



MAX48C-A3PBDPF1580

MAX

MAGNETOSTRICTIVE LINEAR ENCODERS

SICK
Sensor Intelligence.



Illustration may differ

Ordering information

| Type | part no. |
|--------------------|----------|
| MAX48C-A3PBDPF1580 | 1106985 |

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

Detailed technical data

Features

| | |
|-------------------------------|-------------------------|
| Additional information | CAT® Part no.: 591-6927 |
|-------------------------------|-------------------------|

Safety-related parameters

| | |
|--|--|
| MTTF_D (mean time to dangerous failure) | 69 years (EN ISO 13849-1) ^{1) 2)} |
|--|--|

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 2nd failure of an electronic component is considered hazardous.

Performance

| | |
|-----------------------------------|--|
| Pressure pipe/End cap | 10 mm |
| Connection type | Male connector, M12, 4-pin |
| Direction of connection | Axial |
| Measuring range | |
| Measured values | Positioning |
| Position (F.S.) | 0 mm ... 1,580 mm ¹⁾ |
| Null zone | 30 mm |
| Damping zone | 70.5 mm |
| Operating conditions | |
| Air humidity | 90 % (Condensation not permitted) |
| Operating pressure P _N | 35 MPa |
| Supply voltage | 9 V DC (7 ... 11 V DC) |
| Switch-on time | < 150 ms |
| Switch-on current | Typ. ≤ 140 mA |
| Measuring frequency (internal) | 2 ms |
| Transmission rate (cycle time) | Type-dependent, according to PWM frequency |
| Accuracy | |
| Setpoint tolerance | Typ. ± 0.5 mm |
| Hysteresis | ± 0,1 mm |
| Repeatability | Typ. ± 0.2 mm |
| Linearity | ≤ ± 0.04% F.S. (min. ≤ ± 0.25 mm) |
| Temperature drift | |
| In the operational status | ≤ ± 0.04% F.S. (min. ≤ ± 0.25 mm) |

¹⁾ F.S. = Full Scale (Measuring range).

Interfaces

| | |
|--------------------------------|-------------|
| Communication interface | PWM |
| Puls width | 10% ... 90% |
| Frequency | 250 Hz |

Electronics

| | |
|--|--|
| Connection type | Male connector, M12, 4-pin |
| PIN assignment | 1=n.c.; 2=V DC; 3=GND; 4=SIG |
| Electrical operation | |
| Supply voltage | 9 V DC (7 ... 11 V DC) |
| Residual ripple | ≤ ± 5 % S-S |
| Current consumption | ≤ 50 mA |
| Overvoltage protection during power-up (60 s) | ≤ 36 V at all poles during power-up (60 s) |
| Reverse polarity protection | ≤ 16 (V DC - GND) |
| Insulation resistance | 24 V DC (housing) R _{ISO} ≥ 10 MΩ, 60 s |
| Dielectric strength | 0 V DC (60 s) to housing (R _{ISO} ≥ 1 MΩ) |
| Short-circuit protection | V _S – GND on housing |

Mechanics

| | |
|--------------------|--|
| Dimensions | |
| Housing | 48 mm, 48f7 for IN cylinder mounting – cylinder bore hole 48H8 |
| ∅ pressure pipe | 10 mm |
| ∅ O-ring | 40.87 mm x 3.53 mm ¹⁾ |
| ∅ support ring | 42.6 mm x 48 mm x 1.4 mm ²⁾ |
| M12 flange | M12 flange type L: DM 24x24 mm - hole pattern 17 mm (EN 61076-2-101) ³⁾ |
| Wire length | 110 mm |
| Material | |
| Housing | Stainless steel 1.4305 (AISI 303) |
| Pressure pipe | Stainless steel 1.4306, AISI 304L |
| O-ring | NBR 75 ¹⁾ |
| Support ring | PTFE |
| M12 male connector | Glass fiber reinforced polyamide, nickel-/gold-plated brass contacts |
| M12 flange | Nickel-plated brass with O-ring (NBR) ³⁾ |
| Strands | TPE |

¹⁾ Acc. to CAT® part number 118-8586.

²⁾ Acc. to CAT® part number 420-5767.

³⁾ Acc. to CAT® part number 435-3388 .

Ambient data

| | |
|-------------------------------------|--------------|
| EMC | |
| Agricultural and forestry machinery | EN ISO 14982 |

¹⁾ R. H. 55%.

