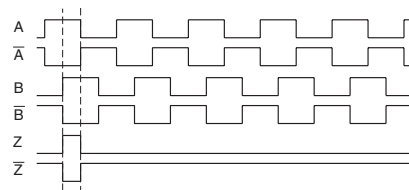


Incremental Encoder

Model: FOI58



- Robust mechanical construction, high vibration and shock resistance
- 1 to 16,384 pulses/ revolution
- Operating temperature - 40 °C to + 85 °C
- Protection grade IP 65



Design and function

Sensing the angle position with magnetic sensor and signal processing including the generation of the pulse outputs.

Robust housing made of steel with a coating for corrosion protection and flange made of sea water proof aluminium (AlMgSi1).

Shaft in stainless steel. Bearings with shaft sealing ring.

- Number of pulses/ revolution: Each pulse number from 1 to 16,384 pulses / revolutions
- Signal outputs: Channel A, B and Zero Z and inverted signals
- Form of signals: Square (Duty cycle 1:1)

Incremental Encoder FOI58

Technical Data

Electrical data

- Sensor system: Magnetic
- Supply voltage range: + 4.75 VDC to + 30 VDC (protection against reverse polarity)
- Power consumption: ≤ 40 mA (24 VDC)
- Output Voltage High level push pull (HTL): > 4 V @ supply voltage V_S 4.75 – 9 V
> $V_S - 3$ V @ supply voltage V_S 9 – 30 V
- Output Voltage Low level push pull (HTL): < 0.5 V
- Output Voltage High Level RS422 (TTL): > 4 V
- Output Voltage Low Level RS422 (TTL): < 0.5 V
- Maximum load of output signal: 120 Ω (50 mA for each channel)
- Reverse polarity protection: yes
- Short circuit protection: yes
- Phase angle: $90^\circ \pm 14^\circ$ (speed > 100 RPM)
- Output frequency: max. 1 MHz
- Phase accuracy: $90^\circ \pm 14^\circ$
- Accuracy: $\pm 0.0878^\circ$ (≤ 12 Bits)
- Signal output: A+ and B+ (90° shifted) and Z+. Additionally inverted signals A-, B- and Z-
- Output circuit: Linedriver / RS 422
Push-pull short-circuit proof
- EMC-Standards: EN 61000-6-2 (ESD)
EN 61000-6-4 (Emission)
- Approval: CE
- MTTF: 280 years @ 40°C

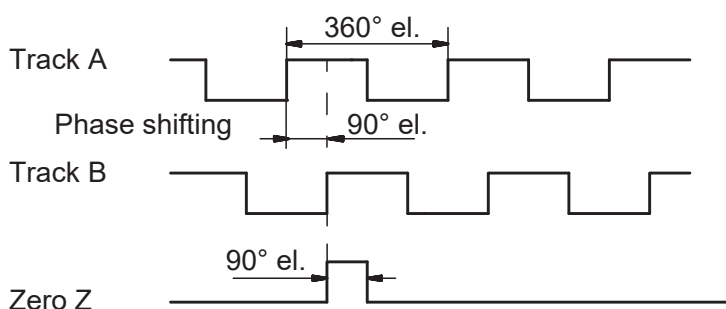
Mechanical data

- Operating speed: ≤ 12,000 rpm
- Resolution: 1 to 16,384 (steps/turn)
- Starting torque: ≤ 0.03 Nm
- Dimensions (flange): \varnothing 58 mm
- Perm. shaft load: ≤ 40 N axial
≤ 110 N radial
- Bearings lifetime: 2×10^9 rev. at 100 % of full rated shaft load (minimum)
- Material: Flange (aluminium), housing (steel with coating for corrosion protection), shaft (stainless steel)
- Mass: ca. 215 g

Environmental data

- Operating temperature: - 40 °C to + 85 °C
- Humidity: 98 % without condensation
- Resistance
 - To shock: 1,000 m/s², 6 ms, DIN EN 60068-2-27
 - To vibration: 100 m/s², 10 Hz ... 1,000 Hz DIN EN 60068-2-6
- Protection grade IP65

