INSTALLATION LEAFLET

KIT ENCODERS WITH BISS C / SSI INTERFACE - BROADCOM COMPATIBLE

General Information

This leaflet is provided for BiSS C Kit Encoders with type key KCD-BCX3B-XX17-EXXX-XXX and KCD-BCX3B-XX17-FXXX-XXX as well as for SSI Kit Encoders with type key KCD-S1X3B-XX17-EXXX-XXX and KCD-S1X3B-XX17-FXXX-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.

User Annotation

The original instructions consist of a user manual, a data sheet and an installation leaflet, which can be found on our website.

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.

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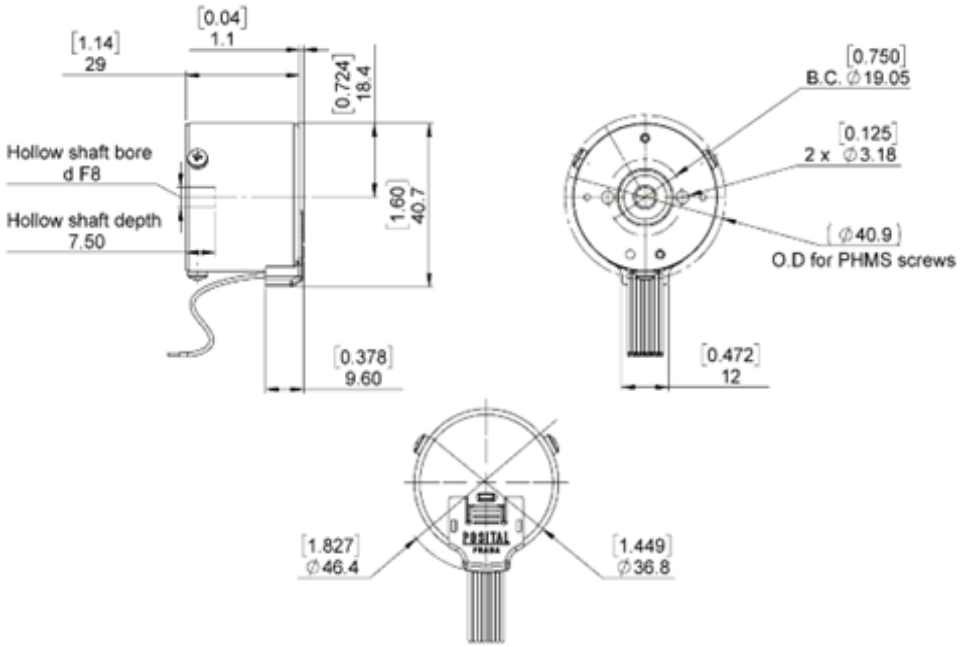
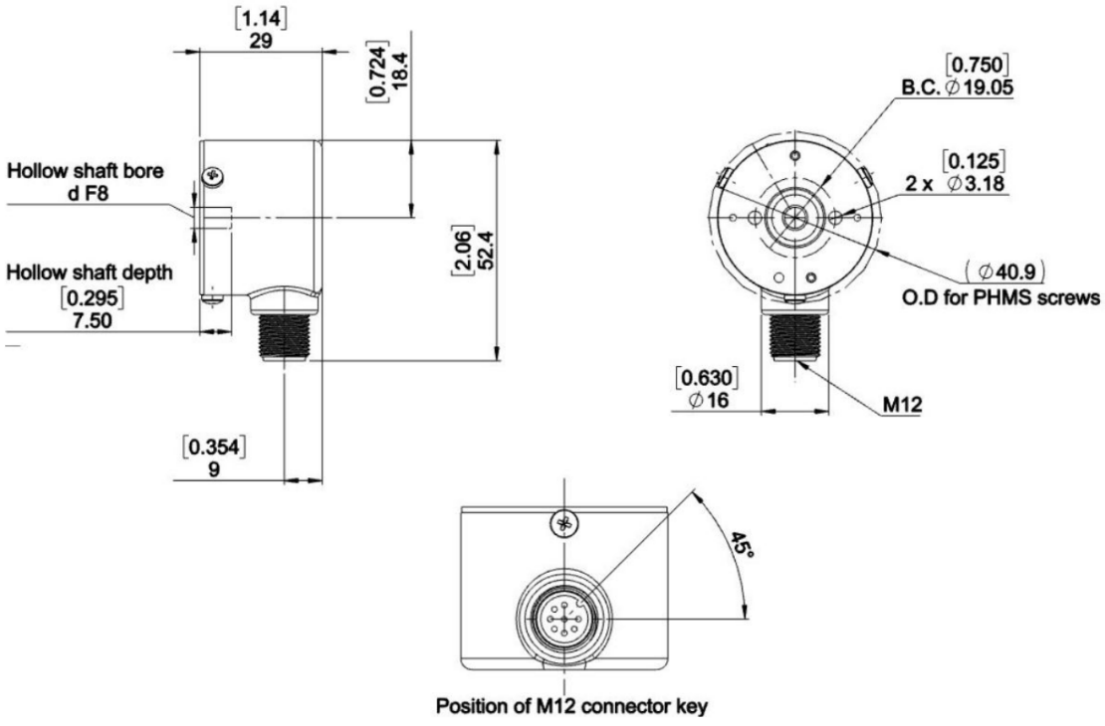
Dimensional Drawings

E5xW-JAQ: d = Ø4mm, Ø5mm, Ø6mm or Ø1/4”



