

POSITAL

FRABA

KCD-BC0XB-XX17-U01C-XXX



IXARC Kit Encoder With BISS C Interface

Kit Encoder for Integration to Motors, Robots and Machinery¹

Electrical Resolution: Up To 17 bit

Multiturn Range: Up To 32 Bit

36 mm Diameter

Energy-Harvesting-System Based On Wiegand Effect

No Battery – No Maintenance

Easy Installation with Self-Calibration

1. Interface

Interface	BiSS C
Programming Functions	Electronic Calibration, Wiegand Sensor Test, Preset
Min Interface Cycle Time	50 μ s

2. Electrical Data

Supply Voltage	4.75-15 VDC
Power Consumption	\leq 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
Reverse Polarity Protection	Yes
Short Circuit Protection	Yes
MTTF	20 years (estimated for max. operational temperature)
Max. Permissible Electrical Speed	12.000 RPM
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.

¹ 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.

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KCD-BC0XB-XX17-U01C-XXX

3. Sensor

Singleturn Technology	Magnetic
Electrical Resolution Singleturn	17 bit
Multiturn Technology	Self powered magnetic pulse counter (no battery, no gear)
Multiturn Range	KCD-BC03B-1617-U01C-XXX – 16 bit KCD-BC03B-0017-U01C-XXX – single turn
Accuracy (INL)	$\pm 0.0878^\circ$ (≤ 12 bit) measured after calibration at room temperature
Counting Direction (Default)	Clockwise shaft movement (front view on shaft)

4. Environmental Specifications

Operating Temperature	-40 °C (-40 °F) – +105 °C (221 °F)
Shock Resistance	≤ 200 g (half sine 6 ms, EN 60068-2-27)
Permanent Shock Resistance	≤ 20 g (half sine 16 ms, EN 60068-2-29)
Vibration Resistance	≤ 30 g (10 Hz – 1000 Hz, EN 60068-2-6)

5. Mechanical Data

Top Shield Material	Steel
Top Shield Coating	Cathodic corrosion protection
Stator Type	POSITAL standard
Rotor Type	POSITAL standard

6. Electrical Connection

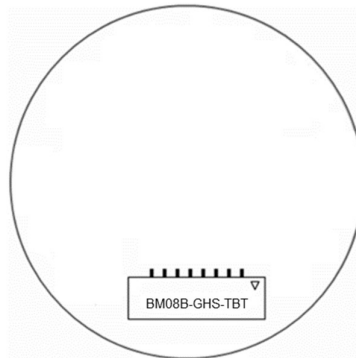
Connection Orientation	Axial
Connector	JST BM08B-GHS-TBT

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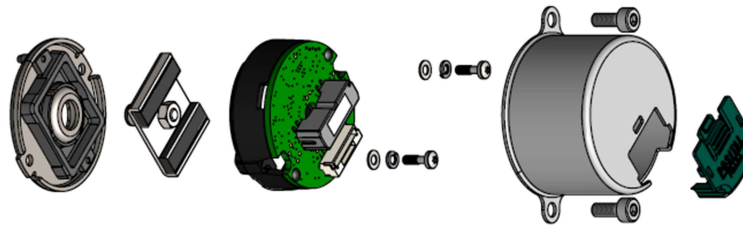
KCD-BC0XB-XX17-U01C-XXX

7. Connection Plan



Pin	Signal
1	GND
2	Preset (default 0 position value)
3	Config (Kit Control box, serial communication)
4	Data + (SLO+)
5	Data - (SLO-)
6	CLOCK - (MA-)
7	CLOCK + (MA+)
8	VCC

