



BTL7-abcd-Mnnnn-fg-lm

BTL7

Magnetostrictive linear position sensor Generation 7

a Interface

A = Voltage output 0 ... 10 V

G = voltage output -10 ... 10 V

b Operating voltage

5 = 10 ... 30 V

c + d Interface characteristic 1 + 2

10 = 2 outputs, each 1 x rising/falling

Mnnnn Nominal length (4-position)

M0500 = metric in mm

(M0025...M1016: with 8 mm rod diameter)

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

f Form factor

H = Compact rod, mounting threads M18x1.5, for O-Ring

g Form factor characteristic

8 = Rod diameter 8 mm

- = Rod diameter 10.2 mm

l Connection type

S = Connector

K = Cable out radial (PUR)

KA = Cable out axial (PUR)

F = Cable out radial (PTFE)

FA = Cable out axial (PTFE)

m Connection type characteristic 1

for connector:

32 = M16x0.75 connector with 8 pins

115 = M12x1 connector with 8 pins

for cable (length in meters):

02, 05, 10, 15, 20, 30

Magnetostrictive Sensors

BTL7 -H- Series - Analog Voltage

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Basic features

Approval/Conformity	I = K, KA: CE + UKCA + cULus + WEEE I = F, FA: CE + UKCA + WEEE
Magnets, number (factory setting)	1
Magnets, number max.	1

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	100 mA
Inrush current	≤ 500 mA/10 ms
Operating voltage Ub	10...30 VDC
Output current max.	5 mA
Output current max.	5 mA
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...85 °C
Cable temperature, fixed routing	I = K, KA: -40 °C ... 90 °C I = F, FA: -40 °C ... 200 °C
Cable temperature, flexible routing	I = K, KA: -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, SR: IP67 with connector I = K, KA, F, FA: IP68
Relative humidity	≤ 90 %, non-condensing
Storage temperature	-40...100 °C
Temperature coefficient typ.	≤ 30 ppm/K at 50% of nominal stroke 500mm

Functional safety

MTTF (40 °C)	72 a
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Interface

Interface	Analog, voltage
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Material

Cable flame-resistant	I = K, KA, F, FA: IEC 60332-1
Cable jacket, material	I = K, KA: PUR I = F, FA: PTFE
Housing material	1.4305 stainless steel
Material flange	1.4404 stainless steel 1.4429 stainless steel 1.4435 stainless steel 1.4571 stainless steel
Protection tube material	1.4571 stainless steel

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.	100 Nm

Range/Distance

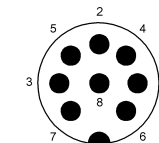
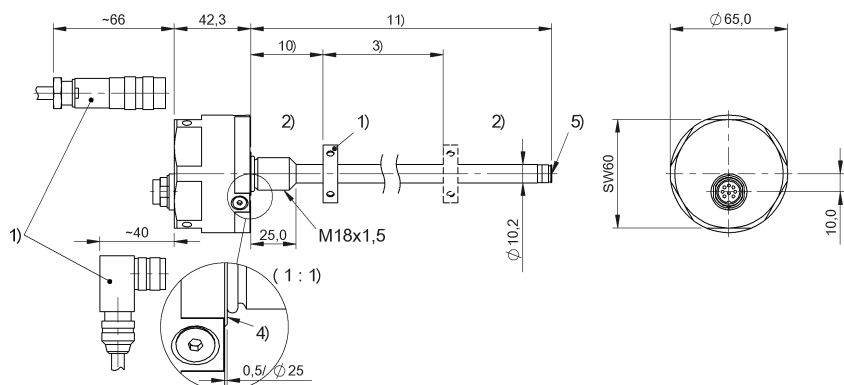
Linearity deviation	nnnn = 0050...0500: ± 50 µm nnnn = 0501...5500: ± 0.01% FS nnnn > 5500: ± 0.02% FS
Measuring length	25...7620 mm
Repeat accuracy	± 10 µm
Sampling frequency max.	nnnn = 0050...0250: 4000 Hz nnnn = 0251...0600: 2000 Hz nnnn = 0601...1300: 1000 Hz nnnn = 1301...2700: 500 Hz nnnn = 2701...5500: 250 Hz nnnn > 5500: 180 Hz

