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DATA SHEET

MPA-503THTP0

MPA
Cylinder sensors

SICK Sensor Intelligence

CYLINDER SENSORS

MPA-503THTP0

ORDERING INFORMATION

Type	part no.
MPA-503THTP0	1059464

Further device versions and accessories at www.sick.com/MPA

DETAILED TECHNICAL DATA

FEATURES

Cylinder type	Universal
Cylinder types with adapter	Round body cylinder Tie rod cylinder T-slot cylinders Festo cylinders DSBC SMC cylinders CP96
Measuring range	503 mm [1]
Housing length	505 mm
Output function	Analog, IO-Link
Electrical wiring	DC 4-wire
Analog output (voltage)	0 V ... 10 V
Analog output (current)	4 mA ... 20 mA [2]
Enclosure rating	IP65 [3] IP67 IP68
Adjustment	
Teach-in control panel	Teaching in the measuring range Selecting the current/voltage output or IO-Link Resetting the measuring range to factory settings
IO-Link	Teaching in the measuring range Resetting the measuring range
IO-Link functions	Standard functions

[1] ± 1 mm.

[2] Default setting: Current output active.

[3] According to EN 60529.

MECHANICS/ELECTRONICS

Supply voltage	15 V DC ... 30 V DC
Power consumption	35 mA, without load
Max. load resistance	≤ 500 Ω Power Output, at 24 V
Min. load resistance	≥ 2 kΩ [1]
Protection class	III
Required magnetic field sensitivity, typ.	2 mT ... 15 mT
Resolution, typ.	0.03 % FSR (max. ≥ 0.06 mm) [2] [3]
Linearity error, typ.	0.5 mm [4]
Repeat accuracy, typ.	0.06 % FSR (≥ 0.1 mm) [5]
Sampling rate, typ.	1.15 ms [6]
Reverse polarity protection	Yes
Short-circuit protection	Yes
Status indicator LED	Yes
Teach-in	Yes
Ambient operating temperature	–20 °C ... +70 °C
Shock and vibration resistance	30 g, 11 ms/10 Hz ... 55 Hz, 1 mm
EMC	According to EN 60947-5-2 [7]
Connection type	Cable with M8 male connector, 4-pin, 0.3 m
Connection type Detail	
Deep-freeze property	Do not bend below 0 °C
Conductor cross section	0.08 mm²
Cable diameter	Ø 2.6 mm
Bending radius	With fixed installation > 5 x cable diameter For flexible use > 10 x cable diameter
Cable outlet	Axial
Material	
Housing	Metal, Aluminum Plastic
Cable	PUR
UL File No.	NRKH.E181493 & NRKH7.E181493

[1] Voltage output.

[2] FSR: Full Scale Range; max. measuring range.

[3] When using IO-Link, the resolution is 0.25 mm.

[4] At 25 ° C, linearity error (maximum deviation) depending on response curve and minimal deviation function.

[5] At 25 ° C, repeatability magnet movement in one direction.

[6] Only in standard mode, not in IO-Link mode.

[7] The analog measured value can deviate under transient conditions.

SAFETY-RELATED PARAMETERS

$MTTF_D$	128 years
DC_{avg}	0 %
T_M (mission time)	20 years

COMMUNICATION INTERFACE

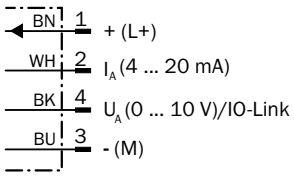
Communication interface	IO-Link V1.0.1
Communication Interface detail	COM2
Cycle time	2.3 ms

Process data length	16 Bit
Process data structure	Bit 0 ... 3 = reserved Bit 4 ... 5 = position (after decimal point) Bit 6 ... 15 = position (before decimal point)

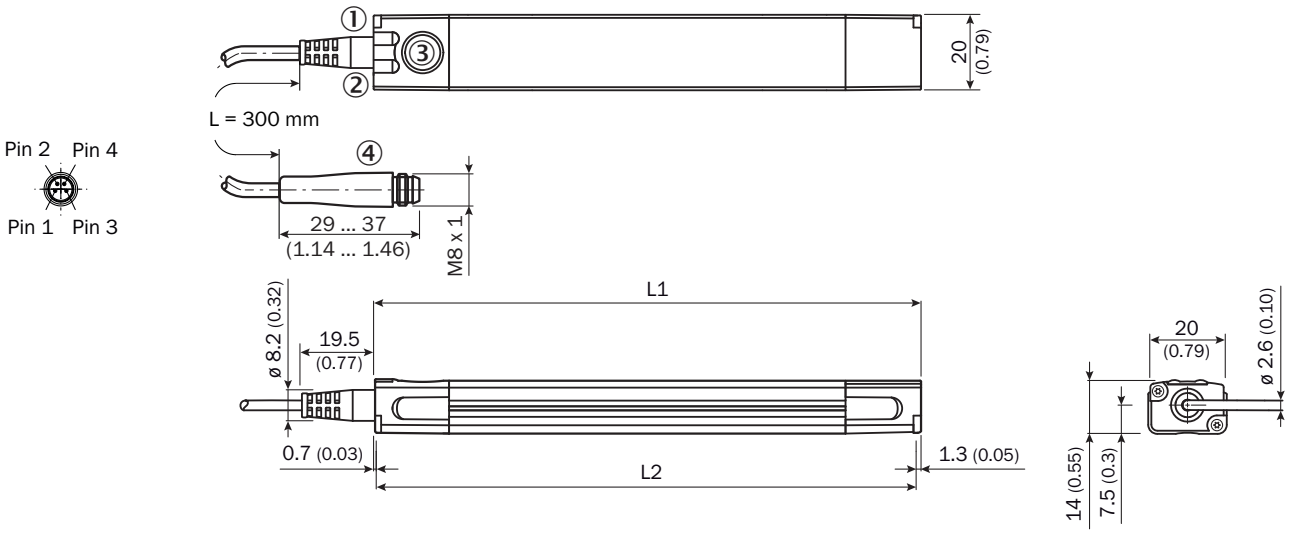
CERTIFICATES

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
China Compulsory Product Certification (CCC) exempt	✓
cULus certificate	✓
IO-Link certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

CONNECTION DIAGRAM CD-230



DIMENSIONAL DRAWING CABLE WITH M8 MALE CONNECTOR, 4-PIN



	Total length (L1) mm	Measuring range (L2) mm
MPA-107	109	107
MPA-143	145	143
MPA-179	181	179
MPA-215	217	215
MPA-251	253	251
MPA-287	289	287
MPA-323	325	323
MPA-359	361	359
MPA-395	397	395
MPA-431	433	431
MPA-467	469	467
MPA-503	505	503
MPA-539	541	539

	Total length (L1) mm	Measuring range (L2) mm
MPA-575	577	575
MPA-611	613	611
MPA-647	649	647
MPA-683	685	683
MPA-719	721	719
MPA-755	757	755
MPA-791	793	791
MPA-827	829	827
MPA-863	865	863
MPA-899	901	899
MPA-935	937	935
MPA-971	973	971
MPA-1007	1,009	1,007

Dimensions in mm (inch)
① Function signal indicator 1
② Function signal indicator 2
③ Teach-Pad
④ Connection

Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/1059464

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SICK AT A GLANCE

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SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

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