8. Dimensional Drawing

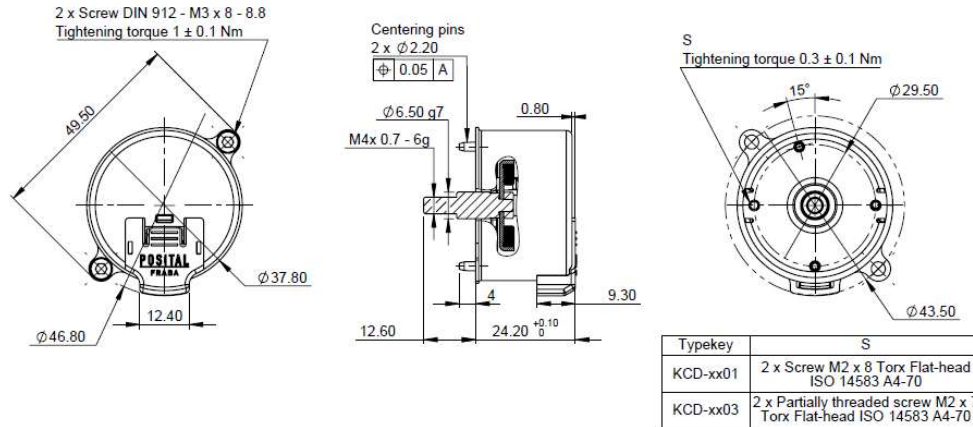


This kit version contains 4 main parts to be assembled from left to right side: shielding, magnet, carrier with PCB and Top Shield. In version KCD-BC03B-XX17-U01C-xxx, carrier already has pre-mounted screws.

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KCD-BC0XB-XX17-U01C-XXX



= Center of Rotation

- All dimension in [inch] mm. This drawing and the information contained is for general presentation purposes only. Please refer to the "Download" section for detailed technical drawings

9. Interface

Preset Function

The preset function can be used to adapt the encoder position to the mechanical alignment of the system. By performing a preset, the actual position value of the encoder is set to the desired preset value. The preset can be triggered via hardware or software. See manual for more detailed information.

Config Pin

The config pin is used for serial data communication. Via this interface an optional re-calibration and WIEGAND pulse testing of the kit encoder can be conducted after motor installation. Also, the preset value can be applied as a software command. The protocol for communication is described in the manual. As alternative a graphical user interface with a Kit Control Box can be used for easy configuration and hardware setup, see website for more details.

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KCD-BC0XB-XX17-U01C-XXX

10. Version Space

KCD-BC03B-1617-U01C-JAQ	carrier screws pre-assembled, PCB connector exit
KCD-BC03B-1617-U01C-2RW	carrier screws pre-assembled, PCB connector exit, 2 m PVC cable accessory
KCD-BC03B-0017-U01C-JAQ	single turn, carrier screws pre-assembled, PCB connector exit
KCD-BC03B-0017-U01C-2RW	single turn, carrier screws pre-assembled, PCB connector, 2 m PVC cable accessory
KCD-BC01B-1617-U01C-JAQ*	PCB connector exit
KCD-BC01B-1617-U01C-2RW*	PCB connector exit, accessory 2 m PVC cable

* Product life cycle – exiting.

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KCD-B20XB-2417-XXXX-XXX
KCD-B40XB-2417-XXXX-XXX



IXARC Kit Encoder With BiSS Line Interface

- Kit Encoder for Integration to Motors, Robots and Machinery¹
- Electrical Resolution: Up to 17 bit
- Multiturn Range: Up to 24 bit
- 36 mm Diameter
- Energy-Harvesting-System Based On Wiegand Effect
- No Battery – No Maintenance
- Easy Installation with Self-Calibration

1. Interface

Interface	BiSS Line 2-wire / 4-wire
Programming Functions	Electronic Calibration, Wiegand Sensor Test, Preset, FEC (Forward Error Correction)
Min Interface Cycle Time	62.5 μ s

2. Electrical Data

Supply Voltage	BiSS Line 2-wire: 7.0-12.5 VDC BiSS Line 4-wire: 4.75-12.5 VDC
Power Consumption	\leq 0.3 Watt
Start-up time	Max 100 ms
Output Driver	RS-485
Bit Rate	12.5 MHz
Reverse Polarity Protection	Yes
Short Circuit Protection	Yes
MTTF	23 years (estimated for max. operational temperature)
Max. Permissible Electrical Speed	12.000 RPM
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.

¹ 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.

