



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

01 = 2 outputs, each 1 x rising/falling settable/
programmable
00 = 1 output, rising
70 = 1 output, falling

Mnnnn Nominal length (4-position)

M0500 = metric in mm
(M0025...M7620: with 10.2 mm rod diameter)

f Form factor

J = Flange 18h6

i Variant

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

j Variant characteristic

C = float plug

l + m connection type + connection type characteristic 1

TA12 = Clamp with 1/2"-14 NPT (cable entry)

Magnetostrictive Sensors

BTL7 -J-DEXC- Series - Analog Current

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Basic features

Approval/Conformity	CE CSA IECEX WEEE UKCA CCC Ex
Ex marking	ATEX: II 1/2GD Ex db IIC T6 Ga/Gb Ex ta IIIC T85°C Da IP68 Tamb -50°C to +70°C II 1/2GD Ex db IIC T5 Ga/Gb Ex ta IIIC T100°C Da IP68 Tamb -50°C to +80°C IECEX: Ex db IIC T6 Ga/Gb Ex ta IIIC T85°C Da IP68 Tamb -50°C to +70°C Ex db IIC T5 Ga/Gb Ex ta IIIC T100°C Da IP68 Tamb -50°C to +80°C NEC: Class I, Division 1, Groups ABCD Class II, Division 1, Groups EFG Class III Enclosure Type 4X/6P Class I, Zone 1, AEx d IIC T* Ga/Gb Ex d IIC T* Gb IP68 -50 °C to +70 °C (T6) or -50 °C to +80 °C (T5) PESO: Ex d IIC T6 Ga/Gb CCC: Ex db IIC T6/T5 Ga/Gb, Ex ta IIIC T85°C/T100°C Db Ex db IIC T6/T5 Ga/Gb, Ex ta IIIC T85°C/T100°C Da
Magnets, number (factory setting)	1
Magnets, number max.	cd ≠ 10: 1 cd = 10: 2

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	xyz ≠ E501: ≤ 150 mA xyz = E501: ≤ 180 mA
Inrush current	nrrn < 1525: ≤ 500 mA/10 ms nrrn ≥ 1525: ≤ 500 mA/25 ms
Load resistance RL max.	500 Ohm
Operating voltage Ub	10...30 VDC
Output signal adjustable	cd ≠ 01: Setting aid and programming inputs cd = 01: Setting aid and software tool
Overvoltage protection	Ub up to 36 V
Switch-on delay max.	nrrn < 1525: 600 ms nrrn ≥ 1525: 800 ms
Voltage-proof up to (GND to housing)	1000 V DC

Environmental conditions

Ambient temperature	-40...80 °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	IP68
Relative humidity	≤ 90 %, non-condensing
Storage temperature	-50...85 °C
Surface temperature max.	85 °C
Temperature coefficient typ.	≤ 30 ppm/K at 50% of nominal stroke 500mm

Functional safety

MTTF (40 °C)	58 a
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Interface

Interface	Analog, current
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Material

Material flange	1.4404 stainless steel
Protection tube material	1.4571 stainless steel

Mechanical data

Installation length from contact surface	nrrn + 128 mm
Pressure rating max.	600 bar
Pressure rating, note	when installed in hydraulic cylinder
Speed detectable max.	10 m/s
Tightening torque max.	3.5 Nm

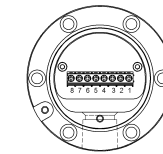
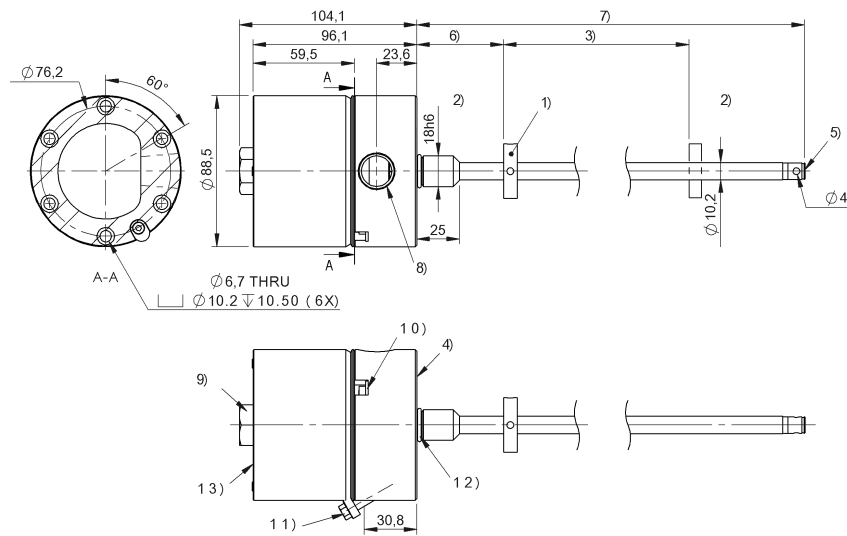
Range/Distance

