

Magnetostrictive Sensors
BTL5 -J-DEXC- Series - Profibus

BALLUFF



BTL5-abcd-Mnnnn-fg-ij-lm

BTL5

Magnetostrictive linear position sensor Generation 5

a interface

T = Profibus

b Operating voltage

1 = 20 ... 28 V

c + d Interface characteristic 1 + 2

10 = 1 magnet (1 - 4 magnets can be set)

Mnnnn Nominal length (4-position)

M0500 = metric in mm

(M0050...M4000)

f Style

J = Flange 18h6

g Form factor characteristic

- = Rod diameter 10.2 mm

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)

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Electrical connection

Polarity reversal protected Ub up to 28 V

Electrical data

Current consumption max. at 24 V DC 120 mA
Inrush current $\leq 3 \text{ A}/0.5 \text{ ms}$
Operating voltage Ub 20...28 VDC
Output signal adjustable with software tool
Overvoltage protection Ub up to 28 V
Voltage-proof up to (GND to housing) 500 V DC

Environmental conditions

Ambient temperature -40...80 °C
EN 55016-2-3, Radiation Industrial areas
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 $\leq 90 \%$, non-condensing
Storage temperature -50...100 °C
Temperature coefficient typ. $\leq 35 \text{ ppm/K}$ at 50% of nominal stroke 500mm

Functional safety

MTTF (40 °C) 59 a

General data

Approval/Conformity CE
CSA
IECEEx
EAC
WEEE

Ex marking ATEX: II 1/2GD Ex d IIC T6 Ga/
Gb Ex t IIIC T85 °C Da IP68 -50 °C $\leq \text{Ta} \leq +65 \text{ °C}$
II 1/2GD Ex d IIC T5 Ga/Gb Ex t IIIC T100°C Da IP68 -50 °C $\leq \text{Ta} \leq +80 \text{ °C}$
EAC: 1 Ex d IIC T6 Ga/Gb X Ex ta IIIC T85°C Da X -20°C $\leq \text{Ta} \leq +65 \text{ °C}$
1 Ex d IIC T5 Ga/Gb X Ex ta IIIC T100°C Da X -20°C $\leq \text{Ta} \leq +80 \text{ °C}$
IECEEx: Ex d IIC T6 Ga/Gb Ex t IIIC T85 °C Da IP68 Tamb -50 °C to +65 °C
Ex d IIC T5 Ga/Gb Ex t 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 +65°C (T6) or -50°C to +80°C (T5)

Magnets, number max. 4
minimum separation between magnets 65 mm.

Material

Housing material Stainless steel (1.4404)
Protection tube material Stainless steel (1.4571)

Mechanical data

Installation length from contact surface nnnn + 128 mm
Pressure rating max. 600 bar
Pressure rating, note when installed in hydraulic cylinder
Tightening torque max. 3.5 Nm

Output/Interface

Interface Profibus

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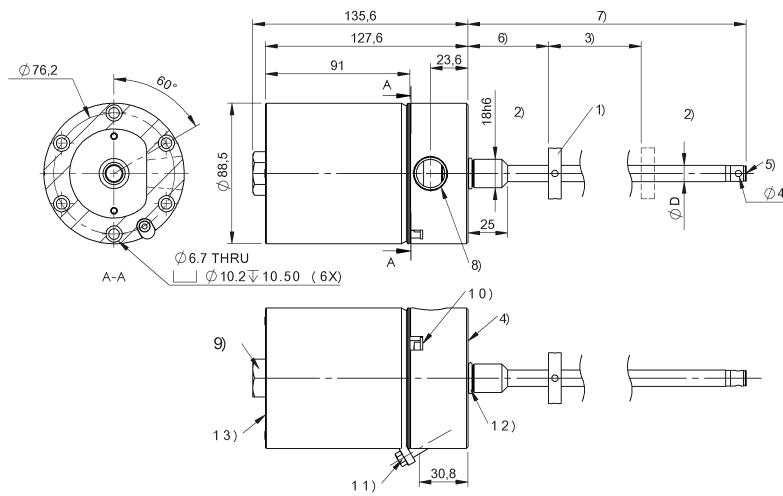


Range/Distance

Linearity deviation $\pm 30 \mu\text{m}$

Measuring length 25...4000 mm
Repeat accuracy $\pm 2 \text{ LSB}$
Sampling frequency max. 1 kHz, standard

BTL5-Txxx-Mxxxx-J-DEXC-TA12



PIN	
1	RxD/TxD-N
2	RxD/TxD-P
3	Data GND
4	GND
5	+24V DC
6	VP (+5 V Output)
7	NC
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) 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