Signal output when CW turning (view on shaft)



Incremental Encoder FOI58

Order code format

FOI	58	S6	1	1	A	1024	R	6	T	01
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Electrical and mechanical variants

Signal form:

- T TTL (see electrical data page 2)
- H HTL (see electrical data page 2)

Output signal:

- 2 A+, B+
- 3 A+, B+, Z+
- 4 A+, B+, A-, B-
- 6 A+, B+, Z+, A-, B-, Z-

Shaft rotation:

- R CW
- L CCW

Pulses:

1024 Pulses / 360° (1 ... 16,384)

Housing material:

- A Aluminium (AlMgSi1)

Electrical connection:

- 1 M23 Connector, 12 pin, CCW (matching cable see page 7)

Protection grades:

- 1 IP 65

Flange type:

- S6 Synchro flange, shaft 6 mm (see page 4)
- K10 Clamping flange, shaft 10 mm (see page 5)
- B12 Blind hollow shaft, clamped ring 12 mm (see page 6; 10, 8 mm blind hollow shaft see reducing bushes page 6)

Design form:

- 58 Case diameter \varnothing 58 mm

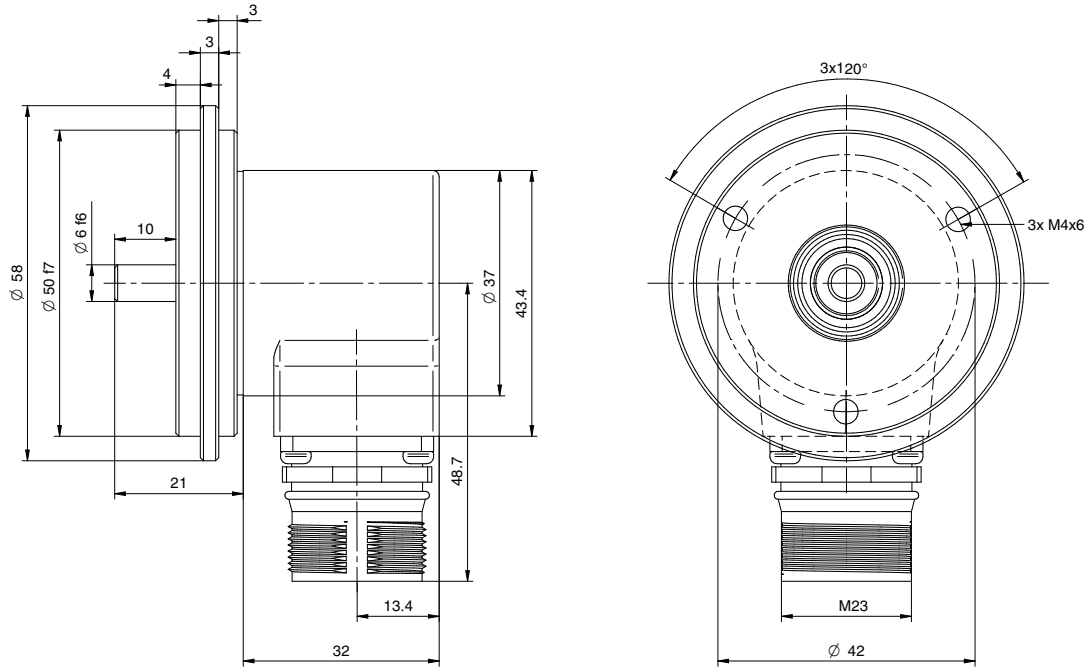
FOI Incremental encoder

Incremental Encoder FOI58

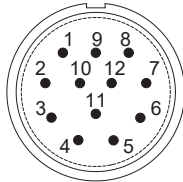
Installation drawings

Dimensions in mm

Model FOI58S6 (M23-Connector, radial)



Electrical connection (view to contacts)