E5xU-PRQ: d = Ø4mm, Ø5mm, Ø6mm or Ø1/4”



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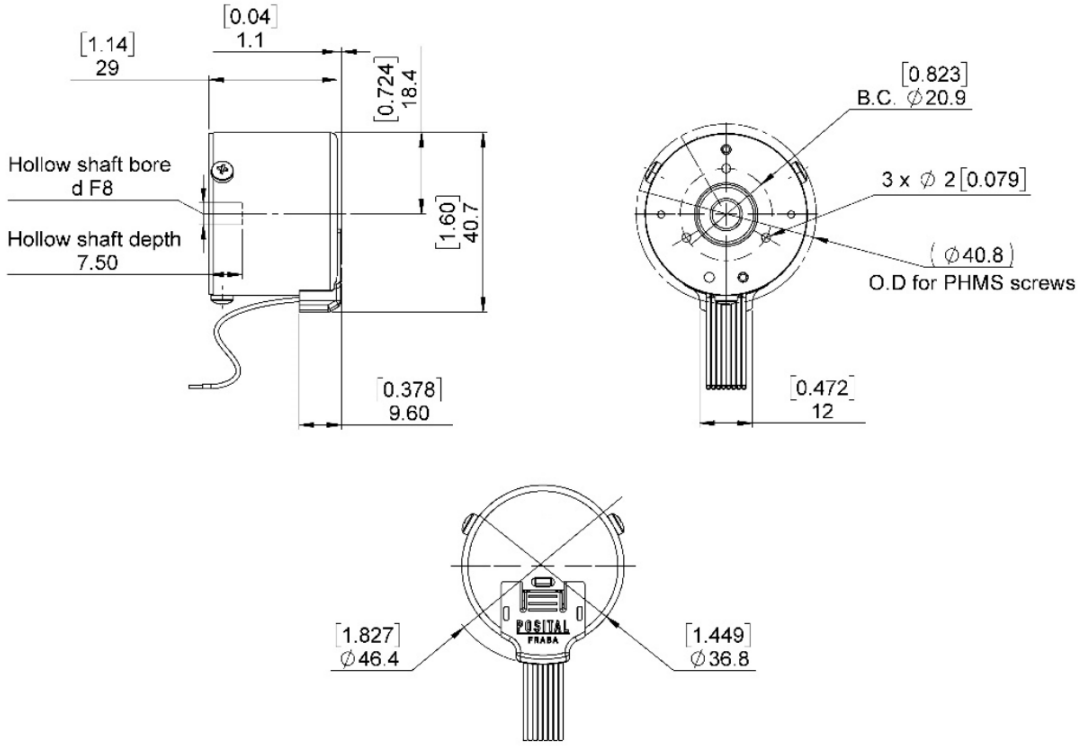
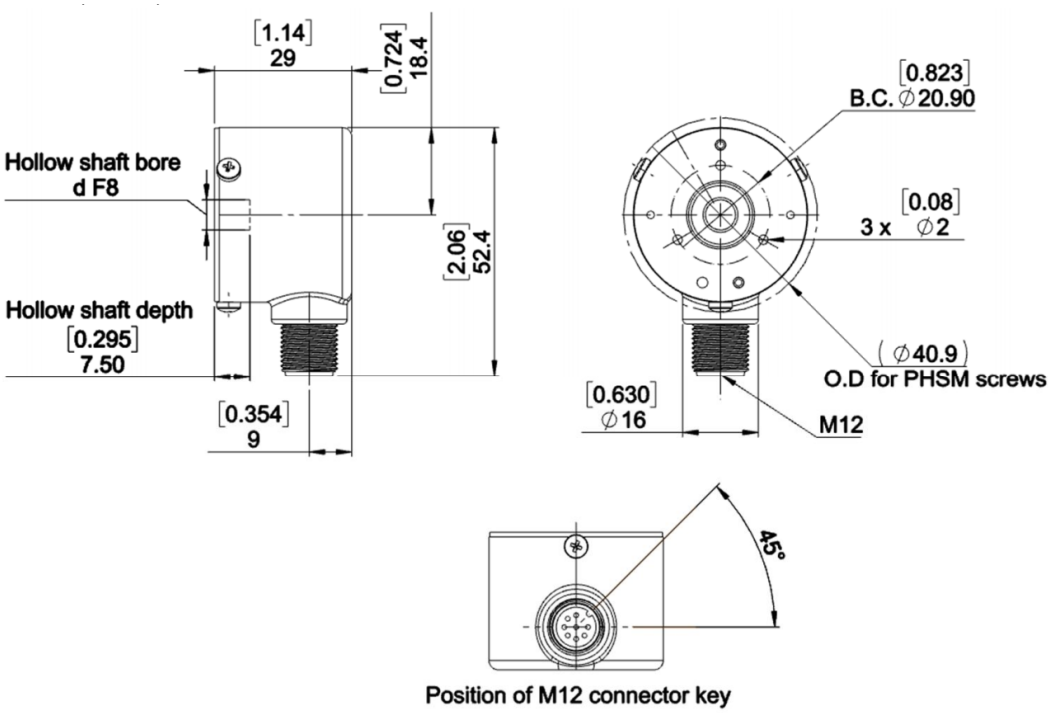
E6xW-JAQ: d = Ø4mm, Ø5mm, Ø6mm or Ø1/4”



E6xU-PRQ: d = Ø4mm, Ø5mm, Ø6mm or Ø1/4”



