



BTL7-abcd-Mnnnn-fg-i-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...M1016: for rod diameter 8 mm)

(M0025...M5500: for rod diameter 10.2 mm)

f Style

K = Compact rod, plug-in flange 18h6, for O-Ring

g Form factor characteristic

8 = Rod diameter 8 mm

- = Rod diameter 10.2 mm

i Variant

NEX = Ignition class "nA" and "tb"

l Connection type

SR = Connector

K = Cable out radial (PUR)

m Connection type characteristic 1

for connector:

32 = M16x0.75 connector with 8 pins

for cable (length in meters):

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

Magnetostrictive Sensors

BTL7 -K-NEX- Series - Analog current

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Electrical connection

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

Electrical data

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

Environmental conditions

Ambient temperature	-40...60 °C
Cable temperature, fixed routing	I = K: -40 °C ... 90 °C
Cable temperature, flexible routing	I = K: -5 °C ... 90 °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	I = S: IP67 with connector I = K: IP68
Relative humidity	≤ 90 %, non-condensing
Storage temperature	-20...70 °C
Surface temperature max.	135 °C
Temperature coefficient typ.	≤ 30 ppm/K at 50% of nominal stroke 500mm

Functional safety

MTTF (40 °C)	90 a
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General data

Approval/Conformity	CE CSA IECEX EAC WEEE
Ex marking	ATEX: II 3 G Ex nA IIC T4 Gc II 2 D Ex tb IIIC T135°C Db IP6x -40°C ≤ Ta ≤ +60°C EAC: 2Ex nA IIC T4 Gc X Ex tb IIIC T135 °C Db X -40 °C ≤ Ta ≤ +60 °C IECEX: Ex nA IIC T4 Gc Ex tb IIIC T135°C Db IP6x -40°C ≤ Ta ≤ +60°C NEC: NI: Class I, Division 2, Groups ABCD Class II, Division 2, Groups EFG T4 CAN: Class I, Zone 2, Ex nA IIC T4 Ex tb IIIC T135°C USA: Class I, Zone 2, AEx nA IIC Gc T4 AEx tb IIIC Db T135°C -40°C ≤ Ta ≤ +60°C
Magnets, number (factory setting)	1
Magnets, number max.	1

Material

Cable flame-resistant	I = K: IEC 60332-1
Cable jacket, material	I = K: PUR
Housing material	Stainless steel (1.4305)
Material flange	Stainless steel (1.4404) Stainless steel (1.4429) Stainless steel (1.4435) Stainless steel (1.4571)
Protection tube material	Stainless steel (1.4571)

Mechanical data

Installation length from contact surface	nnnn + 100 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.	3.5 Nm

Output/Interface

Interface	Analog, current
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Magnetostrictive Sensors

BTL7 -K-NEX- Series - Analog current



Range/Distance

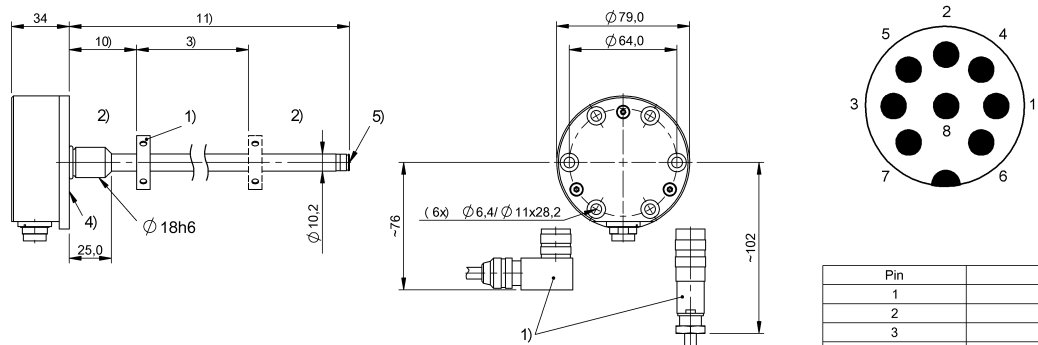
Linearity deviation	nnnn = 0050...0500: $\pm 50\ \mu\text{m}$ nnnn = 0501...5500: $\pm 0.01\%$ FS
Measuring length	25...5500 mm

Repeat accuracy

Sampling frequency max.

$\pm 10\ \mu\text{m}$
nnnn = 25...1300: 1000 Hz
nnnn = 1301...2700: 500 Hz
nnnn = 2701...5500: 250 Hz

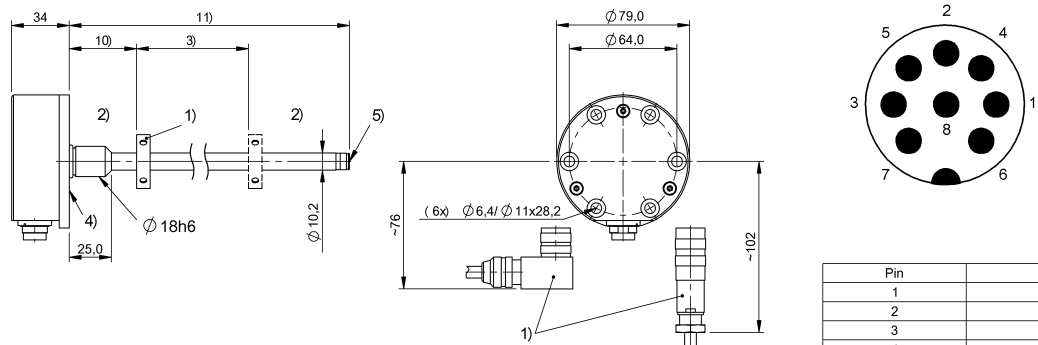
BTL7-E500-Mxxxx-K-NEX-SR32



Pin	
1	4...20 mA
2	0 V
3	10...0 V
4	La
5	0...10 V
6	GND
7	+24 V DC
8	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-K-NEX-SR32



Pin	
1	20...0 mA
2	0 V
3	10...0 V
4	La
5	0...10 V
6	GND
7	+24 V DC
8	Lb

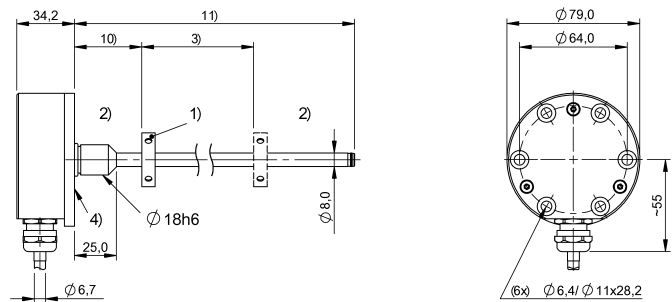
- 1) not included in scope of delivery
- 2) Non-usable area
- 3) Nominal length = Measuring length
- 4) Mounting surface
- 5) Internal threads M4x4/6 deep
- 10) Null point
- 11) Installation length

Magnetostrictive Sensors

BTL7 -K-NEX- Series - Analog current

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BTL7-E570-Mxxxx-K8-NEX-Kxx



colour	
YE	20...4 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
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- 10) Null point
- 11) Installation length