



BTL5-abcde-Mnnnn-fg-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 μm
2 = 5 μm
3 = 10 μm
4 = 20 μm
5 = 40 μm
6 = 100 μm
7 = 2 μm
8 = 50 μm

e Interface characteristic 3

B = Synchronous mode
- = Asynchronous mode

Mnnnn Nominal length (4-position)

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

f Form factor

W = Compact rod, threads 3/4"-16UNF, for O-Ring

g Form factor characteristic

8 = Rod diameter 8 mm
- = Rod diameter 10.2 mm

l Connection type

S = Connector, axial
SR = Connector, radial
K = Cable out radial (PUR)
KA = Cable out axial (PUR)

m Connection type characteristic 1

for connector:
32 = M16x0.75 connector with 8 pins

for cable (length in meters):
02, 05, 10, 15, 20

Basic features

Approval/Conformity	CE UKCA cULus WEEE
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	≤ 3 A/0.5 ms
Operating voltage Ub	20...28 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...75 °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	I = S: IP67 with connector I = K: IP68
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)	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
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

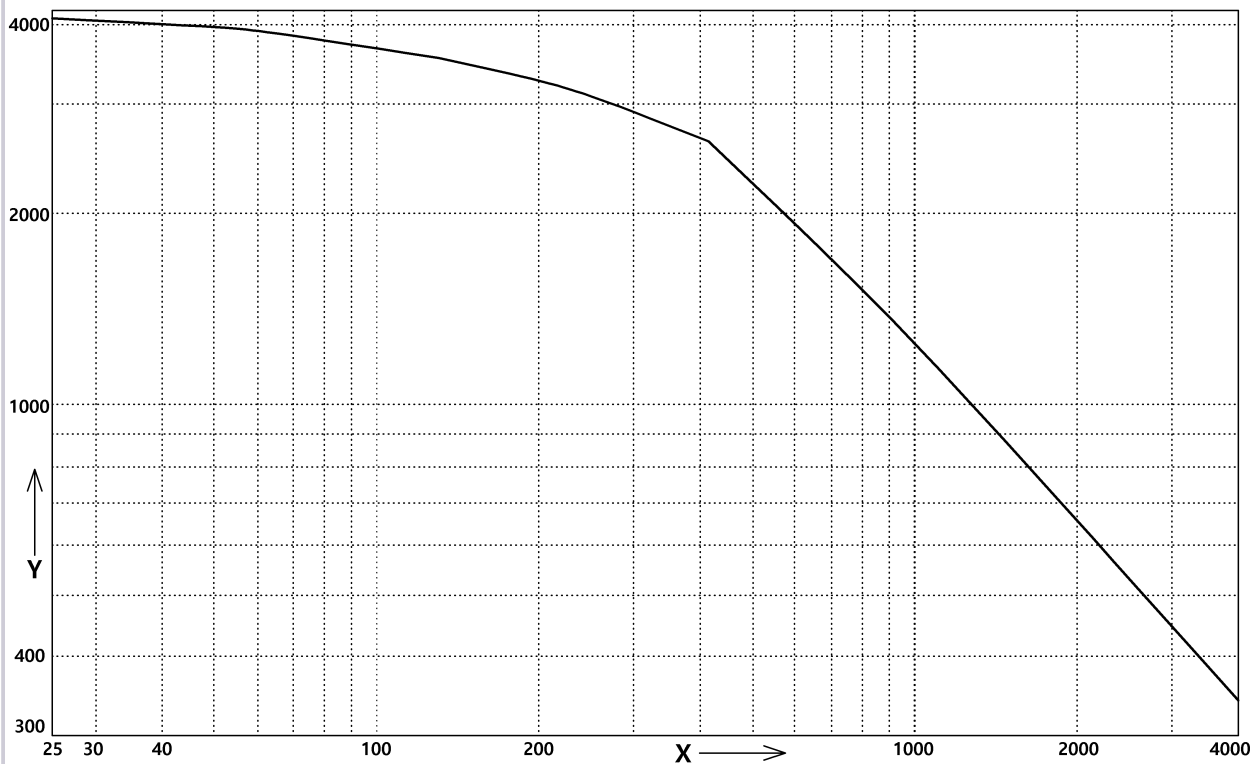
Mechanical data

Installation length from contact surface	nnnn + 111 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

