Magnetostrictive Sensors

BTL5 -W- Series - Digital

BTL5-ab-Mnnnn-fg-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
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

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Basic features

Approval/Conformity	CE UKCA cULus WEEE
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...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...85 °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)	100 a

Interface

Interface	Start/Stop

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

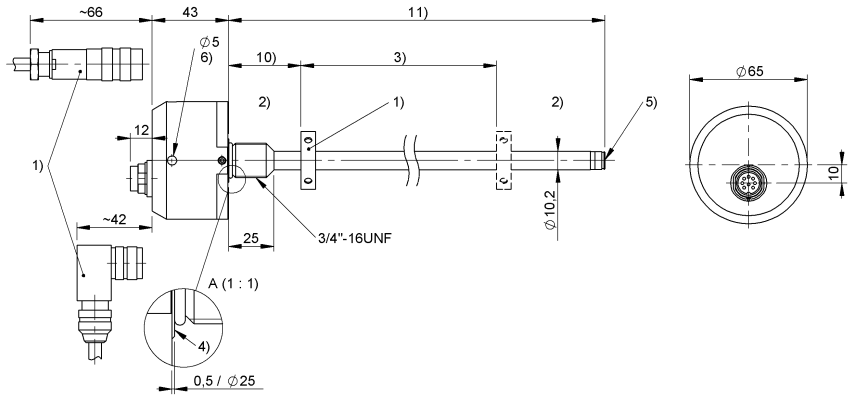
Mechanical data

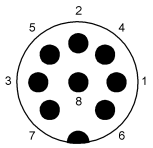
Installation length from contact surface	nnnn + 111 mm
Pressure rating max.	g ≠ 8: 600 bar g = 8: 250 bar
Pressure rating, note	when installed in hydraulic cylinder
Speed detectable max.	10 m/s
Tightening torque max.	100 Nm

Range/Distance

Linearity deviation	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

BTL5-P1-Mxxxx-W-S32

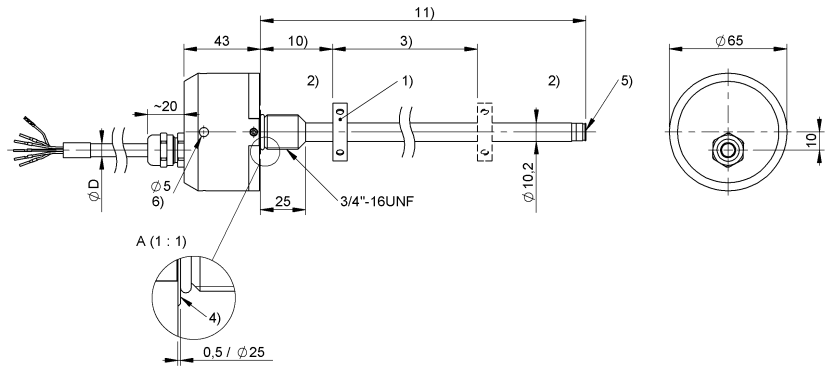




Pin	
1	INIT
2	START/STOP
3	$\overline{\text{INIT}}$
4	NC
5	$\overline{\text{START/STOP}}$
6	GND
7	+24 V DC
8	NC

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

BTL5-P1-Mxxxx-W-KAxx



colour	
YE	INIT
GY	START/STOP
PK	$\overline{\text{INIT}}$
GN	$\overline{\text{START/STOP}}$
BU	GND
BN	+24 V DC
WH	NC

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