



BTL5-ab-Mnnnn-fg-ij-lm

BTL5

Magnetostrictive linear position sensor Generation 5

a Interface

P = Digital pulse interface (falling edge stabilized)
M = Digital pulse interface (rising edge stabilized)

b Operating voltage

1 = 20 ... 28 V

Mnnnn Nominal length (4-position)

M0500 = metric in mm
(M0050...M4000)

f Form factor

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

g Form factor characteristic

- = Rod diameter 10.2 mm

i Variant

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

j Variant characteristic

A = float plug
B = short plug

l Connection type

K = Cable out radial (PUR)
KA = Cable out axial (PUR)

m Connection type characteristic 1

(length in meters)
02, 05, 10, 15, 20, 30

Magnetostrictive Sensors

BTL5 -B-DEX- Series - Digital

BALLUFF

Basic features

Approval/Conformity	CE UKCA IECEX KC WEEE
Ex marking	ATEX: II 1/2 G Ex db IIB + H2 T6 Ga/Gb -40 °C < Ta < +60 °C IECEX: Ex d IIB + H2 T6 Ga/Gb -40 °C < Ta < +60 °C KC: Ex d IIB + H2 T6
Magnets, number max.	4

Electrical connection

Polarity reversal protected	Ub up to 28 V
-----------------------------	---------------

Electrical data

Current consumption max. at 24 V DC	90 mA
Inrush current	≤ 3 A/0.5 ms
Operating voltage Ub	20...26 VDC
Output signal adjustable	no
Overvoltage protection	Ub up to 28 V
Voltage-proof up to (GND to housing)	500 V DC

Environmental conditions

Ambient temperature	-40...60 °C
Cable temperature, fixed routing	I = K, KA: -40 °C ... 90 °C
Cable temperature, flexible routing	I = K, KA: -5 °C ... 90 °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	IP67
Relative humidity	≤ 90 %, non-condensing
Storage temperature	-40...100 °C
Temperature coefficient typ.	≤ 35 ppm/K at 50% of nominal stroke 500mm

Functional safety

MTTF (40 °C)	100 a
--------------	-------

Interface

Interface	Start/Stop
-----------	------------

Material

Cable flame-resistant	I = K, KA: IEC 60332-1
Cable jacket, material	I = K, KA: PUR
Cover material	1.4301 stainless steel 1.4305 stainless steel 1.4571 stainless steel
Protection tube material	1.4571 stainless steel

Mechanical data

Installation length from contact surface	j = A: nnnn + 99 mm j = B: nnnn + 94 mm
Pressure rating max.	350 bar
Pressure rating, note	when installed in hydraulic cylinder
Speed detectable max.	10 m/s
Tightening torque max.	50 Nm

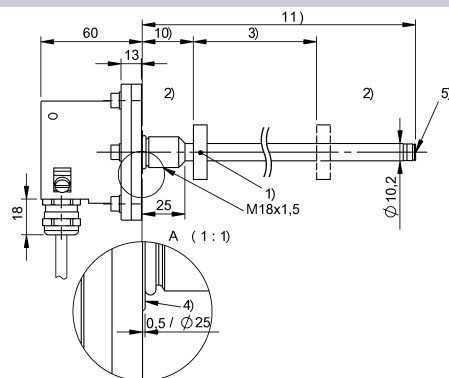
Range/Distance

Linearity deviation	nnnn = 0025...0500: ± 100 µm nnnn > 0500: ± 0.02% FS
Measuring length	25...4000 mm
Repeat accuracy	2 µm
Sampling frequency max.	nnnn = 0025...1000: 2000 Hz nnnn = 1001...2000: 1000 Hz nnnn > 2000: 500 Hz

Magnetostrictive Sensors
BTL5 -B-DEX- Series - Digital

BALLUFF

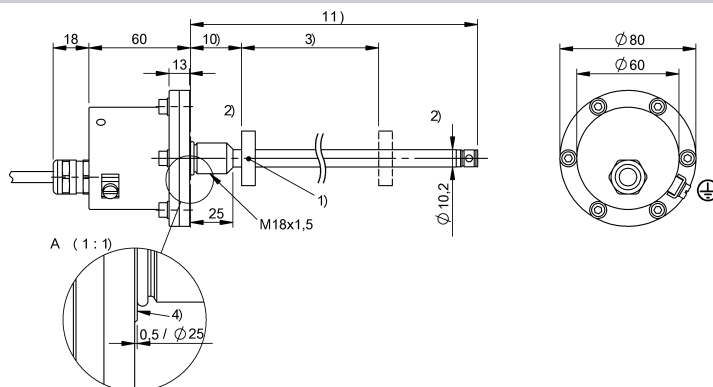
BTL5-Px-Mxxxx-B-DEXB-Kxx



colour	
YE	INIT
GY	START/STOP
PK	INIT
GN	START/STOP
BU	GND
BN	+24 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
- 10) Null point
- 11) Installation length

BTL5-Px-Mxxxx-B-DEXA-KAxx



colour	
YE	INIT
GY	START/STOP
PK	INIT
GN	START/STOP
BU	GND
BN	+24 V DC
WH	NC

- 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