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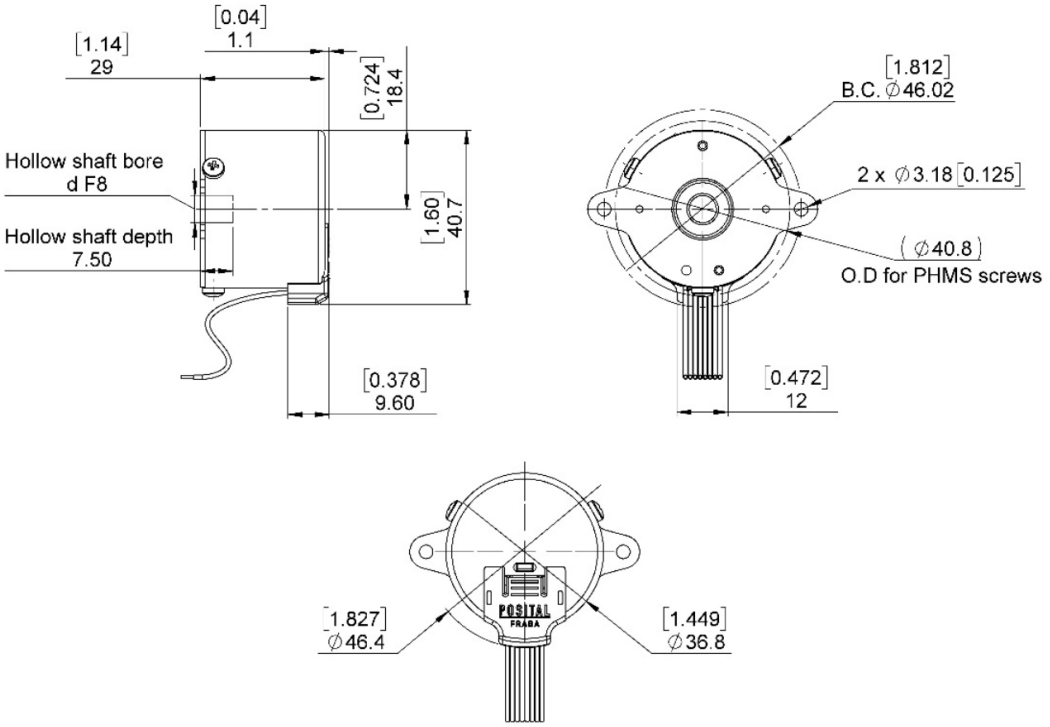
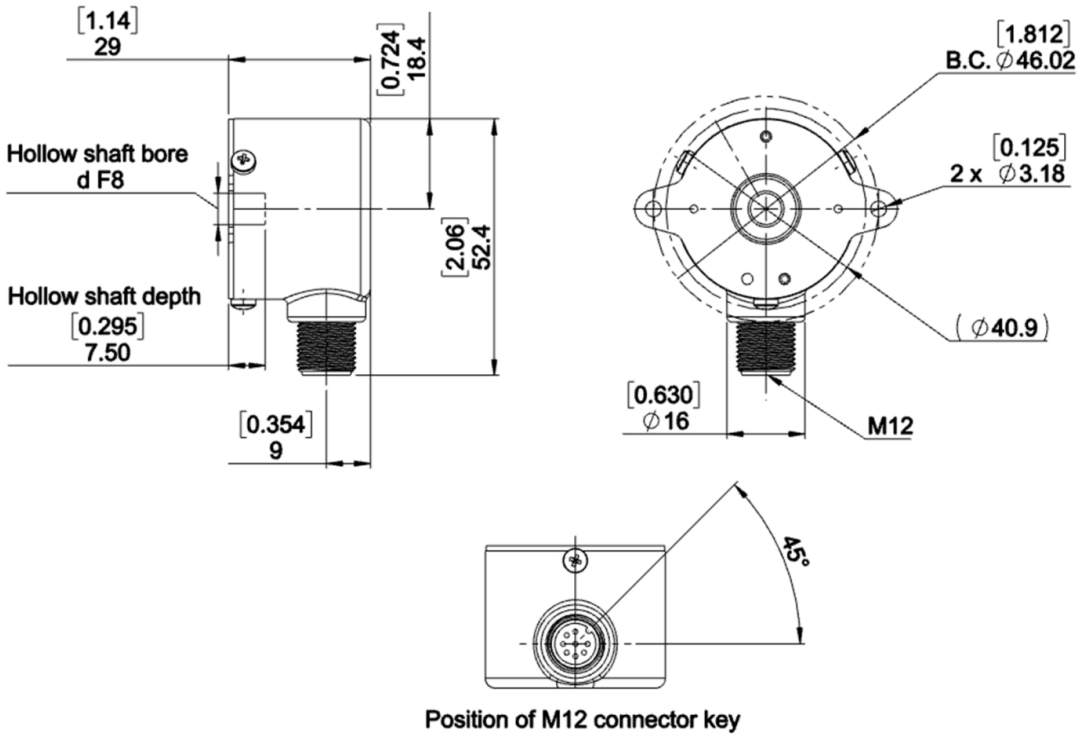
E7xW-JAQ: d = Ø4mm, Ø5mm, Ø6mm or Ø1/4”



E7xU-PRQ: d = Ø4mm, Ø5mm, Ø6mm or Ø1/4”