M 23 Connector, 12 pin

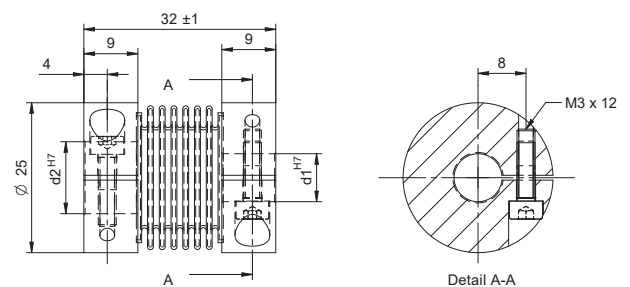
Contact no.	M23-Connector
1	B- Channel
3	Z+ Channel, Zero signal
4	Z- Channel, Zero signal
5	A+ Channel
6	A- Channel
8	B+ Channel
10	GND
12	+Vs
Shielding	Connector housing

Accessories

Bellow coupling

- BKA 32/6-6-A01:** d2 = \varnothing 6 mm, d1 = \varnothing 6 mm
- BKA 32/6-8-A01:** d2 = \varnothing 6 mm, d1 = \varnothing 8 mm
- BKA 32/6-10-A01:** d2 = \varnothing 6 mm, d1 = \varnothing 10 mm

Dimensions in mm



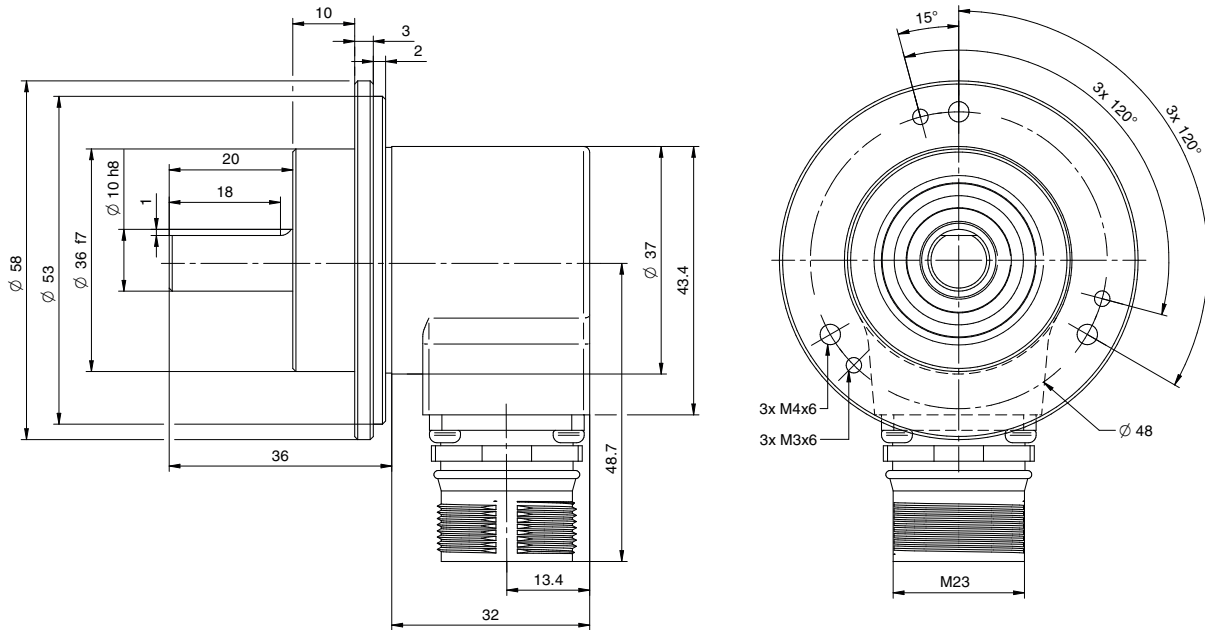
For more information see data sheet [BKA 15029](#).