KCD-B20XB-2417-XXXX-XXX
KCD-B40XB-2417-XXXX-XXX

3. Sensor

Singleturn Technology	Magnetic
Electrical Resolution Singleturn	17 bit
Multiturn Technology	Self-powered magnetic pulse counter (no battery, no gear)
Multiturn Range	24 bit
Accuracy (INL)	$\pm 0.0878^\circ$ (≤ 12 bit) measured after calibration at room temperature
Counting Direction (Default)	Clockwise shaft movement (front view on shaft)

4. Environmental Specifications

Operating Temperature	-40 °C (-40 °F) – +105 °C (221 °F)
Shock Resistance	≤ 100 g (half sine 6 ms, EN 60068-2-27)
Vibration Resistance	≤ 10 g (10 Hz – 1000 Hz, EN 60068-2-6)

5. Mechanical Data

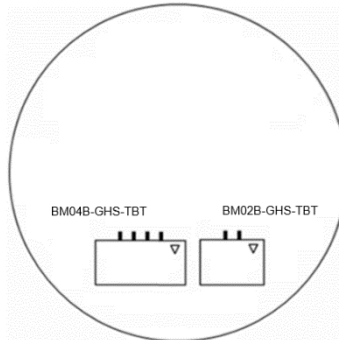
Top Shield Material	Steel
Top Shield Coating	Cathodic corrosion protection
Stator Type	POSITAL standard
Rotor Type	POSITAL standard

6. Electrical Connection

Connection Orientation	Axial
Connectors	JST BM04B-GHS-TBT JST BM02B-GHS-TBT

KCD-B20XB-2417-XXXX-XXX
 KCD-B40XB-2417-XXXX-XXX

7. Connection Plan



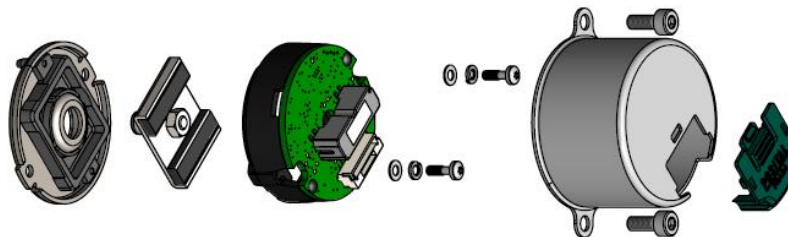
Connector Interface

Pin	Signal BiSS Line 2-wire	Signal BiSS Line 4-wire
1	Reserved (do not connect)	GND
2	Data- / GND	Data-
3	Data+ / VCC	Data+
4	Reserved (do not connect)	VCC

Connector Resistance Thermometer

Pin	Signal
1	Rext Terminal 1
2	Rext Terminal 2

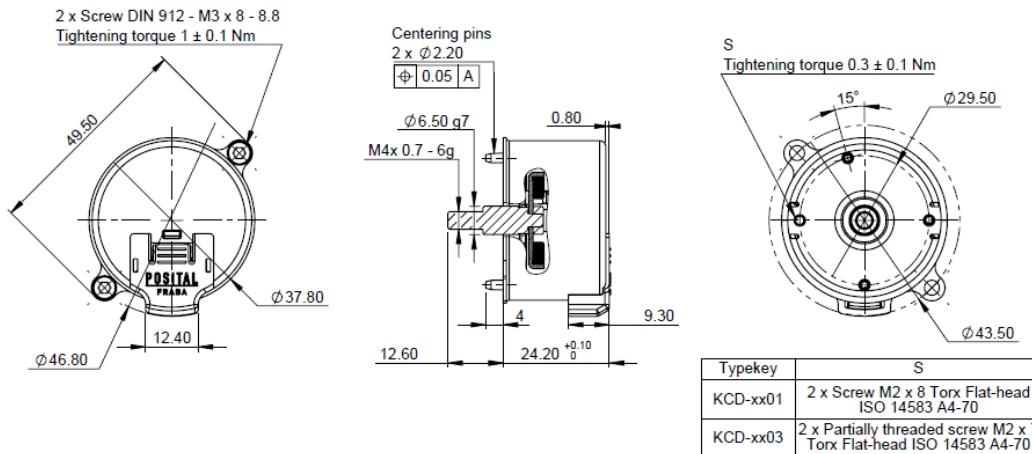
8. Dimensional Drawing



This kit version contains 4 main parts to be assembled from left to right side: shielding, magnet, carrier with PCB and Top Shield. The carrier already has pre-mounted screws.