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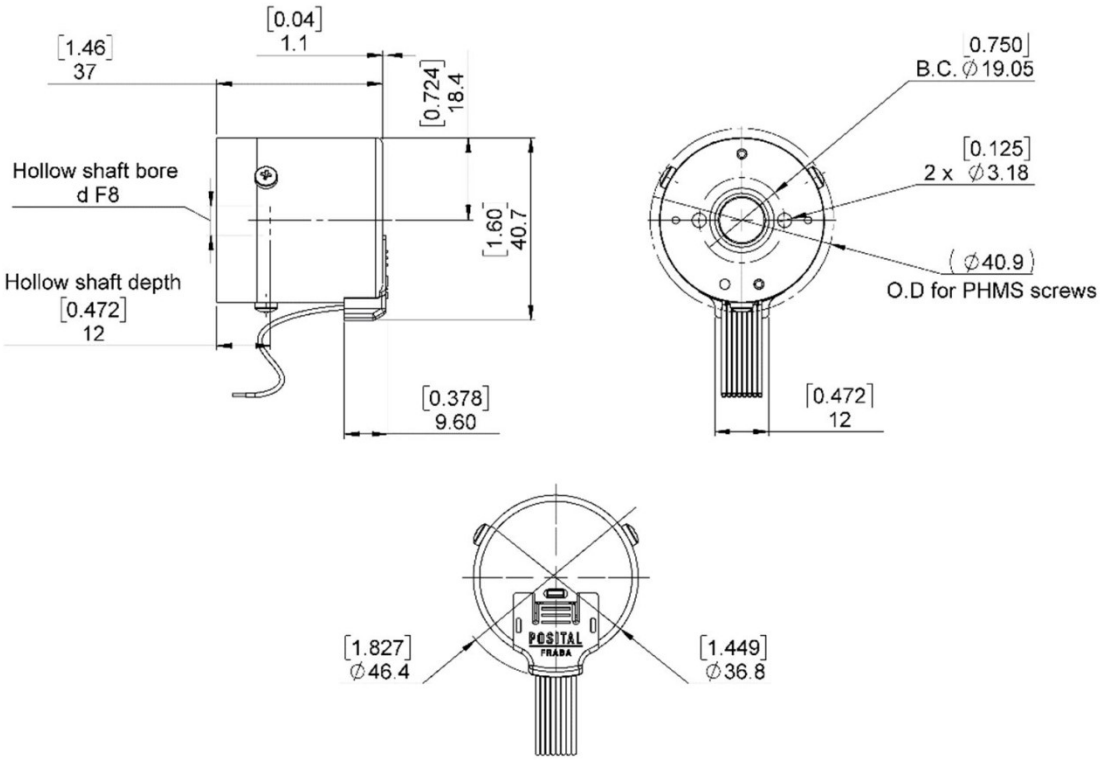
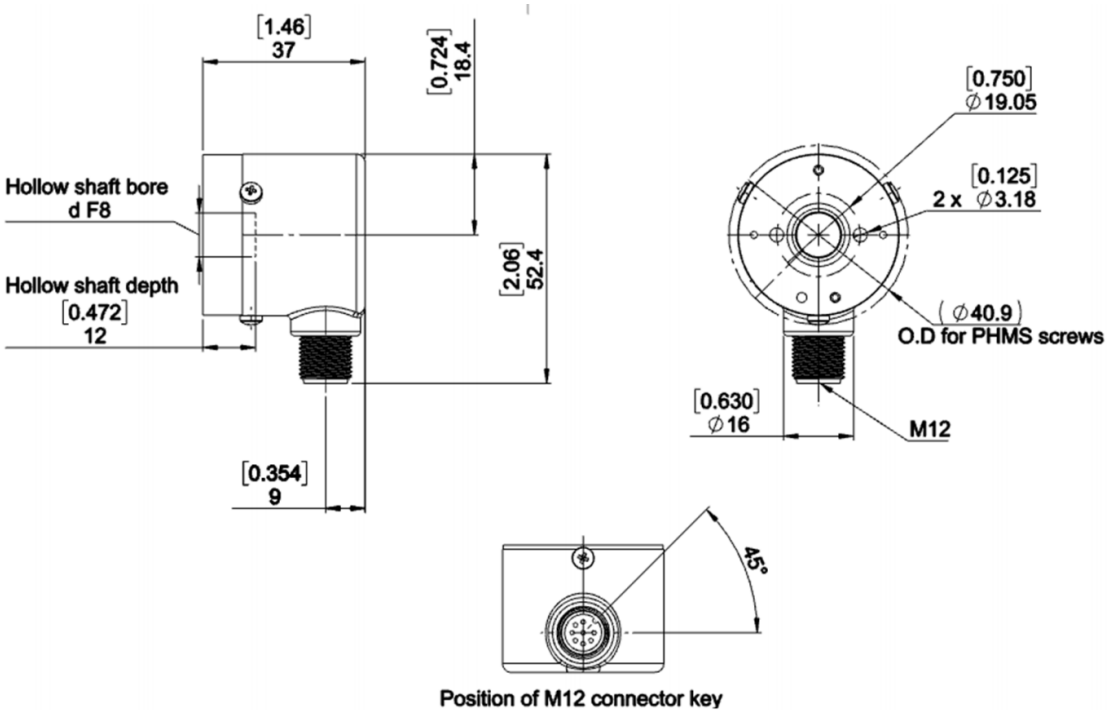
KIT ENCODERS WITH BISS C / SSI INTERFACE - BROADCOM COMPATIBLE

F5xW-JAQ: d = Ø8mm, Ø10mm or Ø3/8”



F5xU-PRQ: d = Ø8mm, Ø10mm or Ø3/8”