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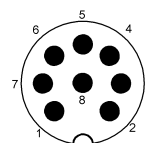
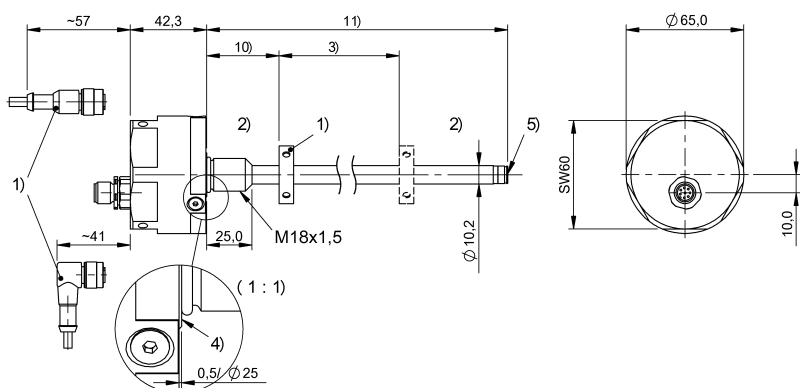
BTL7-A510-Mxxxx-H-S32



Pin	
1	NC
2	0V
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-G510-Mxxxx-H-S115



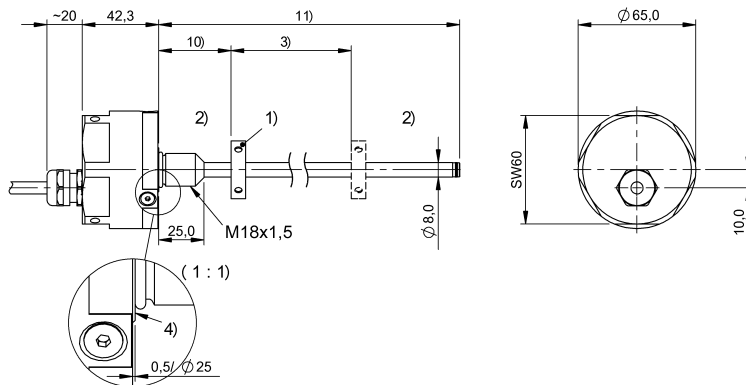
Pin	
1	0V (Pin 3)
2	0V (Pin 5)
3	10...-10 V
4	La
5	-10...10 V
6	GND
7	+24 V DC
8	Lb

- 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 -H- Series - Analog Voltage

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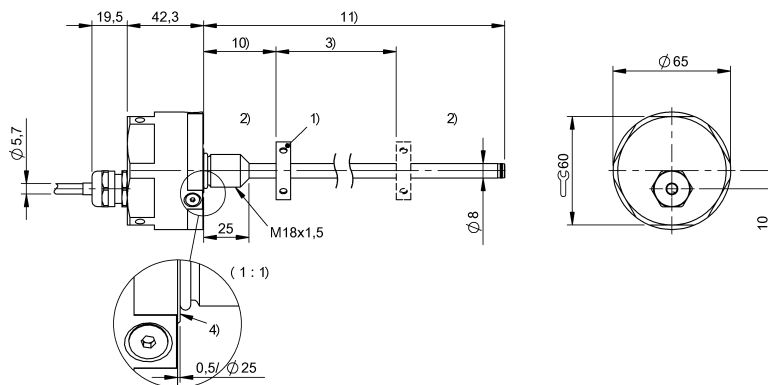
BTL7-A510-Mxxxx-H8-Kxx



colour	
YE	NC
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

BTL7-G510-Mxxxx-H8-FAxx



colour	
YE	NC
GY	0 V
PK	10...-10 V
RD	La
GN	-10...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