

Magnetostrictive Sensors
BTL5 -K- Series - CANopen

BALLUFF



BTL5-abcd-Mnnnn-fg-lm

BTL5

Magnetostrictive linear position sensor Generation 5

a interface

H = CANopen

b Operating voltage

1 = 20 ... 28 V

c Interface characteristic 1

1 = 1 magnet

2 = 2 magnets

3 = 4 magnets

d Interface characteristic 2

Data transmission rate:

0 = 1 MBaud

1 = 800 MBaud

2 = 500 kBaud

3 = 250 kBaud

4 = 125 kBaud

5 = 100 kBaud

6 = 50 kBaud

7 = 25 kBaud

8 = 10 kBaud

Mnnnn Nominal length (4-position)

M0500 = metric in mm

(M0050...M4000)

f Style

K = Compact rod, plug-in flange 18h6, for O-Ring

g Form factor characteristic

8 = Rod diameter 8 mm

- = Rod diameter 10.2 mm

l Connection type

SR = Connector, radial

K = Cable out radial (PUR)

m Connection type characteristic 1

for connector:

92 = M12x1 connector with 5 pins

for cable (length in meters):

02, 05, 10, 15, 20

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Electrical connection

Polarity reversal protected	Ub up to 28 V
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Electrical data

Current consumption max. at 24 V DC	100 mA
Inrush current	≤ 3 A/0.5 ms
Operating voltage Ub	20...28 VDC
Output signal adjustable	with software tool
Overvoltage protection	Ub up to 28 V
Voltage-proof up to (GND to housing)	500 V DC

Environmental conditions

Ambient temperature	-40...85 °C
Cable temperature, fixed routing	I = K: -40 °C ... 90 °C
Cable temperature, flexible routing	I = K: -5 °C ... 90 °C
EN 55016-2-3, Radiation	Industrial areas
EN 60068-2-27, Continuous shock	100 g, 2 ms
EN 60068-2-27, Shock	100 g, 6 ms
EN 60068-2-6, Vibration	12 g, 10...2000 Hz
EN 61000-4-2, ESD	Severity Level 3
EN 61000-4-3, RFI	Severity Level 3
EN 61000-4-4, Burst	Severity Level 3
EN 61000-4-5, Surge	Severity Level 2
EN 61000-4-6, High-frequency fields	Severity Level 3
EN 61000-4-8 Magnetic fields	Severity Level 4
IP rating	I = S: IP67 with connector I = K: IP68
Relative humidity	≤ 90 %, non-condensing
Storage temperature	-40...100 °C
Temperature coefficient typ.	≤ 35 ppm/K at 50% of nominal stroke 500mm

Functional safety

MTTF (40 °C)	78 a
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General data

Approval/Conformity	CE cULus EAC WEEE
Magnets, number (factory setting)	c = 1: 1 c = 2: 2 c = 3: 4
Magnets, number max.	4 minimum separation between magnets 65 mm.

Material

Cable flame-resistant	I = K: IEC 60332-1
Cable jacket, material	I = K: PUR
Housing material	Stainless steel (1.4305)
Material flange	Stainless steel (1.4404) Stainless steel (1.4429) Stainless steel (1.4435) Stainless steel (1.4571)
Protection tube material	Stainless steel (1.4571)

Mechanical data

Installation length from contact surface	nnnn + 100 mm
Pressure rating max.	g ≠ 8: 600 bar g = 8: 250 bar
Pressure rating, note	when installed in hydraulic cylinder
Speed detectable max.	10 m/s
Tightening torque max.	3.5 Nm

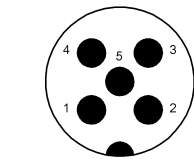
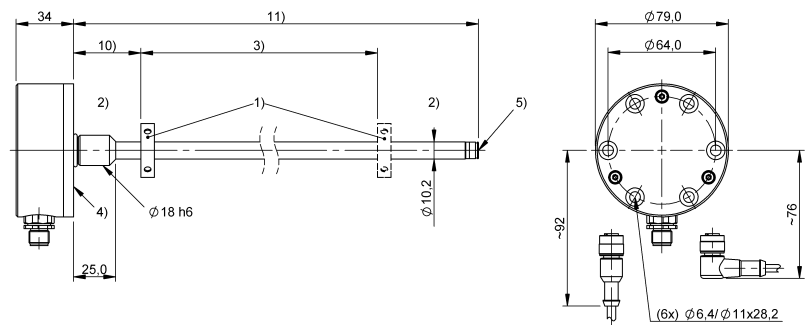
Output/Interface

Interface	CANopen
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Range/Distance

Linearity deviation	±30 µm
Measuring length	25...4000 mm
Repeat accuracy	± 1 LSB
Sampling frequency max.	1 kHz, standard

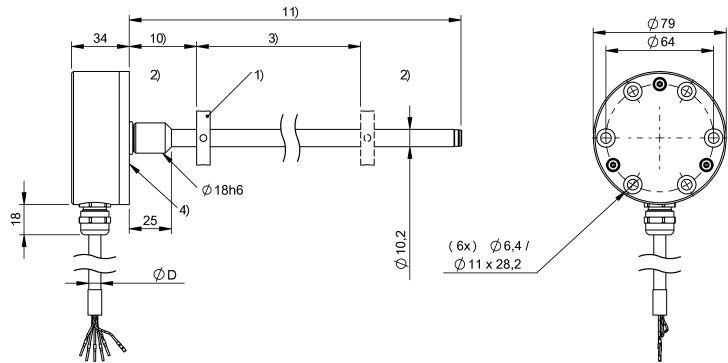
BTL5-Hxxx-Mxxxx-K-SR92



Pin	
1	CAN_GND
2	+24 V DC
3	GND
4	CAN_HIGH
5	CAN_LOW

- 1) not included in scope of delivery
- 2) Non-usable area
- 3) Nominal length = Measuring length
- 4) Mounting surface
- 5) Internal threads M4x4/6 deep
- 10) Null point
- 11) Installation length

BTL5-Hxxx-Mxxxx-K-Kxx



colour	
WH	CAN_GND
BN	+24 V DC
BU	GND
GY	CAN_HIGH
GN	CAN_LOW

- 1) not included in scope of delivery
- 2) Non-usable area
- 3) Nominal length = Measuring length
- 4) Mounting surface
- 10) Null point
- 11) Installation length