KCD-B20XB-2417-XXXX-XXX

KCD-B40XB-2417-XXXX-XXX



[A] = Center of Rotation

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9. Interface

Preset Function

The preset function can be used to adapt the encoder position to the mechanical alignment of the system. By performing a preset, the actual position value of the encoder is set to the desired preset value. The preset can be triggered via software. See manual for more detailed information.

Resistance Thermometer

A resistance thermometer can be connected to the kit encoder, e.g. to monitor motor temperature.

10. Version Space

KCD-B203B-2417-U01C-JAN
KCD-B403B-2417-U01C-JAN

BiSS Line 2-wire: Carrier screws pre-assembled, PCB connector exit
BiSS Line 4-wire: Carrier screws pre-assembled, PCB connector exit

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KCD-S10XB-XX17-U01C-XXX



IXARC Kit Encoder With SSI Interface

Kit Encoder for Integration in Motors, Robots and Machinery¹

Electrical Resolution: Up To 17 bit

Multiturn Range: Up To 32 Bit

36 mm Diameter

Energy-Harvesting-System Based On Wiegand Effect

No Battery – No Maintenance

Easy Installation with Self-Calibration

1. Communication

Interface	SSI
Programming Functions	Electronic Calibration, Wiegand Sensor Test, Preset
Min Interface Cycle Time	50 μ s

2. Electrical Data

Supply Voltage	4.75-15 VDC
Power Consumption	\leq 0.3 Watt
Start-up time	Max 100 ms
Clock Input	RS 422
Clock Frequency	300 kHz - 1 MHz
Reverse Polarity Protection	Yes
Short Circuit Protection	Yes
MTTF	20 years (estimated for max. operational temperature)
Max. Permissible Electrical Speed	12.000 RPM
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.

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KCD-S10XB-XX17-U01C-XXX

3. Sensor

Singleturn Technology	Magnetic
Electrical Resolution Singleturn	17 bit
Multiturn Technology	Self powered magnetic pulse counter (no battery, no gear)
Multiturn Range	16 bit
Accuracy (INL)	$\pm 0.0878^\circ$ (≤ 12 bit) measured after calibration at room temperature
Counting Direction (Default)	Clockwise shaft movement (front view on shaft)

4. Environmental Specifications

Operating Temperature	-40 °C (-40 °F) – +105 °C (221 °F)
Shock Resistance	≤ 200 g (half sine 6 ms, EN 60068-2-27)
Permanent Shock Resistance	≤ 20 g (half sine 16 ms, EN 60068-2-29)
Vibration Resistance	≤ 30 g (10 Hz – 1000 Hz, EN 60068-2-6)

5. Mechanical Data

Top Shield Material	Steel
Top Shield Coating	Cathodic corrosion protection
Stator Type	POSITAL standard
Rotor Type	POSITAL standard

6. Electrical Connection

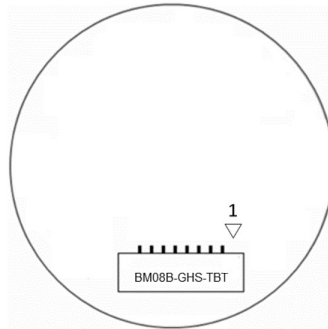
Connection Orientation	Axial
Connector	JST BM08B-GHS-TBT

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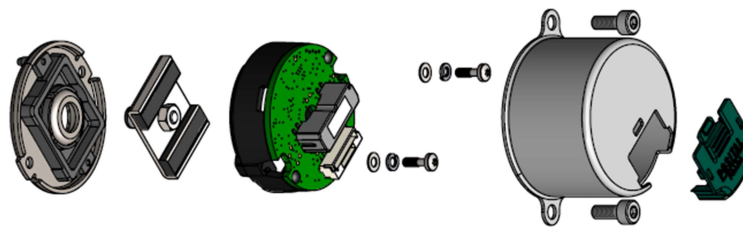
KCD-S10XB-XX17-U01C-XXX

7. Connection Plan



Pin	Signal
1	GND
2	Preset (default 0 position value)
3	Config (Kit Control box, serial communication)
4	Data +
5	Data -
6	CLOCK -
7	CLOCK +
8	VCC

