

Magnetostrictive Sensors
BTL6 -E- Series - Analog current

BALLUFF



BTL6-abcd-Mnnnn-fg-lm-o

BTL6

Magnetostrictive linear position sensor Generation 6

a interface

E = Current output 4 ... 20 mA

b Operating voltage

5 = 10 ... 30 V

c + d Interface characteristic 1 + 2

00 = 1 output, rising

Mnnnn Nominal length (4-position)

M0500 = metric in mm

(M0050...M1016: for rod diameter 8 mm)

(M0050...M2000: for rod diameter 10.2 mm)

f Style

E2 = Mounting flange 18h6

g Form factor characteristic

8 = Rod diameter 8 mm

- = Rod diameter 10.2 mm

l Connection type

KA = Cable (PUR)

LA = Leads (TPE-E)

m Connection type characteristic 1

for leads (length in meters):

0,07, 0,15, 0,20, 0,30

for cable (length in meters):

02, 05, 10, 15, 20, 30

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Basic features

Approval/Conformity	I = KA: CE + cULus + EAC + WEEE I = LA: CE + EAC + WEEE
Magnets, number (factory setting)	1
Magnets, number max.	1

Electrical connection

Polarity reversal protected	Ub up to 40 V
Short-circuit protection	to GND and to 36 V DC

Electrical data

Current consumption max. at 24 V DC	60 mA
Inrush current	≤ 2.5 A/2 ms
Load resistance RL max.	500 Ohm
Operating voltage Ub	10...30 VDC
Output signal adjustable	no
Overvoltage protection	Ub up to 36 V
Switch-on delay max.	600 ms
Voltage-proof up to (GND to housing)	500 V DC

Environmental conditions

Ambient temperature	-40...85 °C
Cable temperature, fixed routing	I = KA: -40 °C ... 80 °C I = LA: -40 °C ... 135 °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	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
Relative humidity	≤ 90 %, non-condensing
Storage temperature	-40...100 °C
Temperature coefficient typ.	25.0 µm/K at 50% of nominal stroke 500mm

Functional safety

MTTF (40 °C)	101 a
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Interface

Interface	Analog, current
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Material

Cable flame-resistant	I = KA: IEC 60332-1
Cable jacket, material	I = KA: PUR I = LA: ETFE
Cover material	1.4305 stainless steel
Housing material	1.4404 stainless steel
Material flange	1.4404 stainless steel
Protection tube material	1.4571 stainless steel

Mechanical data

Installation length from contact surface	nnnn + 94 mm
Pressure rating max.	g ≠ 8: 350 bar g = 8: 250 bar
Pressure rating, note	when installed in hydraulic cylinder
Speed detectable max.	10 m/s

Range/Distance

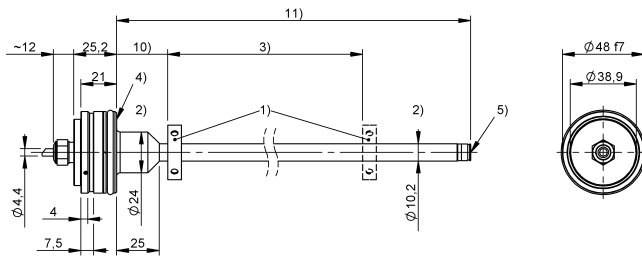
Linearity deviation	nnnn = 0050...0500: ± 200 µm nnnn > 0500: ± 0.04% FS (typ. ± 0.02% FS)
Measuring length	50...2000 mm
Repeat accuracy	± 5 µm
Resolution, position	depending on controller (only limited by repeat accuracy)
Sampling frequency max.	nnnn = 50...1300: 1000 Hz nnnn = 1301...2000: 500 Hz

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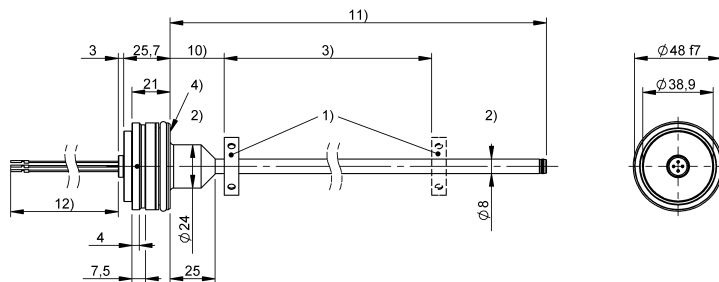
BTL6-E500-Mxxxx-E2-KAxx



colour	
GY	GND Output
GN	4...20 mA
BU	GND
BN	10...30 DC

- 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
- 12) Cable length

BTL6-E500-Mxxxx-E28-LAxx



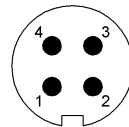
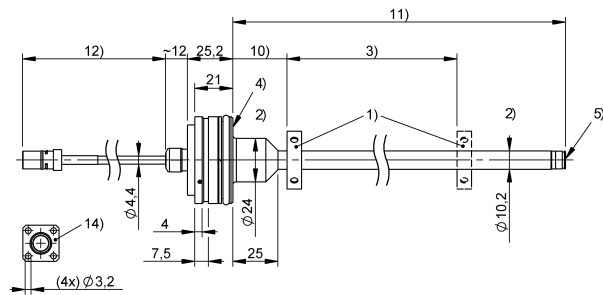
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BTL6-E500-Mxxxx-E2-KAxx-ZA0N



Pin	
1	10...30 V DC
2	N.C.
3	GND / 0V
4	4...20 mA

- 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
- 12) Cable length
- 14) not installed