

Magnetostrictive Sensors
BTL5 -Y/Z- Series - Inkremental

BALLUFF



BTL5-abcde-Mnnnn-f-lm

BTL5

Magnetostrictive linear position sensor Generation 5

a interface

Q = Digital quadrature interface

b Operating voltage

1 = 20 ... 28 V

c Interface characteristic 1

Quadrature frequency

0 = 833 kHz

1 = 416 kHz

2 = 208 kHz

6 = 10 kHz

d Interface characteristic 2

System resolution

0 = 1 µm

1 = 2 µm

2 = 5 µm

3 = 10 µm

5 = 50 µm

6 = 0.0001"

7 = 0.001"

8 = 0.0006"

e Interface characteristic 3

Mode/Update rate

0 = Synchronous

1 = Free running mode, 1 ms update rate (only for stroke lengths ≤1250 mm)

2 = Free running mode, 2 ms update rate (only for stroke lengths ≤2500 mm)

4 = Free running mode, 4 ms update rate (any stroke length)

Mnnnn Nominal length (4-position)

M0500 = metric in mm

(M0050...M4000)

f Style

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

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

l Connection type

S = Connector

KA = Cable (PUR)

m Connection type characteristic

for connector:

140 = MS connection, 10-pin

for cable (length in meters):

02, 05, 10, 15

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Electrical connection

Polarity reversal protected	Ub up to 36 V
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Electrical data

Current consumption max. at 24 V DC	100 mA
Operating voltage Ub	20...28 VDC
Output signal adjustable	no
Overvoltage protection	Ub up to 36 V
Voltage-proof up to (GND to housing)	500 V DC

Environmental conditions

Ambient temperature	-40...85 °C
EN 55016-2-3, Radiation	For industrial and residential use
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	IP67 with connector
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)	92 a
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General data

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

Material

Cover material	Aluminum, Anodized
Housing material	Aluminum
Housing material, surface protection	Anodized
Material flange	Stainless steel (1.3952)
Protection tube material	Stainless steel (1.4571)

Mechanical data

Installation length from contact surface	nnnn + 111 mm
Pressure rating max.	600 bar
Pressure rating, note	when installed in hydraulic cylinder
Tightening torque max.	100 Nm

Output/Interface

Interface	Quadrature
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Range/Distance

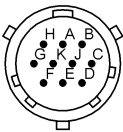
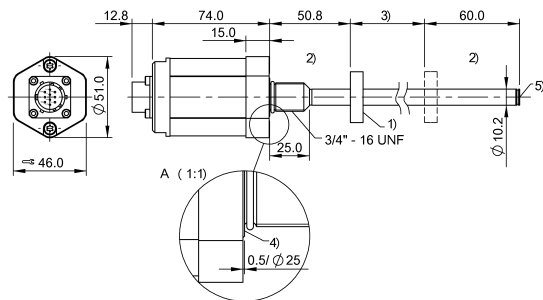
Linearity deviation	nnnn ≤ 0500: ± 100 µm nnnn > 0500: ± 0.02 % FS
Measuring length	25...4000 mm
Repeat accuracy	≤ 11 µm
Sampling frequency max.	See interface characteristic 3

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BTL5-Qxxxx-Mxxxx-Z-S140



PIN	
A	A+
B	B+
C	B-
D	+24 V DC
E	NC
F	GND
G	STRB Input
H	Z+
J	A-
K	Z-

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