



1) not included in scope of delivery, 2) Distance to tape, 3) Tape, 4) Cable length, 5) Active measurement surface, 6) LED function indicator



Basic features

Additional features 01	Real-time capable
Additional features 02	Analog, sin/cos
Application	linear/rotary motion
Approval/Conformity	cURus CE UKCA WEEE
Measuring principle	absolute measuring system
Series	SL1

Electrical data

Current consumption max. at 24 V DC	70 mA
Hysteresis H max.	1 µm
Operating voltage U_b	10...30 VDC
Overvoltage protection	no
Periods	2 mm
Power consumption	≤ 1.4 W (no load)
Switch-on delay max.	100 ms
Voltage-proof up to (GND to housing)	500 V DC

Display/Operation

Function indicator	Green LED LED yellow LED red
--------------------	------------------------------------

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	5 m, drag chain compatible
Conductor cross-section	0.08 mm ²
Connection	Cable, 5 m, PUR
Connection type	Cable, 5 m, PUR
Connection version	axial
Number of conductors	12
Polarity reversal protected	yes

Magnetically Coded Sensors
BML SL1-ALZ1-S0ZZ-ABA1-KA05
Order Code: BML08F4

BALLUFF

Environmental conditions

Altitude max.	2000 m
Ambient temperature	-20...70 °C
Cable temperature, drag chain	-25...85 °C
Cable temperature, flexible routing	-25...85 °C
EN 55016-2-3, Radiation	Industrial areas
EN 60068-2-27, Continuous shock	150 g, 2 ms
EN 60068-2-27, Shock	100 g, 6 ms
EN 60068-2-6, Vibration	20 g, 10...2000 Hz
EN 60068-2-64, Noise	20 g, 5...2000 Hz
EN 61000-4-2, ESD	Severity Level 4
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 5
Ext. magnetic fields max., in operation	1 mT (no effect)
IP rating	IP67
Overall system temperature coefficient	10.5 ppm/K
Relative humidity	≤ 90 %, non-condensing
Storage temperature	-25...85 °C

Functional safety

MTTF (40 °C)	217 a
--------------	-------

Interface

Bits, number	32 Bit
Clock	RS422 differential signal
Count direction	rising
Cycle time min.	1 ms
Differential signals	yes
Error signal	yes
Interface	SSI Analog Sin/Cos (1 Vpp ± 0,35 V)
Interface coding	Binary
Real-time signals	Analog, sin/cos
SSI clock frequency max.	4 MHz
SSI clock frequency min.	100 kHz
SSI data	24x position 1x error bit 1x warnbit 6x CRC
Signal sequence	A before B = rising

Material

Cable flame-resistant	UL94 V0 and IEC 60332/2
Housing material	Die-cast zinc, nickel-plated, Chrome-plated
Housing material, surface protection	nickel-plated Chrome-plated
Material jacket	PUR

Mechanical data

Diameter min.	400 mm
Dimension	16 x 18.6 x 54 mm
Lateral offset (Y)	±1.5 mm
Mounting part	Through-hole 4.3 mm
Pitch max.	±0.5 °
Pole width	2 mm
Procedure direction	Lengthwise to tape
Roll max.	±0.5 °
Tangential offset (X) max.	±1 mm
Weight	50 g (excluding cable)
Yaw max. ±	1.0 °

Range/Distance

Interpolation factor	2048
Measuring range	8190 mm
Non-linearity of sensor head, max.	±5 µm
Optimal read distance	0.4 mm
Read distance	0.01...1.3 mm
Repeat accuracy	≤ 1 µm
Resolution	0.9765625 µm (1000/1024 µm)
Traverse speed max.	10 m/s

Wiring Diagrams (Schematic)

Color	Signal
WH	+B (+Cos)
BN	-B (-Cos)
GN	+Clk
YE	-Clk
GY	-DATA
PK	+DATA

Color	Signal
BU	GND
RD	V DC
BK	-A (-Sin)
VT	+A (+Sin)
GY-PK	PRESET
RD-BU	NC
TR	Shield