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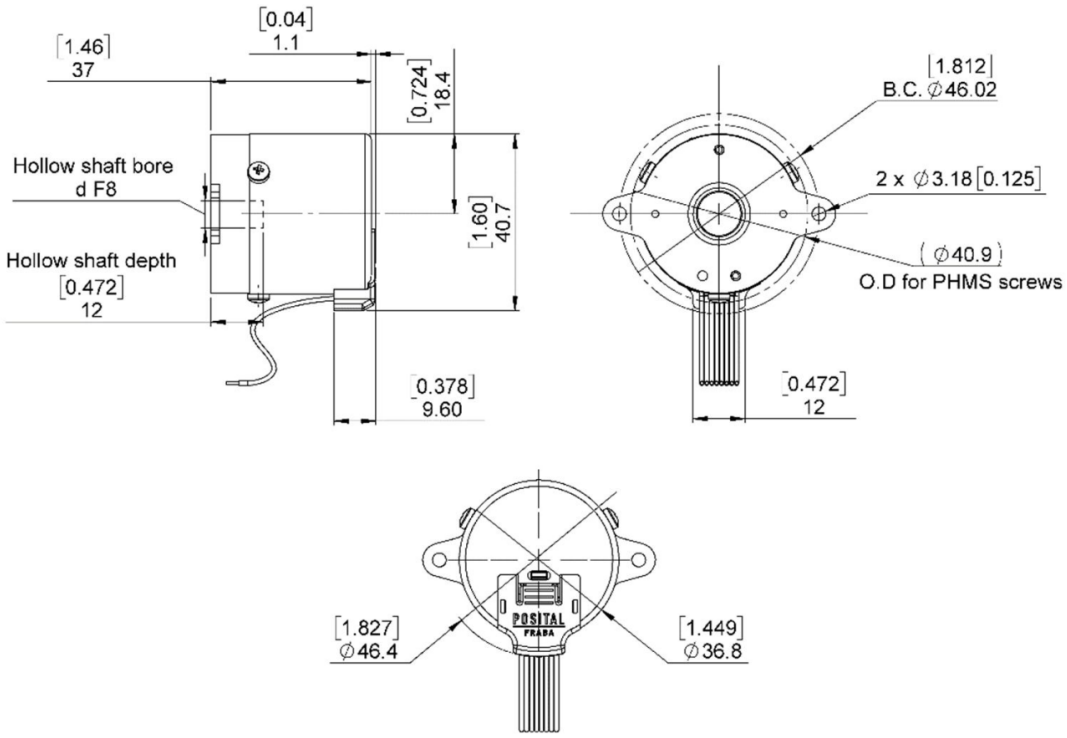
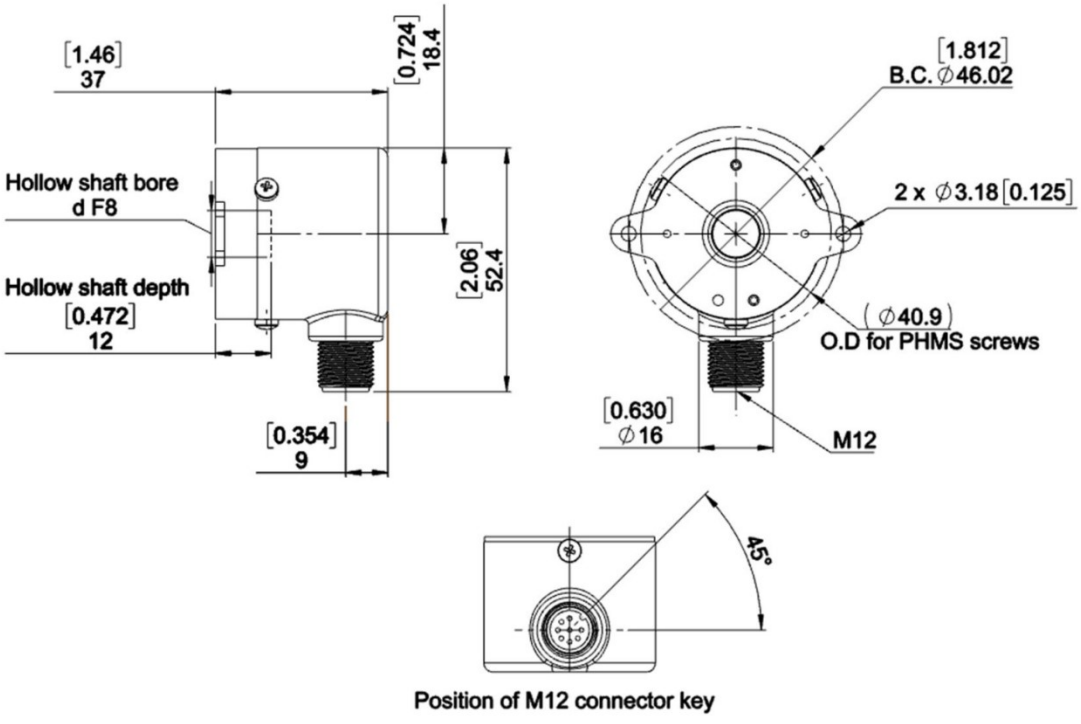
F7xW-JAQ: d = Ø8mm, Ø10mm or Ø3/8"



F7xU-PRQ: d = Ø8mm, Ø10mm or Ø3/8”



