



MAX48N-22V10AC0100

MAX48

LINEAR ENCODERS

SICK
Sensor Intelligence.



Illustration may differ

Ordering information

Type	Part no.
MAX48N-22V10AC0100	1222919

Other models and accessories → www.sick.com/MAX48



Detailed technical data

Safety-related parameters

MTTFd: mean time to dangerous failure	69 years (EN ISO 13849-1) ^{1) 2)}
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¹⁾ This product is a standard product and does not constitute a safety component as defined in the Machinery Directive. Calculation based on nominal load of components, average ambient temperature of electronic 60 °C, frequency of use 8760 h/a.

²⁾ Every second failure of an electronic component is regarded as a dangerous failure.

Performance

Measured values	Positioning
Measuring range	50 mm ... 100 mm
Unusable range	
Zeraset	30 mm
End point (attenuation)	36 mm
Switch-on time	< 250 ms
Measuring frequency (internal)	2 ms
Setting point (zero and end point of the piston stroke)	≤ 1 mm
Resolution	Typ. 0.1 mm (noise-free)
Hysteresis	± 0,1 mm
Linearity	± 0.04% F.S. (measuring range from 500 to 2,500 mm) ± 0.25 mm (measuring range 50 to 500 mm)
Temperature drift (warm-up phase)	≤ ± 0.25 mm
MTTFd	69 years (EN ISO 13849-1) ^{1) 2)}

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Interfaces

Electrical interface	Analog
Voltage signal	0.5 V DC ... 4.5 V DC

Electrical data

Connection type	Cable with male connector, M12, 4-pin, 80 mm
Supply voltage	24 V DC (8 ... 30 V DC)

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Residual ripple	< 1% S-S
Power consumption	≤ 1 W
Power consumption	≤ 40 mA
Load resistance	
	Voltage signal RL ≥ 10 kΩ
Switch-on current	5,0 A/ 50 μs
Over voltage protection	≤ 36 V DC at all poles
Insulation resistance	Riso ≥ 10 MΩ, 60 s
Dielectric strength	500 V DC (0 VDC against housing)
MTTFd	69 years (EN ISO 13849-1) ^{1) 2)}

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Mechanical data

Construction size	48 mm
Ø pressure pipe	10 mm
Ø O-ring	40.87 mm x 3.53 mm
Ø support ring	42.6 mm x 48 mm x 1.4 mm
Ø M12 flange	EN61076-2-101 construction DM 20x20 mm - hole pattern 14 mm
Ø cable	Ø 5.0 mm; 3 x 0.38 mm ² (AWG22), stripped
Pressure pipe material	Stainless steel 1.4306, AISI 304L
Electronics housing material	Stainless steel 1.4305, AISI 303
O-ring material	NBR 70
Supporting ring material	PTFE
M12 plug insert material	Glass fiber reinforced polyamide, nickel-/gold-plated brass contacts
M12 flange material	Nickel-plated brass with O-ring (NBR)

Ambient data

EMC	EU Directive 2014/30/EU CE marking EU Directive 2009/64/EU Agricultural machinery
Generic standards	According to EN 61000-6-2 and EN 61000-6-3
Agricultural and forestry machinery Construction machinery	ISO 14982 EN13307/ ISO 13766
Transient pulses	ISO 7637-2
ESD (air and contact discharge)	EN 61000-4-2, ISO/TR 10605 ¹⁾
Enclosure rating	IP67 (EN 60 529)
	Housing IP67 (EN 60 529)
	M12 male connector IP69k (ISO 20653)
Operating temperature range	-40 °C ... +105 °C
Ambient temperature (fluid)	-30 °C ... +95 °C
Permissible relative humidity	90 % (Condensation not permitted)
Storage temperature range	-20 °C ... +85 °C

¹⁾ For details of applied tests and descriptive standards, please see document 8021472.

