

1) not included in scope of delivery, 2) Distance to tape, 3) Tape, 4) Cable length, 5) Active measurement surface



Basic features

Additional features 01	Reference signal, individually or fixed-periodic
Additional features 03	Real-time capable
Application	linear/rotary motion
Approval/Conformity	CE UKCA cURus WEEE
Measuring principle	incremental measuring system
Series	S1F

Electrical connection

Bending radius min., fixed cable	7.5 x D
Bending radius min., flexible cable	15 x D
Cable diameter D	4.9...5.2 mm
Cable length L	0.3 m, drag chain compatible
Conductor cross-section	0.08 mm ²
Connection	Cable with connector, M12x1-Male, 12-pin, 0.3 m, PUR
Connection type	Cable with connector, 0.3 m, PUR
Connection version	axial
Number of conductors	12
Polarity reversal protected	no
Protection against device mix-ups	no

Electrical data

Current consumption max. at 5 V DC	50 mA
Hysteresis H max.	2 µm
Operating voltage U_b	4.75...5.25 VDC
Overvoltage protection	no
Voltage-proof up to (GND to housing)	500 V DC

Environmental conditions

Altitude max.	2000 m
Ambient temperature	-20...80 °C
Cable temperature, drag chain	-25...85 °C
Cable temperature, fixed routing	-40...85 °C
Cable temperature, flexible routing	-25...85 °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 1
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
Ext. magnetic fields max., in operation	1 mT (no effect)
IP rating IEC 60529 (connector)	IP67
Overall system temperature coefficient	10.5 ppm/K
Relative humidity	≤ 90 %, non-condensing
Storage temperature	-30...85 °C

Magnetically Coded Sensors
BML-S1F1-Q61D-M310-P0-KA00,3-S284
Order Code: BML07PY

BALLUFF

Functional safety

MTTF (40 °C) 510 a

Interface

Differential signals yes
Error signal no
Interface Digital A/B (RS422)
Reference signal Individually or fixed-periodic
Signal sequence A before B = rising

Material

Cable flame-resistant UL94 V0 and IEC 60332/2
Housing material Aluminium
Material jacket PUR

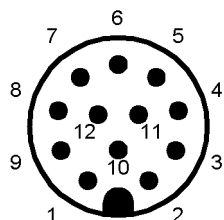
Mechanical data

Dimension 12 x 13.1 x 35 mm
Lateral offset (Y) ± 0.5 mm
Mounting part M4 thread
Pitch max. $\pm 1.0^\circ$
Pole width 1 mm
Procedure direction Lengthwise to tape
Roll max. $\pm 1.0^\circ$
Weight 21 g (excluding cable)
Yaw max. $\pm 1.0^\circ$

Range/Distance

Edge separation min. 21 μ s
Interpolation factor 1000
Non-linearity of sensor head, max. $\pm 2 \mu$ m
Read distance 0.01...0.35 mm
Repeat accuracy $\leq 1 \mu$ m
Resolution 1 μ m (edge separation A/B)
Traverse speed max. 0.026 m/s

Connector Drawings



Wiring Diagrams

Pin	
1	+A
2	-A
3	+B
4	-B
5	+Z
6	-Z

Pin	
7	GND
8	U_B
9	GND Sense
10	U_B Sense
11	NC
12	NC
Shield	PE