



BTL7-abcd-Mnnnn-fh-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

04 = 1 output rising, configurable

05 = 1 output falling, configurable

Mnnnn Nominal length (4-position)

M0500 = metric in mm

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

f Form factor

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

h Redundant

2 = 2 times redundant

3 = 3 times redundant

i Variant

NEX = Ignition class "nA" and "tb"

l Connection type

S = Connector

KA = Cable (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

Magnetostrictive Sensors

BTL7 -TB-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	150 mA per unit
Inrush current	≤ 500 mA/10 ms per unit
Load resistance RL max.	500 Ohm
Operating voltage Ub	10...30 VDC
Output signal adjustable	with software tool
Overvoltage protection	Ub up to 36 V
Switch-on delay max.	600 ms
Voltage-proof up to (GND to housing)	500 V AC

Environmental conditions

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

Functional safety

MTTF	h = 2: 33 a h = 3: 17 a
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General data

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

Material

Cable flame-resistant	I = KA: IEC 60332-1
Cable jacket, material	I = KA: PUR
Cover material	Aluminum, Anodized
Housing material	Aluminum
Housing material, surface protection	Anodized
Material flange	Stainless steel (1.4404)
Protection tube material	Stainless steel (1.4571)

Mechanical data

Installation length from contact surface	nnnn + 90 mm
Pressure rating max.	nnnn = 25...2000: 600 bar nnnn > 2000: 300 bar
Pressure rating, note	when installed in hydraulic cylinder
Speed detectable max.	10 m/s
Tightening torque max.	100 Nm

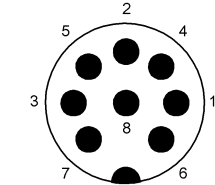
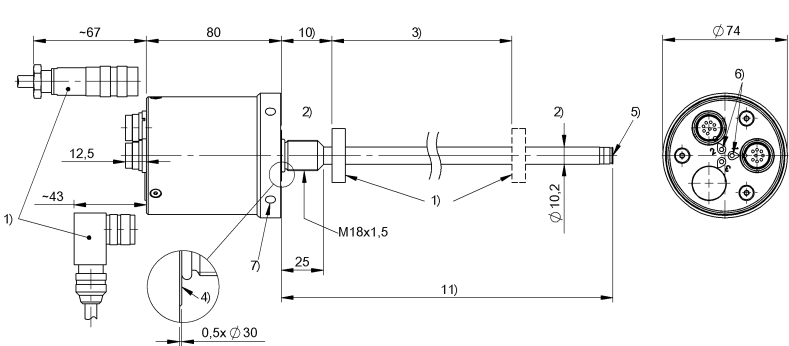
Output/Interface

Interface	Analog, current
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Range/Distance

Linearity deviation	nnnn = 0050...0500: ± 200 µm nnnn > 0500: ± 0.04% FS
Measuring length	25...7620 mm
Repeat accuracy	± 5 µm
Sampling frequency max.	nnnn = 0050...1200: 500 Hz nnnn = 1201...5000: 250 Hz nnnn = 0601...1300: 1000 Hz

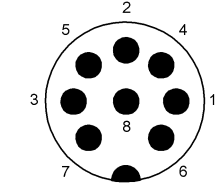
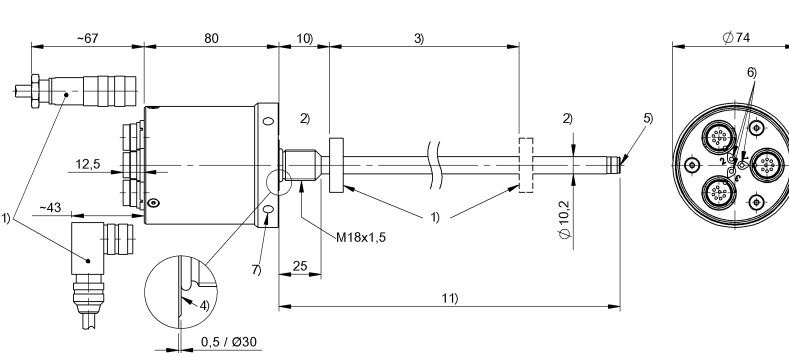
BTL7-E504-Mxxxx-TB2-NEX-S32



Pin	
1	4...20 mA
2	0 V
3	NC
4	La
5	NC
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
- 6) LED function indicator
- 7) Ø6.1 for hook wrench Ø74
- 10) Null point
- 11) Installation length

BTL7-C505-Mxxxx-TB3-NEX-S32



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

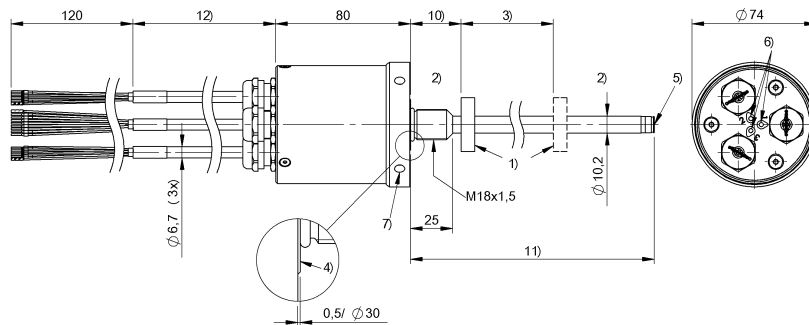
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BTL7 -TB-NEX- Series - Analog current

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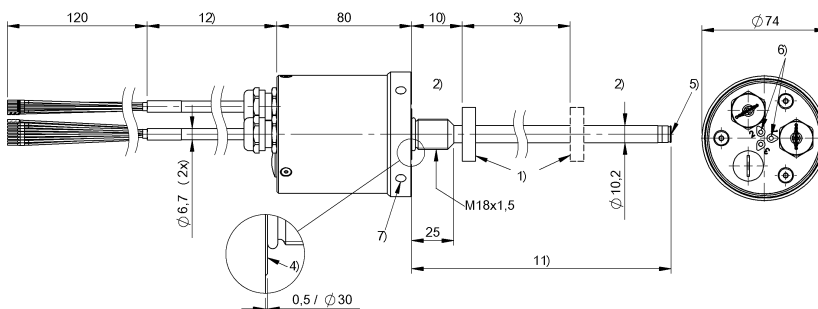
BTL7-E505-Mxxxx-TB3-NEX-KAxx



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

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- 12) Cable length

BTL7-C504-Mxxxx-TB2-NEX-KAxx



colour	
YE	0...20 mA
GY	0 V
PK	NC
RD	La
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BU	GND
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