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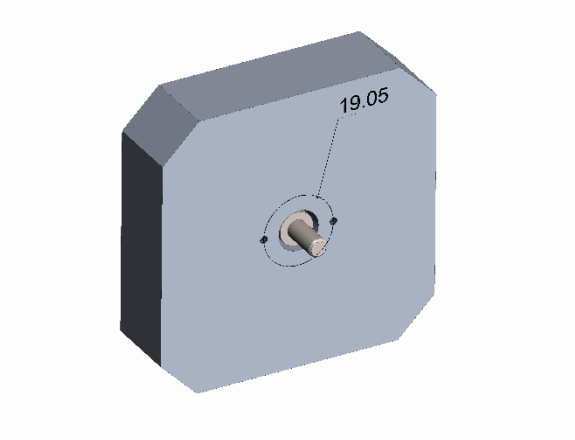
Mounting Requirements

E5/F5



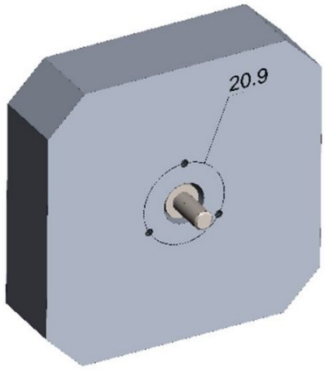
Motor Flange:

2x #2-56 UNC, #4-40 UNC or M2.5

Shaft:

E5
ø 4 mm h7 x 6.5 mm (+/-0.5mm)
ø 5 mm h7 x 6.5 mm (+/-0.5mm)
ø 6 mm h7 x 6.5 mm (+/-0.5mm)
ø 1/4 inch h7 x 6.5 mm (+/-0.5mm)
F5
ø 8 mm h7 x 11 mm (+/-0.5mm)
ø 10 mm h7 x 11 mm (+/-0.5mm)
ø 3/8 inch h7 x 11 mm (+/-0.5mm)

E6



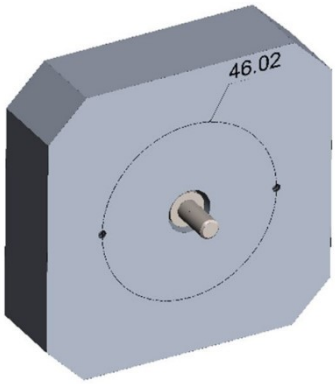
Motor Flange:

3x #0-80 UNC or M1.6

Shaft:

ø 4 mm h7 x 6.5 mm (+/-0.5mm)
ø 5 mm h7 x 6.5 mm (+/-0.5mm)
ø 6 mm h7 x 6.5 mm (+/-0.5mm)
ø 1/4 inch h7 x 6.5 mm (+/-0.5mm)

E7/F7



Motor Flange:

2x #2-56 UNC, #4-40 UNC or M2.5

Shaft:

E7
ø 4 mm h7 x 6.5 mm (+/-0.5mm)
ø 5 mm h7 x 6.5 mm (+/-0.5mm)
ø 6 mm h7 x 6.5 mm (+/-0.5mm)
ø 1/4 inch h7 x 6.5 mm (+/-0.5mm)
F7
ø 8 mm h7 x 11 mm (+/-0.5mm)
ø 10 mm h7 x 11 mm (+/-0.5mm)
ø 3/8 inch h7 x 11 mm (+/-0.5mm)

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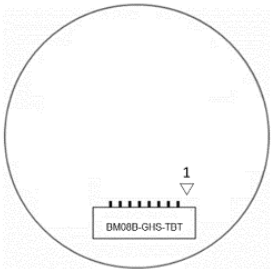
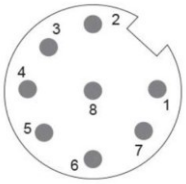
Connection Plan





Signal	JAQ Pin	PRQ Pin
GND	1	1
Preset (Default 0 position value)	2	7
Config (Kit control box, serial communication)	3	8
Data+	4	5
Data-	5	6
CLK-	6	4
CLK+	7	3
Power (Vs)	8	2

Electrical Connection

Connection Orientation	JAQ - Axial	PRQ -Radial
Connector	JST SM08B-GHS-TB	8 pin M12, a-coded, male

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	300 kHz - 1 MHz
Reverse Polarity Protection	Yes
Short Circuit Protection	Yes
MTTF	20 years @105 °C (221 °F)
Max. Permissible Electrical Speed	12.000 RPM

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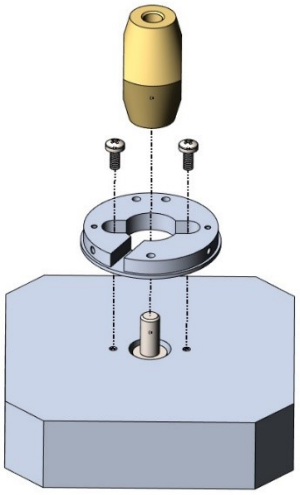
Interface

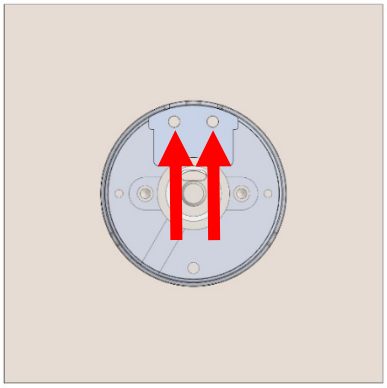
Interface	KCD-BCx3B-xxxx-xxxx-xxx – BiSS C KCD-S1x3B-xxxx-xxxx-xxx - SSI
Programming Functions	Electronic Calibration, Wiegand Sensor Test, Preset
Min Interface Cycle Time	50 µs

