

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	Analog, sin/cos
Additional features 03	Real-time capable
Application	linear motion
Approval/Conformity	cURus CE UKCA WEEE
Measuring principle	absolute measuring system
Series	S1H

### Electrical data

Current consumption max. at 5 V DC	60 mA
Hysteresis H max.	2 $\mu$ m
Operating voltage $U_b$	4.75...5.25 VDC
Overvoltage protection	no
Periods	1 mm
Switch-on delay max.	100 ms
Voltage-proof up to (GND to housing)	500 V DC

### 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 <sup>2</sup>
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

### 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 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 IEC 60529 (connector)	IP67
Overall system temperature coefficient	10.5 ppm/K
Relative humidity	$\leq$ 90 %, non-condensing
Storage temperature	-30...85 °C

## Functional safety

MTTF (40 °C) 1177 a

## Interface

Bits, number 16 Bit  
 Clock RS422 differential signal  
 Count direction rising  
 Differential signals yes  
 Interface SSI  
 Analog Sin/Cos (1 Vpp ± 0,35 V)  
 Interface coding Gray  
 Preset configurable via software tool  
 Real-time signals Analog, sin/cos  
 SSI clock frequency max. 4 MHz  
 SSI clock frequency min. 0.1 MHz  
 SSI data 16x position  
 Signal sequence A before B = rising

## Material

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

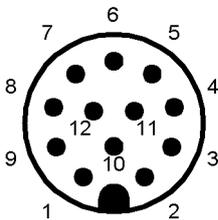
## Mechanical data

Dimension 14 x 13 x 40 mm  
 Lateral offset (Y) ±0.2 mm  
 Mounting part M4 thread  
 Pitch max. ±0.3 °  
 Pole width 1 mm  
 Procedure direction transverse to tape  
 Roll max. ±0.3 °  
 Weight 25 g (excluding cable)  
 Yaw max. ± 0.3 °

## Range/Distance

Interpolation factor 1024  
 Measuring range 64 mm  
 Non-linearity max. ±7 µm  
 Non-linearity of sensor head, max. ±2 µm  
 Read distance 0.01...0.35 mm  
 Repeat accuracy ≤ 1 µm  
 Resolution 0.9765625 µm (1000/1024 µm)  
 Traverse speed max. 7 m/s

## Connector Drawings



## Wiring Diagrams (Schematic)

Pin	
1	+B (+COS)
2	-B (-COS)
3	+Clk
4	-Clk
5	-DATA
6	+DATA

Pin	
7	GND
8	U <sub>B</sub>
9	-A (-SIN)
10	+A (+SIN)
11	GND Sense
12	U <sub>B</sub> Sense