Resistance to shocks	Fall test in acc. with IEC60068-2-31 100 g, 11 ms (Single shock in acc. with IEC60068-2-27) 50 g, 11 ms (Continuous shocks, 1,000 shocks per spatial axis in acc. with IEC 60068-2-27)
Resistance to vibration	20 g, 24 /h (IEC 60068-2-6) 18 g, 36 /h (IEC 60068-2-80) 20 g, 48 /h (IEC 60068-2-64)
Nominal operating pressure (P_N)	400 bar
Max. overload pressure during operation (P_N x 1.5)	480 bar
Max. test pressure in cylinder (P_N x 1.5)	600 bar

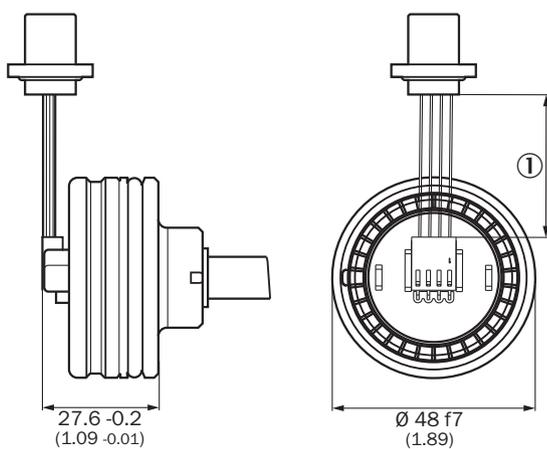
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Classifications

ECl@ss 5.0	27270705
ECl@ss 5.1.4	27270705
ECl@ss 6.0	27270705
ECl@ss 6.2	27270705
ECl@ss 7.0	27270705
ECl@ss 8.0	27270705
ECl@ss 8.1	27270705
ECl@ss 9.0	27270705
ETIM 5.0	EC002544
ETIM 6.0	EC002544
UNSPSC 16.0901	41111613

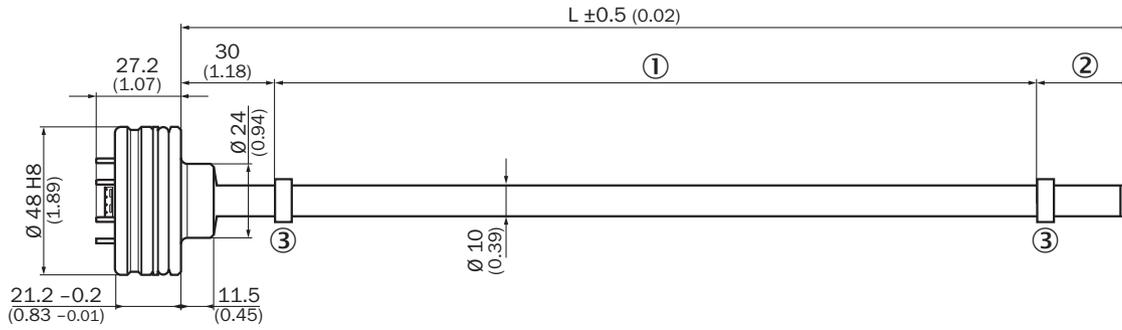
Dimensional drawing (Dimensions in mm (inch))

Male connector M12



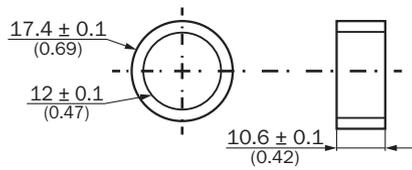
① Length of cable

MAX48



- ① Measuring range
- ② Damping
- ③ Position magnet

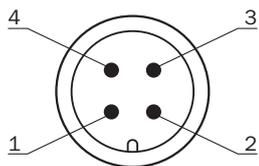
Position magnet



Type	Length of cable
MAX48N-xxxxxx1xxxx	300 mm
MAX48N-xxxxxx2xxxx	500 mm
MAX48N-xxxxxx3xxxx	750 mm
MAX48N-xxxxxx4xxxx	1000 mm
MAX48N-xxxxxx5xxxx	1500 mm
MAX48N-xxxxxx6xxxx	2000 mm
MAX48N-xxxxxx7xxxx	3000 mm
MAX48N-xxxxxx8xxxx	5000 mm
MAX48N-xxxxxx9xxxx	10000 mm

PIN assignment

PIN assignment A



- ① VDC
- ② N. C.
- ③ GND
- ④ Signal

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SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

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For us, that is “Sensor Intelligence.”

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