Linearity deviation	nrrn = 0050...0500: ± 50 µm nrrn = 0501...5500: ± 0.01% FS nrrn > 5500: ± 0.02% FS
Measuring length	25...7620 mm
Repeat accuracy	± 5 µm
Sampling frequency max.	nrrn = 0050...0250: 4000 Hz nrrn = 0251...0600: 2000 Hz nrrn = 0601...1300: 1000 Hz nrrn = 1301...2700: 500 Hz nrrn = 2701...5500: 250 Hz nrrn > 5500: 180 Hz

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BTL7-E501-Mxxxx-J-DEXC-TA12



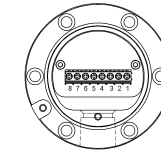
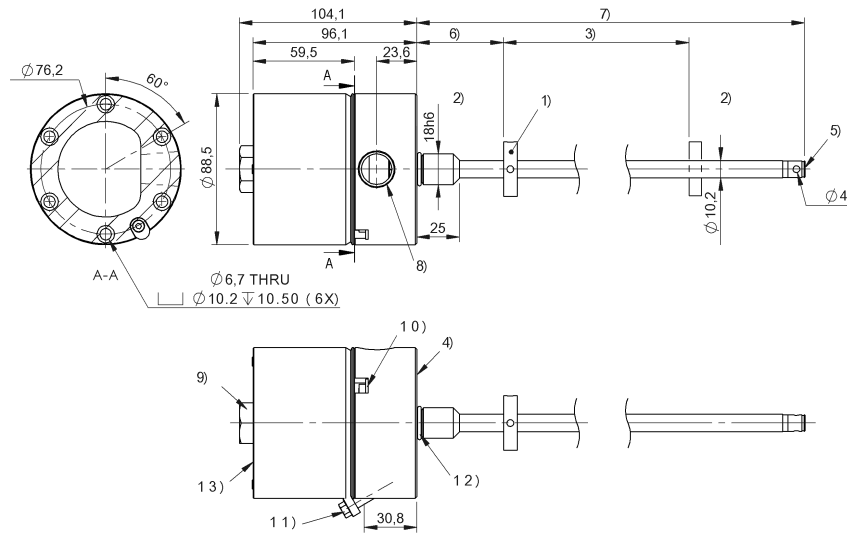
Pin	
1	4...20 mA
2	0V
3	20...4 mA
4	GND
5	+10...30 V DC
6	NC
7	La
8	Lb

- 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) Null point
- 7) Installation length
- 8) 1/2" - 14 NPT (cable entry)
- 9) 15/16" or 24 mm wrench
- 10) External Housing GND
- 11) Cover fastening screw
- 12) O-ring
- 13) Part label, metal

Magnetostrictive Sensors
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BTL7-E500-Mxxxx-J-DEXC-TA12



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Technical drawing of a 100 mm diameter cast iron flange with 6 holes. The drawing includes a front view, a side view, and a detail view of the flange face.

Front View (Top Left): Shows a circular flange with an outer diameter of $\varnothing 76.2$ and a central hole diameter of $\varnothing 88.5$. There are 6 holes arranged in a circle. The flange has a thickness of 104.1 mm. The distance between the center of the flange and the center of the holes is 96.1 mm. The distance between the center of the flange and the center of the mounting holes is 59.5 mm. The distance between the center of the flange and the center of the mounting holes is 23.6 mm. The flange has a 60° chamfer.

Side View (Top Right): Shows the flange with a thickness of 104.1 mm. The distance between the center of the flange and the center of the mounting holes is 96.1 mm. The distance between the center of the flange and the center of the mounting holes is 59.5 mm. The distance between the center of the flange and the center of the mounting holes is 23.6 mm. The flange has a 60° chamfer.

Detail View (Bottom Left): Shows a detail of the flange face. The detail view shows a 60° chamfer and a hole with a diameter of $\varnothing 6.7$ THRU. The detail view also shows a hole with a diameter of $\varnothing 10.2$ and a depth of 10.50 (6X).

Other Views: The drawing includes several other views showing the flange with mounting holes and a central hole. The views are labeled with callouts 1 through 13, indicating specific features and dimensions.

Pin	
1	20...4 mA
2	0V
3	NC
4	GND
5	+10...30 V DC
6	NC
7	La
8	Lb

- 5 / 5