8. Dimensional Drawing

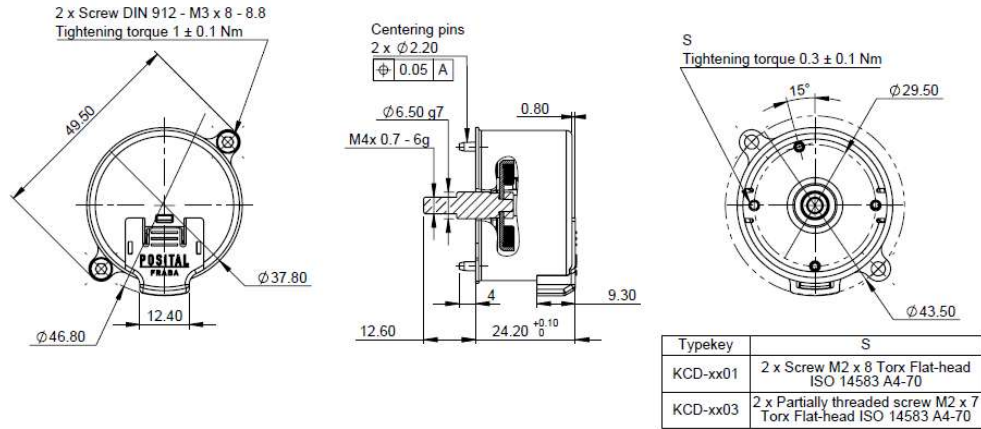


This kit version contains 4 main parts to be assembled from left to right side: shielding, magnet, carrier with PCB and Top Shield. In version KCD-S103B-XX17-U01C-xxx, carrier already has pre-mounted screws.

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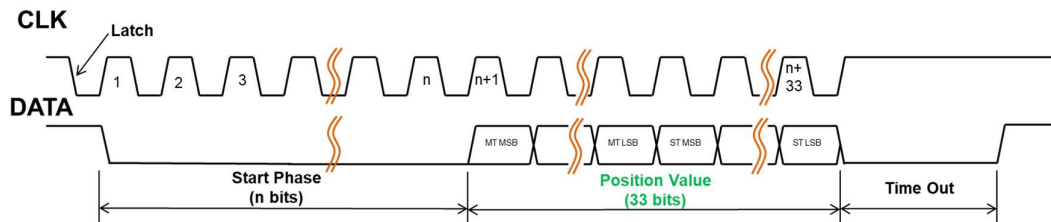
KCD-S10XB-XX17-U01C-XXX



\boxed{A} = Center of Rotation

All dimension in [inch] mm. This drawing and the information contained is for general presentation purposes only. Please refer to the "Download" section for detailed technical drawings

9. Interface



SSI Time out	Typ. 6.7 μ s
Ring Shift Mode	Not available
SSI Data Format	Start Phase (8 start bit as "0") + Multi-Turn (16 bit) + Single-Turn (17 bit) For more details see the manual

Preset Function

The preset function can be used to adapt the encoder position to the mechanical alignment of the system. By performing a preset, the actual position value of the encoder is set to the desired preset value. The preset can be triggered via hardware or software. See manual for more detailed information.

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KCD-S10XB-XX17-U01C-XXX

Config Pin

The config pin is used for serial data communication. Via this interface an optional re-calibration and WIEGAND pulse testing of the kit encoder can be conducted after motor installation. Also, the preset value can be applied as a software command. The protocol for communication is described in the manual. As alternative a graphical user interface with a Kit Control Box can be used for easy configuration and hardware setup, see website for more details.

10. Version Space

KCD-S103B-1617-U01C-JAQ	carrier screws pre-assembled, PCB connector exit
KCD-S103B-1617-U01C-2RW	carrier screws pre-assembled, PCB connector exit, 2 m PVC cable accessory
KCD-S103B-0017-U01C-JAQ	single turn, carrier screws pre-assembled, PCB connector exit
KCD-S103B-0017-U01C-2RW	single turn, carrier screws pre-assembled, PCB connector, 2 m PVC cable accessory
KCD-S101B-1617-U01C-JAQ*	PCB connector exit
KCD-S101B-1617-U01C-2RW*	PCB connector exit, accessory 2 m PVC cable

* Product life cycle – exiting.

Sold & Serviced By:



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