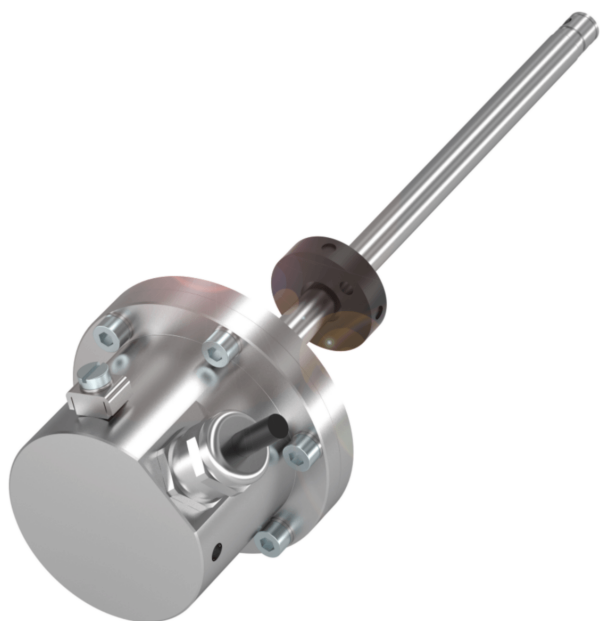


Magnetostrictive Sensors  
BTL7 -B-DEX- Series - Analog current

# BALLUFF



## EAC

### BTL7-abcd-Mnnnn-f-ij-lm

#### BTL7

Magnetostrictive linear position sensor Generation 7

#### a interface

C = Current output 0 ... 20 mA

E = Current output 4 ... 20 mA

#### b Operating voltage

5 = 10 ... 30 V

#### c + d Interface characteristic 1 + 2

00 = 1 output, rising

70 = 1 output, falling

#### Mnnnn Nominal length (4-position)

M0500 = metric in mm

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

#### f Style

B = Mounting threads M18x1.5, for O-Ring

#### i Variant

DEX = Ignition protection category "d" / pressure-proof encapsulation

#### j Variant characteristic

A = float plug

B = short plug

#### l Connection type

K = Cable out radial (PUR)

KA = Cable out axial (PUR)

#### m Connection type characteristic 1

(length in meters)

02, 05, 10, 15, 20, 50, 100

### Basic features

<b>Approval/Conformity</b>	CE IECEx EAC WEEE
<b>Ex marking</b>	ATEX: II 1/2 G Ex d IIC T6/T5 Ga/Gb II 2D Ex tb IIIC T85 °C/T100 °C Db IP67 -40°C to +65°C (T6) -40°C to +80°C (T5) EAC: 1 Ex d IIC T6 Ga/Gb X Ex tb IIIC T85 °C Db X IP67 -40°C ≤ TA ≤ +65°C 1 Ex d IIC T5 Ga/Gb X Ex tb IIIC T100 °C Db X IP67 -40°C ≤ TA ≤ +80°C IECEx: Ex d IIC T6 Ga/Gb Ex tb IIIC T85 °C Db XIP67 -40°C ≤ TA ≤ +65°C Ex d IIC T5 Ga/Gb Ex tb IIIC T100 °C Db IP67 -40°C ≤ TA ≤ +80°C
<b>Magnets, number (factory setting)</b>	1
<b>Magnets, number max.</b>	1

### Electrical connection

<b>Polarity reversal protected</b>	Ub up to 36 V
<b>Short-circuit protection</b>	to GND and to 36 V DC

### Electrical data

<b>Current consumption max. at 24 V DC</b>	120 mA
<b>Inrush current</b>	≤ 500 mA/10 ms
<b>Load resistance RL max.</b>	500 Ohm
<b>Operating voltage Ub</b>	10...30 VDC
<b>Output signal adjustable</b>	using programming inputs
<b>Overvoltage protection</b>	Ub up to 36 V
<b>Switch-on delay max.</b>	nnnn < 1525: 600 ms nnnn ≥ 1525: 1000 ms
<b>Voltage-proof up to (GND to housing)</b>	500 V AC

