

Magnetostrictive Sensors
BTL7 -TB- Series - Digital

BALLUFF

BTL7-abcd-Mnnnn-fh-lm



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
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 AC

Environmental conditions

Cable temperature, fixed routing	I = KA: -40 °C ... 90 °C I = FA: -40 °C ... 200 °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
Temperature coefficient typ.	≤ 30 ppm/K

Functional safety

MTTF	h = 2: 69 a h = 3: 39 a
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General data

Approval/Conformity	I = S, KA: CE + cULus + EAC + WEEE I = FA: CE + EAC + WEEE
Magnets, number max.	16 minimum separation between magnets 65 mm.

Material

Cable flame-resistant	I = KA, FA: IEC 60332-1
Cable jacket, material	I = KA: PUR I = FA: PTFE
Housing material, surface protection	Anodized
Protection tube material	Stainless steel (1.4571)

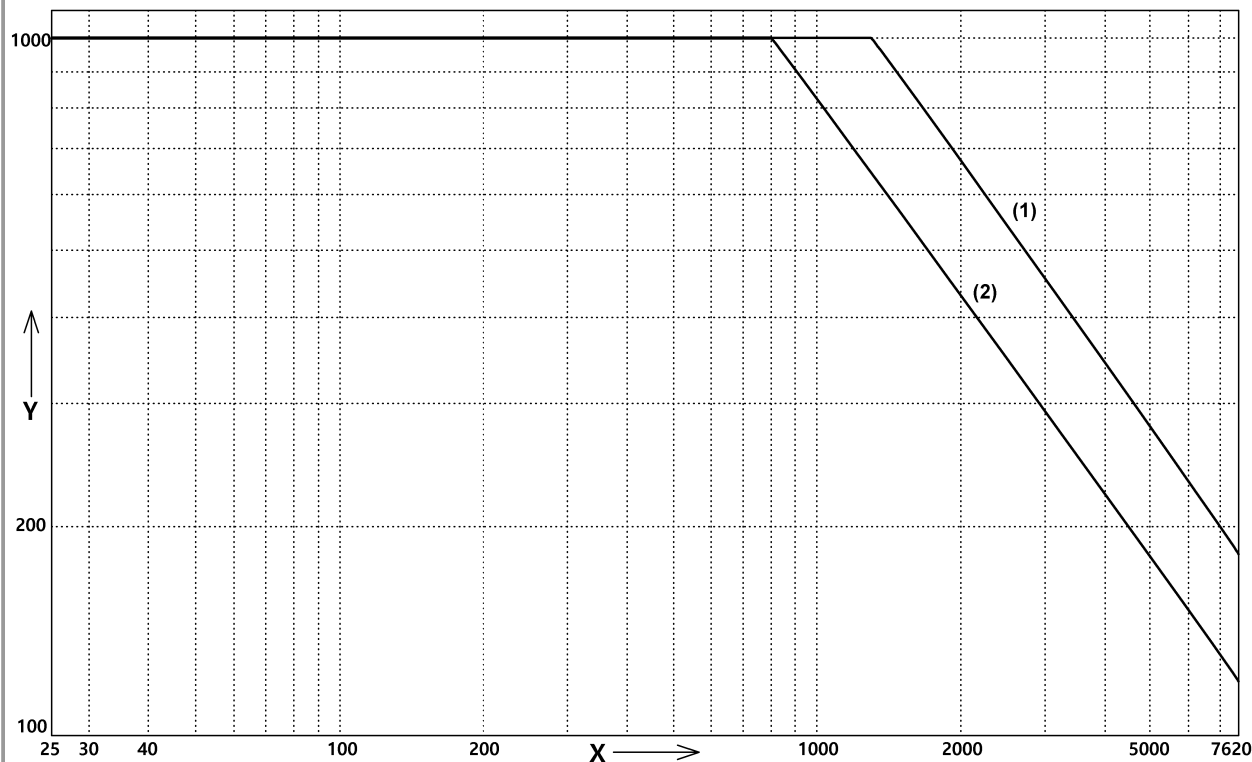
Mechanical data

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

Range/Distance

Linearity deviation	nnnn = 25...2000: ± 60 µm nnnn = 2001...5500: ± 200 µm nnnn > 5500: ± 0.04% FS
Null point	30 mm
Sampling frequency max.	See illustration for measuring frequency