²⁾ With suitable coupling (sealing through O-ring in M12 coupling nut).

| | |
|--|---|
| Transient pulses | ISO 7637-1/ISO 7637-2 |
| ESD (air and contact discharge) | ISO 61000-4-2 / ISO 10605 |
| Vibration | |
| Broadband noise (resonance peaks removed) | 20.4 g (r.m.s.), 6 h / spatial axis, 20 ... 2,000 Hz (acc. to CAT [®] EC1 V9.0 Profile 10) |
| Pressure load | |
| Operating pressure P_N | 35 MPa |
| Overload pressure $P_{max} = P_N \times 1.2$ | 42 MPa |
| Test pressure $P_{stat} = P_N \times 1.5$ | 53 MPa |
| Temperature and air humidity | |
| Storage | -20 °C ... +65 °C ¹⁾ |
| Operation (electronics) | -40 °C ... +120 °C |
| Maximum air humidity | 90 % (Condensation not permitted) |
| Enclosure rating | |
| Housing | According to CAT [®] "HOT DUNK TEST" |
| M12 male connector | IP69K (ISO 20653) ²⁾ |

¹⁾ R. H. 55%.

²⁾ With suitable coupling (sealing through O-ring in M12 coupling nut).

Classifications

| | |
|-----------------------|----------|
| ECLASS 5.0 | 27270705 |
| ECLASS 5.1.4 | 27270705 |
| ECLASS 6.0 | 27270705 |
| ECLASS 6.2 | 27270705 |
| ECLASS 7.0 | 27270705 |
| ECLASS 8.0 | 27270705 |
| ECLASS 8.1 | 27270705 |
| ECLASS 9.0 | 27270705 |
| ECLASS 10.0 | 27270705 |
| ECLASS 11.0 | 27270705 |
| ECLASS 12.0 | 27274304 |
| ETIM 5.0 | EC002544 |
| ETIM 6.0 | EC002544 |
| ETIM 7.0 | EC002544 |
| ETIM 8.0 | EC002544 |
| UNSPSC 16.0901 | 41111613 |

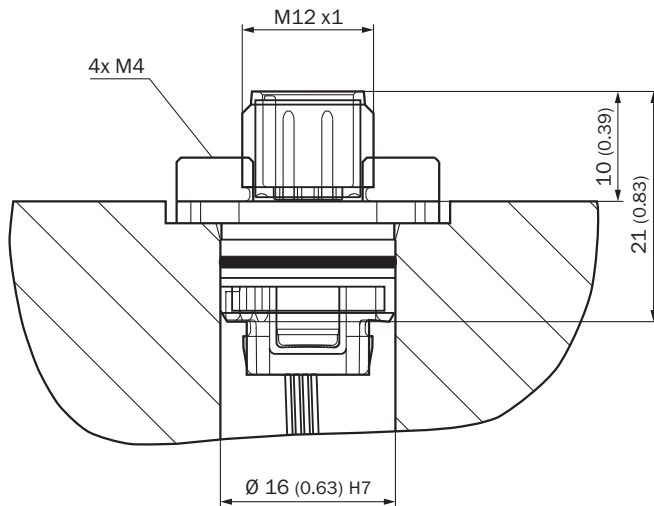
Dimensional drawing MAX48C



Dimensions in mm (inch)

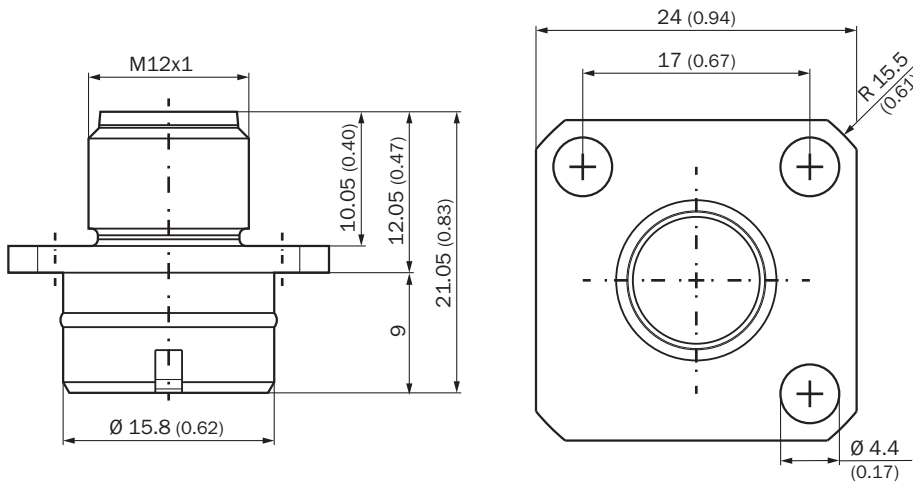
- ① Measuring range
- ② damping zone
- ③ wire length

