



BTL5-abcde-Mnnnn-fg-ij-lm

BTL5

Magnetostrictive linear position sensor Generation 5

a Interface

S = SSI

b Operating voltage

1 = 20 ... 28 V

c Interface characteristic 1

0 = 24 bits, binary, rising
1 = 24 bits, gray, rising
2 = 24 bits, binary, falling
3 = 24 bits, gray, falling
6 = 25 bits, binary, rising
7 = 25 bits, gray, rising
8 = 25 bits, binary, falling
9 = 25 bits, gray, falling

d Interface characteristic 2

1 = 1 μ m
2 = 5 μ m
3 = 10 μ m
4 = 20 μ m
5 = 40 μ m
6 = 100 μ m
7 = 2 μ m
8 = 50 μ m

e Interface characteristic 3

B = Synchronous mode
- = Asynchronous mode

Mnnnn Nominal length (4-position)

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

f Form factor

Z = Inch threads 3/4"-16UNF, 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

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 (factory setting)	1
Magnets, number max.	1

Display/Operation

Error value	d = 1: all bits = 0 d = 7: all bits = 0 otherwise: only bits $2^{21} = 1$
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Electrical connection

Polarity reversal protected	Ub up to 28 V
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Electrical data

Current consumption max. at 24 V DC	90 mA
Inrush current	$\leq 3 \text{ A}/0.5 \text{ ms}$
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	$\leq 90 \%$, non-condensing
Storage temperature	-40...100 °C
Temperature coefficient typ.	$\leq 35 \text{ ppm/K}$ at 50% of nominal stroke 500mm

Functional safety

MTTF (40 °C)	63 a
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Interface

Interface	SSI
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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

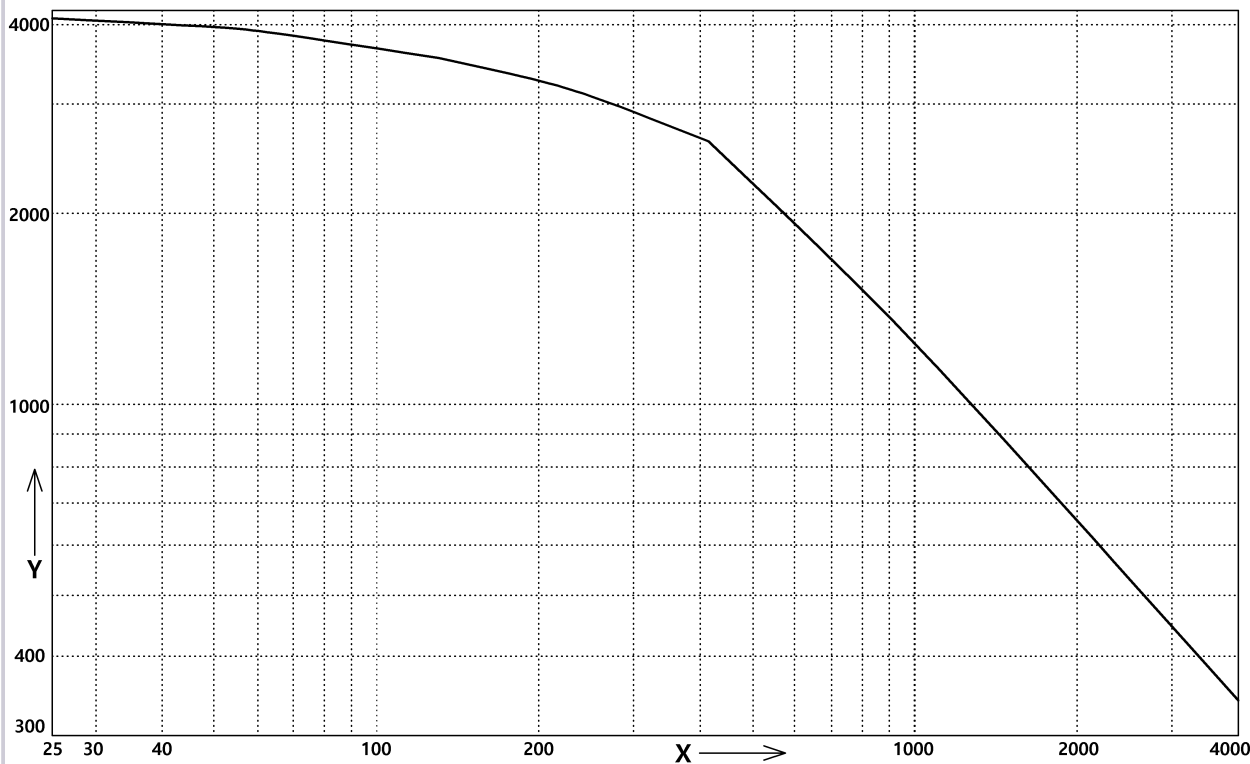
Mechanical data

Installation length from contact surface	j = A: nnnn + 120 mm j = B: nnnn + 115 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	d = 1, 2, 3, 7: nnnn = 25...4000: $\pm 30 \mu\text{m}$ d = 4, 5, 6, 8 nnnn = 25...4000: $\pm 2 \text{ LSB}$ 25...4000 mm $\pm 1 \text{ LSB}$ See illustration for measuring frequency
Measuring length	
Repeat accuracy	
Sampling frequency max.	

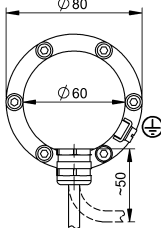
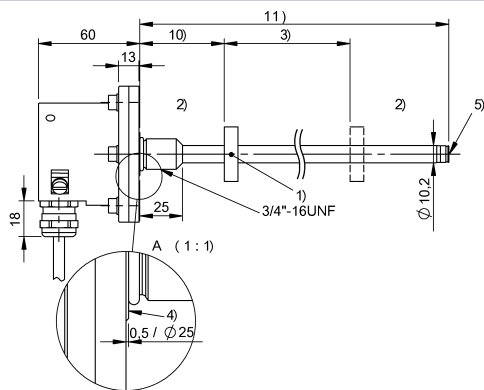
Characteristic Diagram



x: Nominal length [mm]

y: f_{A,max} Hz

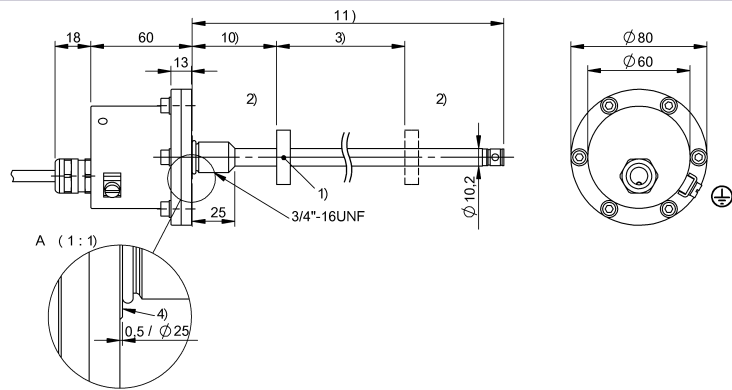
BTL5-Sxxxx-Mxxxx-Z-DEXB-Kxx



colour	
YE	+Clk
GY	+Data
PK	-Clk
GN	-Data
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

BTL5-Sxxxx-Mxxxx-Z-DEXA-KAxx



colour	
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