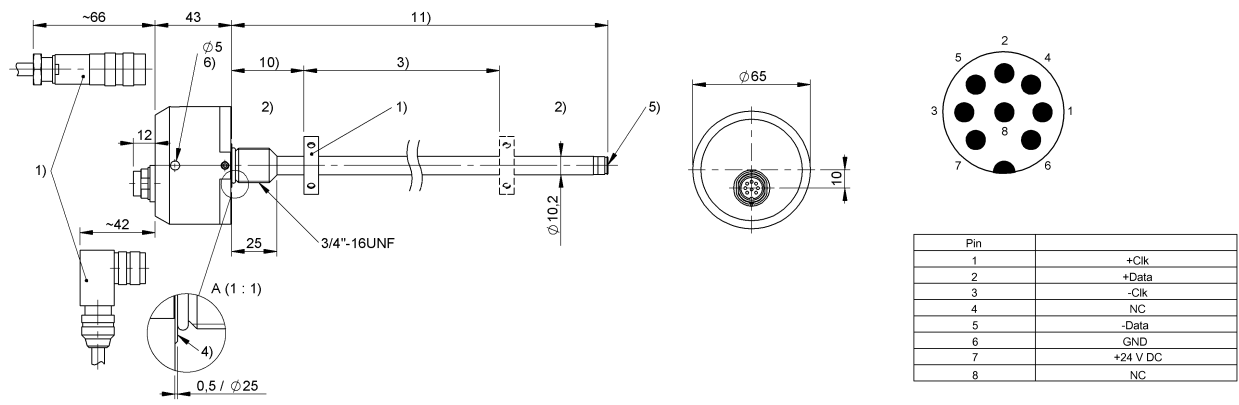
Linearity deviation	d = 1, 2, 3, 7: nnnn = 25...4000: ± 30µm d = 4, 5, 6, 8 nnnn = 25...4000: ± 2 LSB
Measuring length	25...4000 mm
Repeat accuracy	± 1 LSB
Sampling frequency max.	See illustration for measuring frequency

Characteristic Diagram



x: Nominal length [mm]
y: fA,max Hz

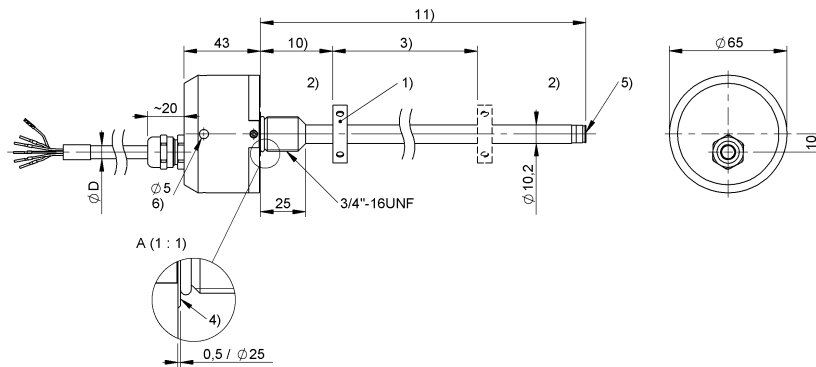
BTL5-Sxxxx-Mxxxx-W-S32



- 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) for C-spanner Ø 58-62
- 10) Null point
- 11) Installation length

Pin	
1	+Clk
2	+Data
3	-Clk
4	NC
5	-Data
6	GND
7	+24 V DC
8	NC

BTL5-Sxxxx-Mxxxx-W-KAxx



colour	
YE	+Clk
GY	+Data
PK	-Clk
GN	-Data
BU	GND
BN	+24 V DC
WH	NC

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