Incremental Encoder FOI58

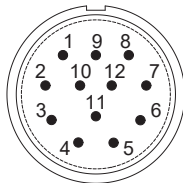
Installation drawings

Dimensions in mm

Model FOI58K10 (M23-Connector, radial)



Electrical connection (view to contacts)



M 23 Connector, 12 pin

Contact no.	M23-Connector
1	B- Channel
3	Z+ Channel, Zero signal
4	Z- Channel, Zero signal
5	A+ Channel
6	A- Channel
8	B+ Channel
10	GND
12	+Vs
Shielding	Connector housing

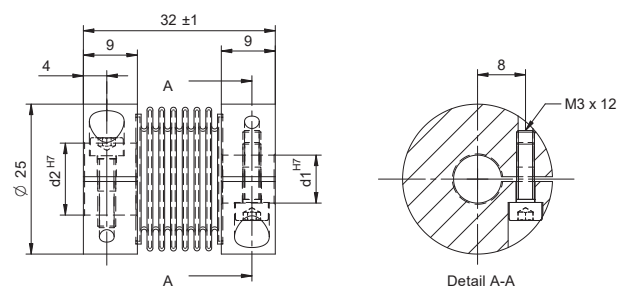
Accessories

Bellow coupling

BKA 32/10-10-A01: d2 = \varnothing 10 mm, d1 = \varnothing 10 mm

BKA 32/10-12-A01: d2 = \varnothing 10 mm, d1 = \varnothing 12 mm

Dimensions in mm



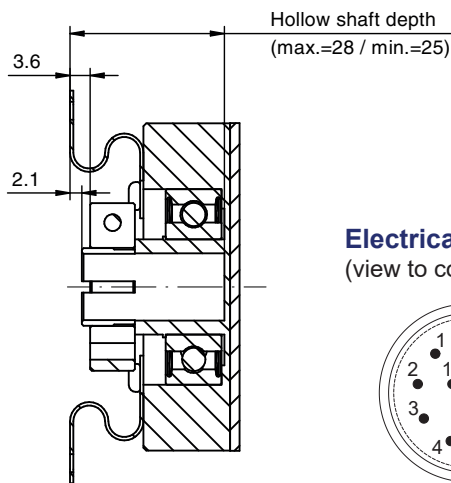
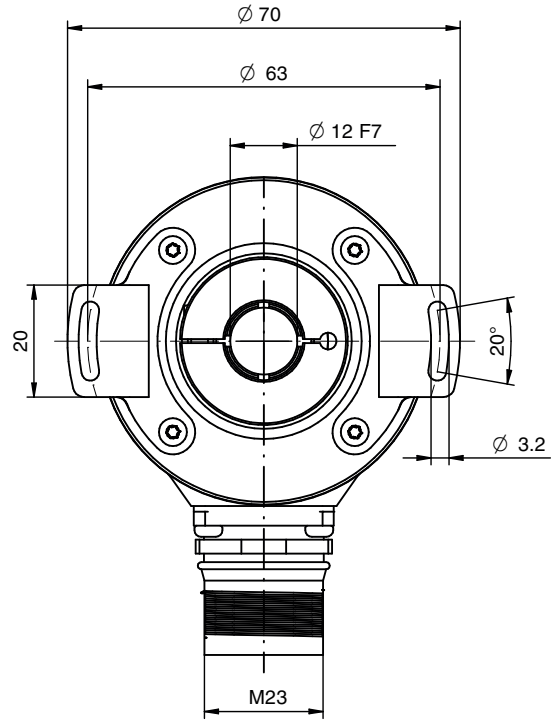
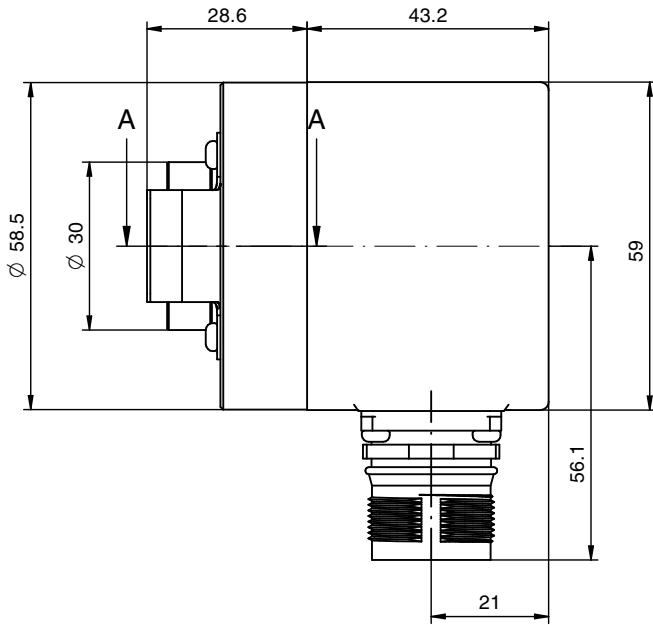
For more information see data sheet [BKA 15029](#).