Assembly Instructions

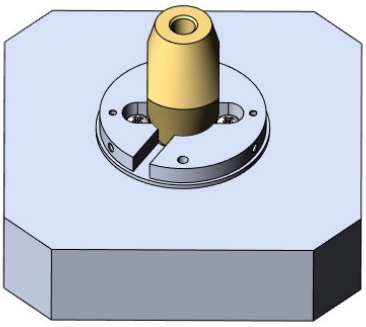
Step 1



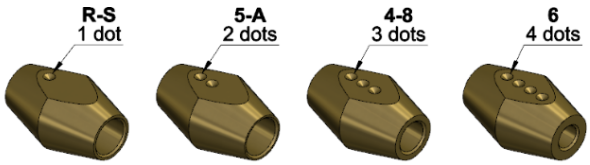
Slip adapter plate over shaft and use screws, depending on tapped holes in motor frame, to secure. Slip centering tool over shaft to center adapter plate to the shaft centerline.



For a correct flange orientation, notice the two holes shown in the image. The connector location should be always assembled relative to these two holes.



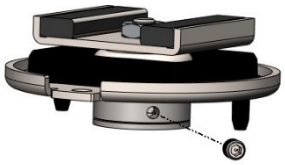
Tighten mounting screws while pushing down on the centering tool and remove centering tool. Tighten screw to a typical torque of 0.4 Nm (Actual torque value may change due to machine screw selected and base mounting material)



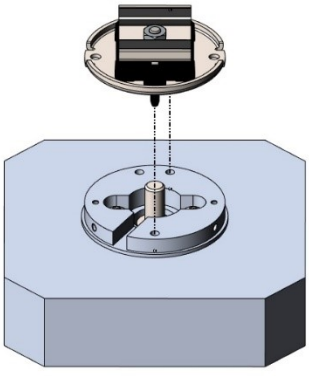
Article No.	Article Name	D1	D2	Mark
10044699	Kit-Centering-Tool-R-S	1/4"	3/8"	1 dot
10043221	Kit-Centering-Tool-5-A	5 mm	10 mm	2 dots
10046250	Kit-Centering-Tool-4-8	4 mm	8 mm	3 dots
10046251	Kit-Centering-Tool-6	6 mm	-	4 dots

Each Centering Tool is compatible with two shaft diameters and is identified by the number of dots machined into the side of the tool.

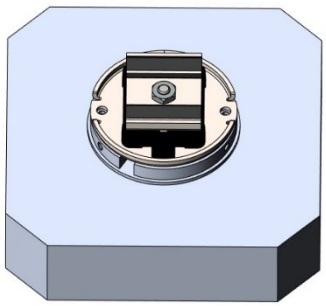
Step 2



Screw the two Socket Set screws into the Magnet-Hub-Assembly to secure. Make sure that the screws do not enter the inner side of the Magnet-Hub-Assembly.

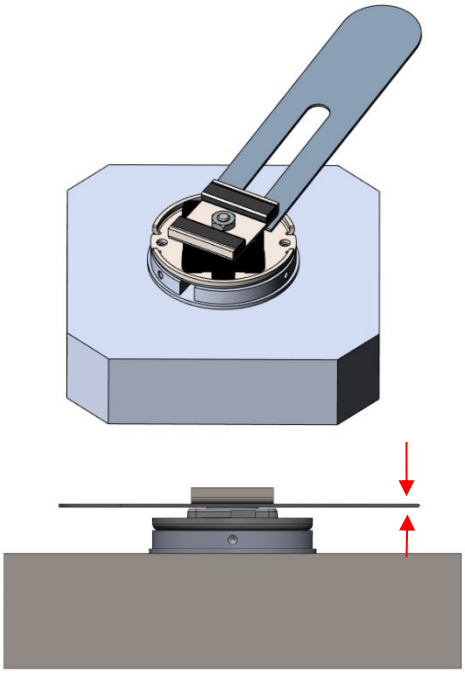


Slide bottom shield/Magnet-Hub-Assembly over shaft and lock alignment pins into adapter plate. Push down bottom shield all the way so it lies flat on the adapter plate.



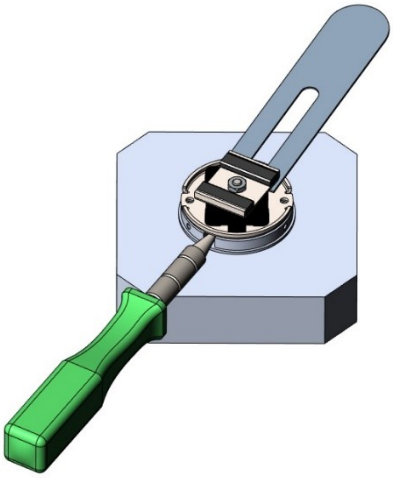
The alignment pin geometry is not symmetrical. Take care not to damage the pins during installation onto the adapter plate.

Step 3



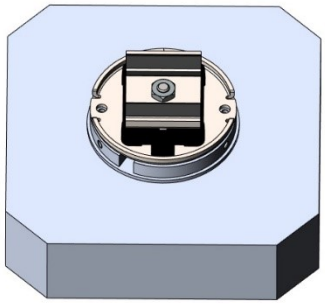
Slide gapping tool (Required thickness of 0.7mm [0.0275”]) between magnet and plastic frame on the bottom shield. Push magnet down.

