



MPA-503THTU0

MPA

POSITION SENSORS

SICK
Sensor Intelligence.



Ordering information

Type	Part no.
MPA-503THTUO	1059465

Other models and accessories → 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
IO-Link functions	Standard functions
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

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, 4-wire, 2 m
Connection type Detail	
Deep-freeze property	Do not bend below 0 °C
Conductor cross section	0.08 mm ²
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

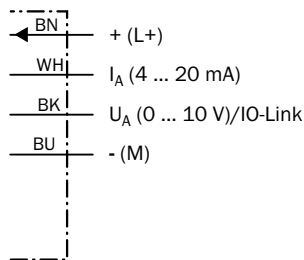
Communication interface	IO-Link V1.0.1
Communication Interface detail	COM2
Cycle time	2.3 ms
Process data length	16 Bit
Process data structure	Bit 0 ... 3 = reserved Bit 4 ... 5 = position (after decimal point) Bit 6 ... 15 = position (before decimal point)

Classifications

eCl@ss 5.0	27270104
eCl@ss 5.1.4	27270104
eCl@ss 6.0	27270104
eCl@ss 6.2	27270104
eCl@ss 7.0	27270104
eCl@ss 8.0	27270104
eCl@ss 8.1	27270104
eCl@ss 9.0	27270104
eCl@ss 10.0	27270104
eCl@ss 11.0	27270104
eCl@ss 12.0	27274301
ETIM 5.0	EC002544
ETIM 6.0	EC002544
ETIM 7.0	EC002544
ETIM 8.0	EC002544
UNSPSC 16.0901	39122230

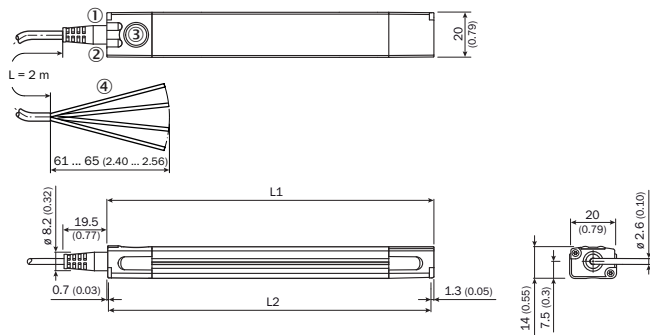
Connection diagram

Cd-354



Dimensional drawing (Dimensions in mm (inch))

Cable











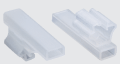
	Total length (L1) mm	Measuring range (L2) mm		Total length (L1) mm	Measuring range (L2) mm
MPA-107	109	107	MPA-575	577	575
MPA-143	145	143	MPA-611	613	611
MPA-179	181	179	MPA-647	649	647
MPA-215	217	215	MPA-683	685	683
MPA-251	253	251	MPA-719	721	719
MPA-287	289	287	MPA-755	757	755
MPA-323	325	323	MPA-791	793	791
MPA-359	361	359	MPA-827	829	827
MPA-395	397	395	MPA-863	865	863
MPA-431	433	431	MPA-899	901	899
MPA-467	469	467	MPA-935	937	935
MPA-503	505	503	MPA-971	973	971
MPA-539	541	539	MPA-1007	1,009	1,007

- ① Function signal indicator 1
- ② Function signal indicator 2
- ③ Teach-Pad
- ④ Connection

Recommended accessories

Other models and accessories → www.sick.com/MPA

	Brief description	Type	Part no.
Magnets			
	Magnet with mounting hole for M3 countersunk screw, Ø 15.2 mm, height 6 mm	Magnet	5327349
Brackets for cylinder sensors			
	Sensor adapter DSBC-32, Stainless steel V2A	BEF-KHZPF032MPA	2086744
	Sensor adapter DSBC-40, Stainless steel V2A	BEF-KHZPF040MPA	2086745
	Sensor adapter DSBC-50, Stainless steel V2A	BEF-KHZPF050MPA	2086746
	Sensor adapter DSBC-63, Stainless steel V2A	BEF-KHZPF063MPA	2086747
	Sensor adapter DSBC-80, Stainless steel V2A	BEF-KHZPF080MPA	2086748
	Sensor adapter DSBC-100, Stainless steel V2A	BEF-KHZPF100MPA	2086749
	Sensor adapter DSBC-125, Stainless steel V2A	BEF-KHZPF125MPA	2086750
	For tie-rod cylinder (diameter tie-rod max. 18 mm), Aluminum alloy (adapter), Stainless steel V2A (mounting-/fixing screw)	BEF-KHZPZ1MPA	2065578

	Brief description	Type	Part no.
	For round body cylinders with diameter up to 85 mm, Stainless steel V2A	BEF-KHZR085MPA	2066626
	For round body cylinders with diameter up to 135 mm, Stainless steel V2A	BEF-KHZR135MPA	2066627
	For round body cylinders with diameter up to 210 mm, Stainless steel V2A	BEF-KHZR210MPA	2066628
	Sensor adapter CP96-63, Stainless steel V2A	BEF-KHZTS063MPA	2086756
	Sensor adapter CP96-80, Stainless steel V2A	BEF-KHZTS080MPA	2086757
	Sensor adapter CP96-100, Stainless steel V2A	BEF-KHZTS100MPA	2086758
	Sensor adapter CP96-125, Stainless steel V2A	BEF-KHZTS125MPA	2086759
	For T-slot cylinders, Stainless steel V2A (bracket/mounting screw), Brass (fixing screw/sliding nut)	BEF-KHZT01MPA	2065575
Mounting brackets and plates			
	Bracket for low mounting, Stainless steel V2A (bracket/mounting screw), Brass (fixing screw)	BEF-WNLO1MPA	2065973
	Bracket for lateral mounting, Stainless steel V2A (bracket/mounting screw), Brass (fixing screw)	BEF-WNZ01MPA	2065577
Other mounting accessories			
	10 pieces, Label Holder, 2.5 mm to 3.5 mm, 10 pcs., TPU	LABEL HOLDER	2086019

SICK AT A GLANCE

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