Kit encoder is a sub-assembly and not considered to be an independent system, therefore compliance with CE requirements has to be ensured by the integrator for the overall set-up.

For more detailed information please refer to the data sheet and manual available on the website.

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