Incremental Encoder FOI58

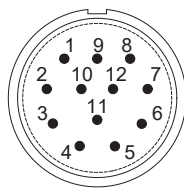
Installation drawings

Dimensions in mm

Model FOI58B12 (M23-Connector, radial)



Electrical connection
(view to contacts)



Details A-A

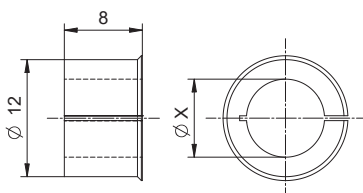
Contact no.	M23-Connector
1	B- Channel
3	Z+ Channel, Zero signal
4	Z- Channel, Zero signal
5	A+ Channel
6	A- Channel
8	B+ Channel
10	GND
12	+Vs
Shielding	Connector housing

Accessories

Reducing bush (Material: aluminium)

ZRH-A-12-10: x = 10 mm

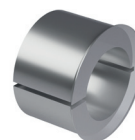
ZRH-A-12-8: x = 8 mm



ZRH-A-12-10



ZRH-A-12-8

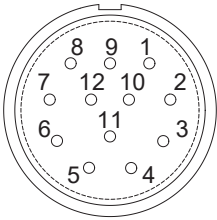


Incremental Encoder FOI58

Accessories

Cable

- Type of cable: PVC-Cable 6x2x0, 14 mm² with open wire end
- Cable configuration: 6x2x0,14 mm² AWG 26
- Cable outside diameter: 6 - 10 mm
- Protection grade IP 67

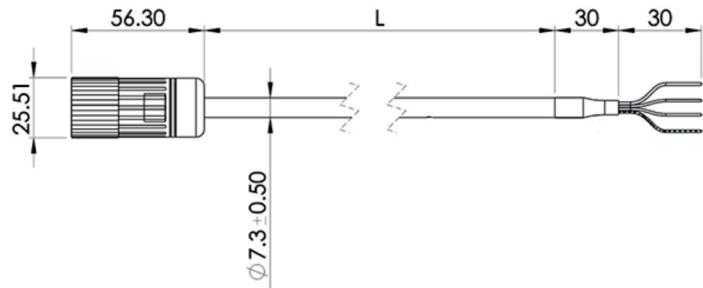


M 23 Connector, 12 socket

Encoder (FOI) signal	M23-Connector	Color
B invers	1	yellow
	2	green
Zero	3	grey
Zero invers	4	pink
A	5	blue
A invers	6	red
	7	black
B	8	grey/pink
	9	blue/red
GND	10	violet
	11	brown
Vs	12	white

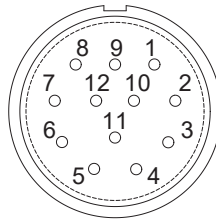
Order code format

Kabel - X - 222
Cable length:
2 2000 mm (L)
5 5000 mm (L)
10 10.000 mm (L)



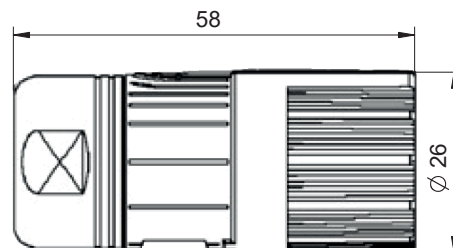
Mating plug M23

- Mating plug M23 with 12 sockets for incremental encoder series FOI
- With strain relief and shielding
- For cable with Ø 4.5 - 8.5 mm
- Contacts: Brass, gold-plated



Order code format

- Connector: STR12GS27



For more information see data sheet STR15102