Dimensional drawing M12 flange type L installation situation



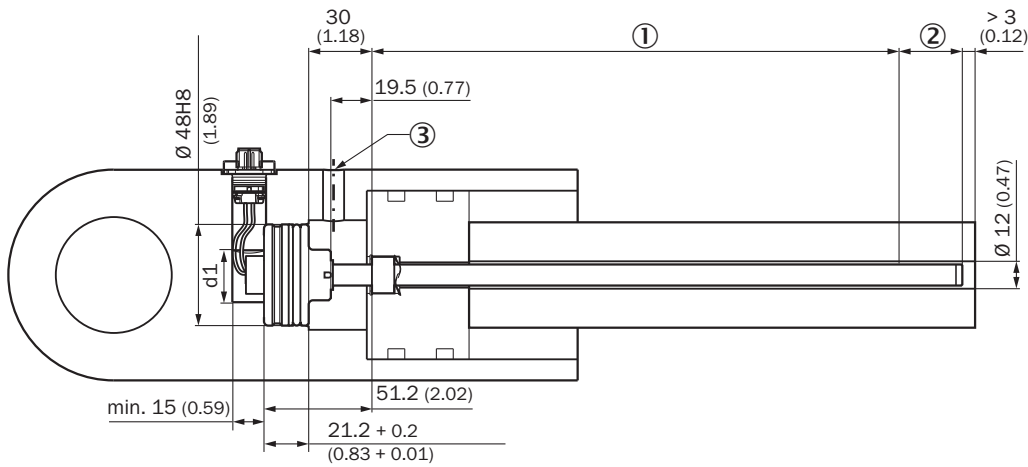
Dimensions in mm (inch)

Dimensional drawing M12 connector type L/ flange - radial seal



Dimensions in mm (inch)

Attachment specifications Installation space for cylinders



Please note the information in the operating instructions ($d: 32 \leq d1 \leq 40$).

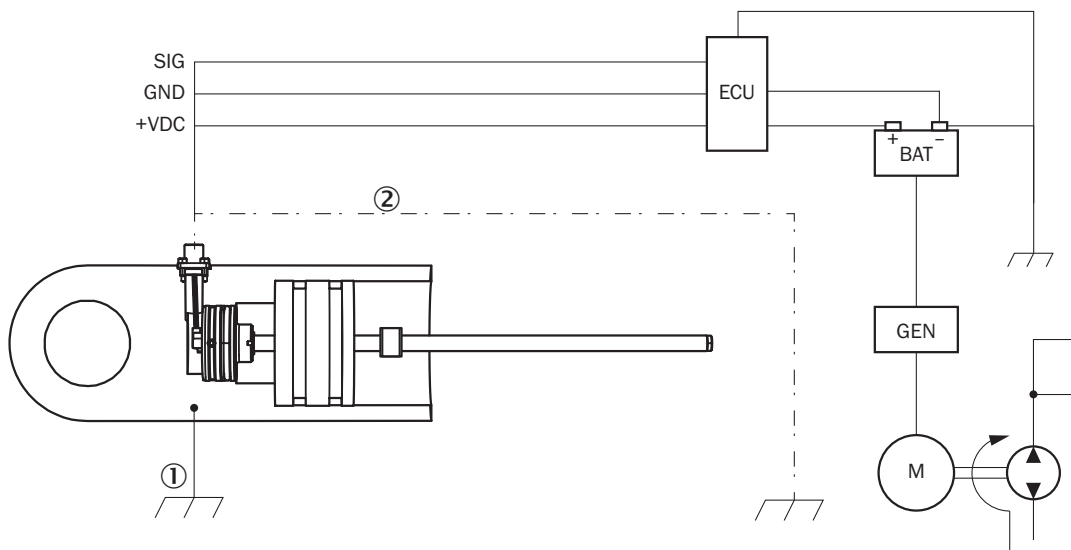
- ① Measuring range
- ② damping zone
- ③ Hydraulic port

Pin assignment P (type L)



- ① N.C.
- ② V DC
- ③ GND
- ④ Signal

Connection diagram



connection diagram

- ① Chassis GND
- ② Cable shielding (optional)

SICK AT A GLANCE

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