Step 4

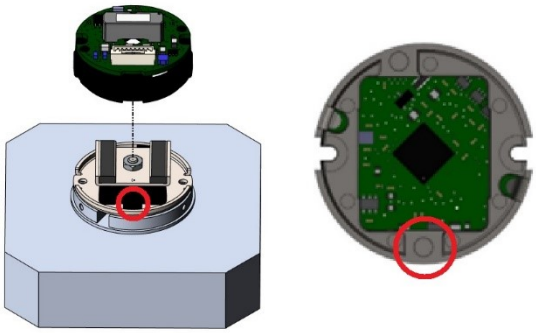


Tighten both set screws with a 1.3mm [0.05”] hex key, using the channel hole in the adapter plate with a torque of 0.5 Nm.

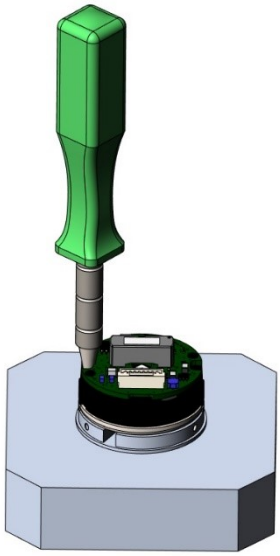
Step 5



Align magnet with plastic frame on the bottom shield.



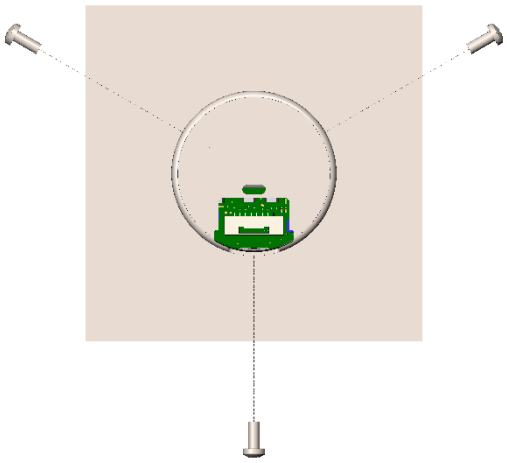
Align PCB with carrier to frame (two different keys) and push down until it locks into place.



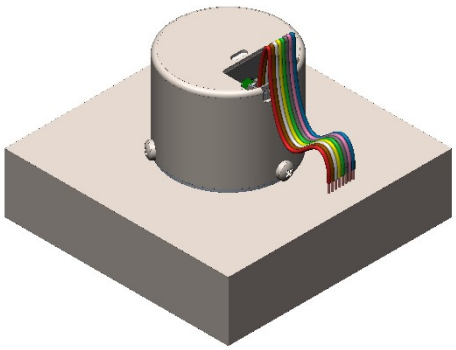
Tighten the two M2 screws using a Torx T6 key with a torque of 0.25 Nm.

Step 6

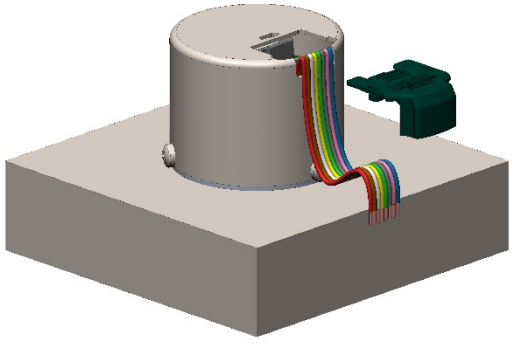
for JAQ Versions



Slide housing over adapter plate. Secure housing by tightening the three M2.5 screws using a Philips screw driver with a torque of 0.4 Nm



Connect cable assembly to the PCB by plugging the connector into the PCB.



Assemble the cable clip onto the metal housing to secure the cable assembly.

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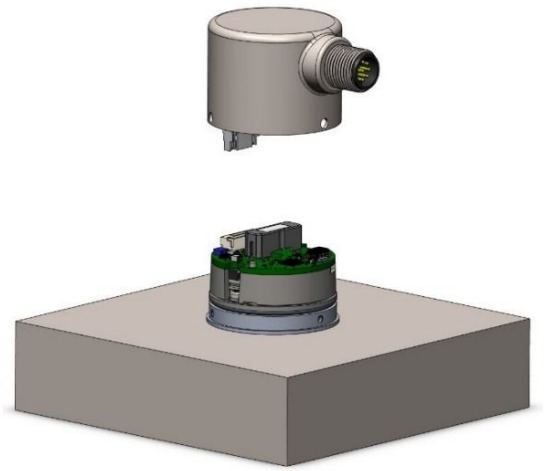
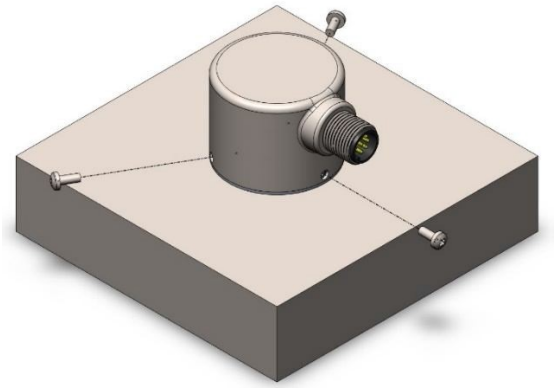
for PRQ Versions



Connect JST to PCB.
Slide housing over adapter plate.
Be careful to not pinch wires.



Secure housing by tightening the three M2.5 screws using a Philips screw driver with a torque of 0.4 Nm

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