

Magnetostrictive Sensors
BTL7 -Y/Z- Series - EtherNet/IP

BALLUFF



BTL7-abcd-Mnnnn-fg-lm

BTL7

Magnetostrictive linear position sensor Generation 7

a interface

V = EtherNet

b Operating voltage

5 = 10 ... 30 V

c Interface characteristic 1

0 = Flexible Magnet Mode (1 - 16 magnets)

d Interface characteristic 2

D = EtherNet IP

Mnnnn Nominal length (4-position)

M0500 = metric in mm

(M0025...M1016: for rod diameter 8 mm)

(M0025...M7620: for rod diameter 10.2 mm)

f Style

Y = Inch threads 3/4"-16UNF, for flat seal

Z = Inch threads 3/4"-16UNF, for O-Ring

g Form factor characteristic

8 = Rod diameter 8 mm

- = Rod diameter 10.2 mm

l Connection type

C = Connector

m Connection type characteristic 1

003 = 1 x M8x1 with 4 pins + 2 x M12x1 with 4 pins

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Display/Operation

Error value	0x7FFFFFFF
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Electrical connection

Polarity reversal protected	Ub up to 36 V
Short-circuit protection	to GND

Electrical data

Current consumption max. at 24 V DC	nnnn < 1525: 140 mA nnnn ≥ 1525: 180 mA
Inrush current	nnnn < 1525: ≤ 500 mA/10 ms nnnn ≥ 1525: ≤ 500 mA/25 ms
Operating voltage Ub	10...30 VDC
Output signal adjustable	yes
Overvoltage protection	Ub up to 36 V
Switch-on delay max.	3 s
Voltage-proof up to (GND to housing)	500 V AC

Environmental conditions

Ambient temperature	-40...85 °C
EN 55016-2-3, Radiation	For industrial and residential use
EN 60068-2-27, Continuous shock	150 g, 2 ms
EN 60068-2-27, Shock	150 g, 6 ms
EN 60068-2-6, Vibration	20 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	IP67 with connector
Relative humidity	≤ 90 %, non-condensing
Storage temperature	-40...100 °C
Temperature coefficient typ.	≤ 18 ppm/K at 50% of nominal stroke 500mm

Functional safety

MTTF (40 °C)	104 a
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General data

Approval/Conformity	CE cULus EAC WEEE
Magnets, number (factory setting)	1
Magnets, number max.	16 minimum separation between magnets 65 mm.

Material

Cover material	Aluminum, Die-cast, nickel plated
Housing material	Aluminum
Housing material, surface protection	Anodized
Material flange	Stainless steel (1.3960)
Protection tube material	Stainless steel (1.4571)

Mechanical data

Installation length from contact surface	nnnn + 111 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.	100 Nm

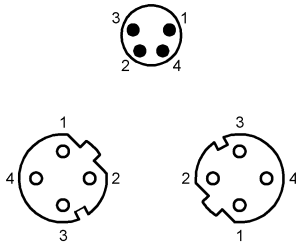
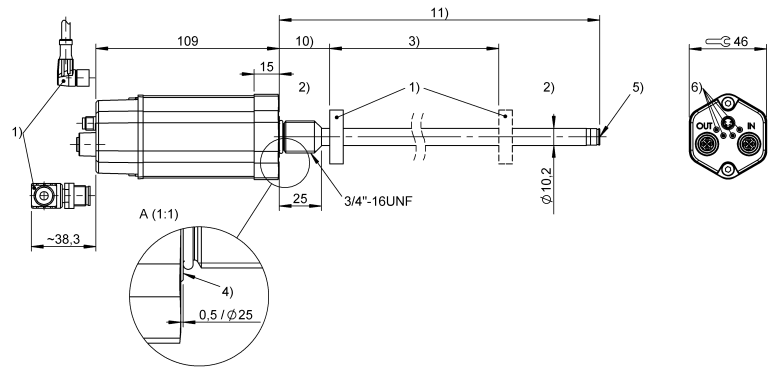
Output/Interface

Data format	32-bit signed
Interface	EtherNet/IP

Range/Distance

Linearity deviation	nnnn = 0050...5500: ± 30 µm nnnn > 5500: ± 0.02% FS
Measuring length	25...7620 mm
Repeat accuracy	≤ ± 5 µm
Sampling frequency max.	nnnn = 0050 ... 0250: 1160 Hz nnnn = 0251 ... 0600: 1010 Hz nnnn = 0601 ... 1300: 805 Hz nnnn = 1301 ... 2700: 495 Hz nnnn = 2701 ... 5500: 245 Hz nnnn = 5501 ... 7600: 180 Hz nnnn = 7601 ... 7620: 170 Hz

BTL7-V50D-Mxxxx-Z-C003

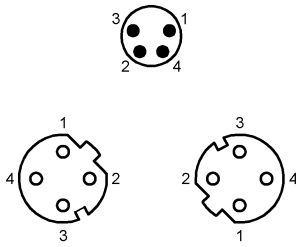
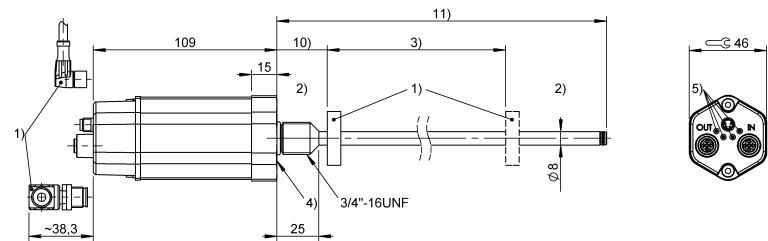


Pin	Bus Connectors
1	TX+
2	RX+
3	TX-
4	RX-

Pin	Power Connector
1	+24 V DC
2	NC
3	0 V GND
4	NC

- 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
- 6) LED function indicator
- 10) Null point
- 11) Installation length

BTL7-V50D-Mxxxx-Y8-C003



Pin	Bus Connectors
1	TX+
2	RX+
3	TX-
4	RX-

Pin	Power Connector
1	+24 V DC
2	NC
3	0 V GND
4	NC

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