

Magnetostrictive Sensors
BTL6 -Y/Z- Series - EtherCAT

BALLUFF



BTL6-abcd-Mnnnn-fg-lm

BTL6

Magnetostrictive linear position sensor Generation 6

a interface

V = EtherNet

b Operating voltage

1 = 20 ... 28 V

c Interface characteristic 1

1 = 1 magnet

1 = 2 magnets

d Interface characteristic 2

E = EtherCAT

Mnnnn Nominal length (4-position)

M0500 = metric in mm

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

(M0025...M4012: 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

S = Connector

m Connection type characteristic 1

115 = M12x1 connector with 8 pins

Electrical connection

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

Electrical data

Current consumption max. at 24 V DC	100 mA
Error value	all bits = 0
Inrush current	≤ 4 A/0.5 ms
Operating voltage Ub	20...28 VDC
Output signal adjustable	no
Overvoltage protection	Ub up to 36 V
Switch-on delay max.	10 s
Voltage-proof up to (GND to housing)	500 V DC

Environmental conditions

Ambient temperature	0...70 °C
EN 55016-2-3, Radiation	For industrial and residential use
EN 60068-2-27, Continuous shock	50 g, 2 ms
EN 60068-2-27, Shock	50 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	IP67 with connector
Relative humidity	≤ 90 %, non-condensing
Storage temperature	-40...100 °C
Temperature coefficient typ.	≤ 20 ppm/K at 50% of nominal stroke 500mm

Functional safety

MTTF (40 °C)	187 a
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General data

Approval/Conformity	CE cULus EAC WEEE
Magnets, number (factory setting)	c = 1: 1 c = 2: 2
Magnets, number max.	c = 1: 1 c = 2: 2

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

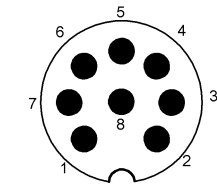
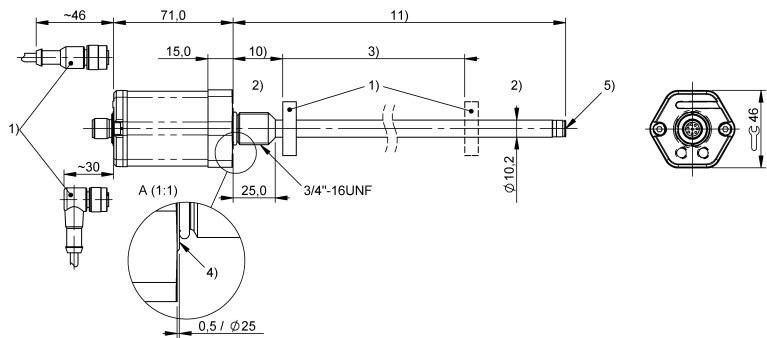
Output/Interface

Data format	32-bit signed
Interface	EtherCAT

Range/Distance

Linearity deviation	nnnn = 0050...0500: ± 200 µm nnnn > 0500: ± 0.04% FS
Measuring length	25...4012 mm
Repeat accuracy	≤ 30 µm
Resolution, position	6 µm
Sampling frequency max.	c = 1: nnnn = 0050...0500: 2000 Hz nnnn = 0501...1200: 1000 Hz nnnn = 1201...2600: 500 Hz nnnn = 2601...4012: 333 Hz c = 2: nnnn = 0050...0500: 1000 Hz nnnn = 0501...1200: 670 Hz nnnn = 1201...2600: 400 Hz nnnn = 2601...4012: 290 Hz

BTL-V11E-Mxxxx-Z-S115



Pin	
1	NC
2	TX+
3	TX-
4	NC
5	RX+
6	GND
7	+24V
8	RX-

- 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