Characteristic Diagram



fA,min: 62,5 Hz

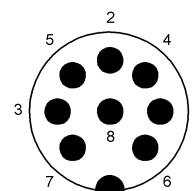
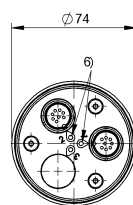
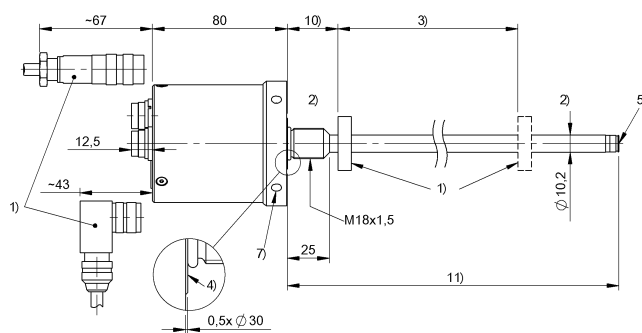
1) 1 magnet

2) 2...16 magnets

x: Nominal length [mm]

y: fA,max Hz

BTL7-P511-Mxxxx-TB2-S32



Pin	
1	+INIT
2	+START/STOP
3	-INIT
4	NC
5	-START/STOP
6	GND
7	10...30 V DC
8	NC

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

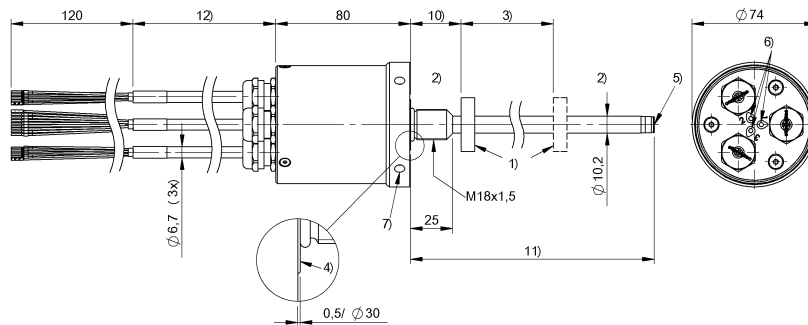
6) LED function indicator

7) Ø6.1 for hook wrench Ø74

10) Null point

11) Installation length

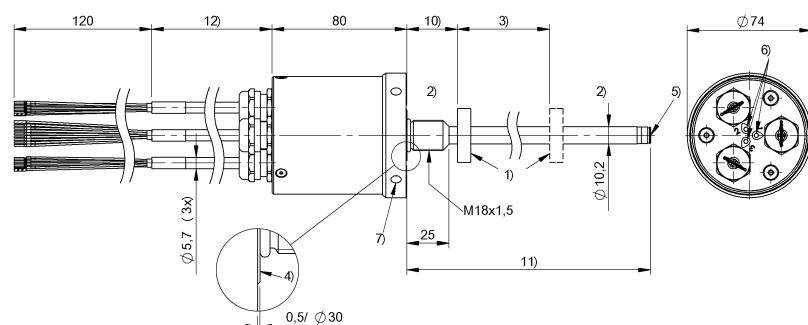
BTL7-P511-Mxxxx-TB3-KAxx



colour	
YE	+INIT
GY	+START/STOP
PK	-INIT
RD	NC
GN	-START/STOP
BU	GND
BN	10...30 V DC
WH	NC

- 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
- 12) Cable length

BTL7-P511-Mxxxx-TB3-FAxx



colour	
YE	+INIT
GY	+START/STOP
PK	-INIT
RD	NC
GN	-START/STOP
BU	GND
BN	10...30 V DC
WH	NC

- 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
- 12) Cable length