### Environmental conditions

<b>Ambient temperature</b>	-40...80 °C
<b>EN 55016-2-3, Radiation</b>	For industrial and residential use
<b>EN 60068-2-27, Continuous shock</b>	100 g, 2 ms
<b>EN 60068-2-27, Shock</b>	100 g, 6 ms
<b>EN 60068-2-6, Vibration</b>	12 g, 10...2000 Hz
<b>EN 61000-4-2, ESD</b>	Severity Level 3
<b>EN 61000-4-3, RFI</b>	Severity Level 3
<b>EN 61000-4-4, Burst</b>	Severity Level 3
<b>EN 61000-4-5, Surge</b>	Severity Level 2
<b>EN 61000-4-6, High-frequency fields</b>	Severity Level 3
<b>EN 61000-4-8 Magnetic fields</b>	Severity Level 4
<b>Protection degree</b>	IP68
<b>Relative humidity</b>	≤ 90 %, non-condensing
<b>Storage temperature</b>	-40...90 °C
<b>Surface temperature max.</b>	85 °C
<b>Temperature coefficient typ.</b>	≤ 30 ppm/K at 50% of nominal stroke 500mm

### Functional safety

<b>MTTF (40 °C)</b>	90 a
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### Material

<b>Cable flame-resistant</b>	I = K, KA: IEC 60332-1
<b>Cable jacket, material</b>	I = K, KA: PUR
<b>Cover material</b>	Stainless steel (1.4301) Stainless steel (1.4305) Stainless steel (1.4571)
<b>Material flange</b>	Stainless steel (1.4404) Stainless steel (1.4429) Stainless steel (1.4435) Stainless steel (1.4571)
<b>Protection tube material</b>	Stainless steel (1.4571)

### Mechanical data

<b>Installation length from contact surface</b>	j = A: nnnn + 99 mm j = B: nnnn + 94 mm
<b>Pressure rating max.</b>	350 bar
<b>Pressure rating, note</b>	when installed in hydraulic cylinder
<b>Speed detectable max.</b>	10 m/s
<b>Tightening torque max.</b>	50 Nm

### Output/Interface

<b>Interface</b>	Analog, current
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Range/Distance

Linearity deviation	nnnn = 0050...0500: $\pm 50 \mu\text{m}$ nnnn = 0501...5500: $\pm 0.01\%$ FS nnnn > 5500: $\pm 0.02\%$ FS
Measuring length	25...7620 mm
Repeat accuracy	$\pm 10 \mu\text{m}$

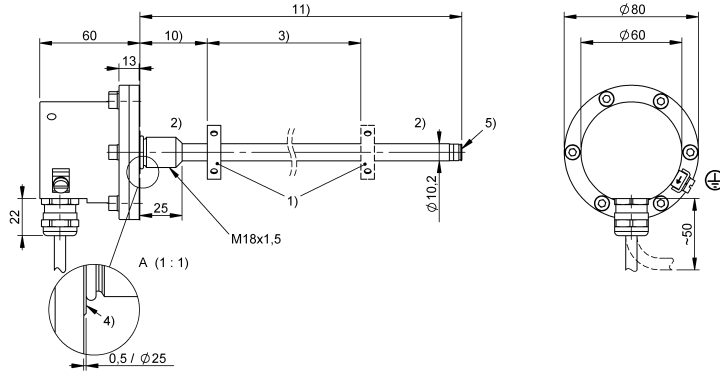
Sampling frequency max.

nnnn = 0050...0250: 4000 Hz
nnnn = 0251...0600: 2000 Hz
nnnn = 0601...1300: 1000 Hz
nnnn = 1301...2700: 500 Hz
nnnn = 2701...5500: 250 Hz
nnnn > 5500: 180 Hz

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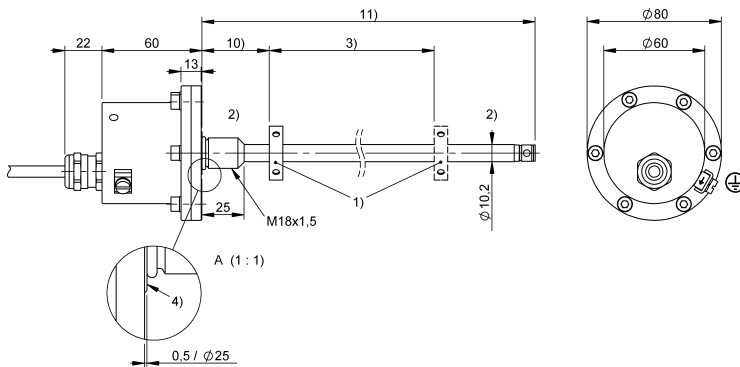
**BTL7-E500-Mxxxx-B-DEXB-K05**



colour	
YE	4...20 mA
GY	0 V
PK	10...0 V
RD	La
GN	0...10 V
BU	GND
BN	+24 V DC
WH	Lb

- 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

**BTL7-C570-Mxxxx-B-DEXA-KA05**



colour	
YE	20...0 mA
GY	0 V
PK	10...0 V
RD	La
GN	0...10 V
BU	GND
BN	+24 V DC
WH	Lb

- 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