

TECHNICAL DATASHEET

Incremental Encoder M 14



GENERAL INFORMATION

- Ideal economical feedback device for servo and step motors
- Short axial length and compact 1.5 inch diameter
- Easy "snap-on" installation
- High resolution to 1024 lines/rev and 200 kHz bandwidth
- Max. output frequency: 200 kHz
- Replacement for HP 5540
- CE qualified



The type M14 of incremental optical encoders provides high performance feedback for precision motion control in a small, low cost package.

Its high performance, advanced features, and competitive pricing make it the encoder of choice for a broad range of applications.

The M14 optical encoder utilizes a patentpending ASIC that integrates all encoder electronics, including the optoelectronic sensors, which enhances reliability and accuracy.

Quadrature A and B channels with up to 1024 lines per revolution and reference pulse are output as single-ended TTL/CMOS compatible signals.

The M 14 can be used as drop-in replacement for HP 5540.

TECHNICAL DATA mechanical

| | |
|--|---|
| Housing diameter | 38 mm |
| Mounting depth | 17.2 mm |
| Shaft diameter | 3 mm / 4 mm / 5 mm / 6 mm / 8 mm / 0.1248" / 0.1873" / 0.2498" / 0.2501" / 0.3123" / 0.3748" / 3/4" (Hub shaft) |
| Hollow shaft tolerance | +0.010 / -0.000 mm |
| Axial endplay of mounting shaft (hubshaft) | ± 0.076 mm + 0.127 mm / - 0.076 mm + 0.178 mm / - 0.076 mm |
| Radial runout of mating shaft (hubshaft) | ± 0.0125 mm |
| Max. speed | max. 12 000 rpm |
| Moment of inertia | approx. 0.13 gcm ² |
| Operating temperature | -40 °C ... +100 °C |
| Storage temperature | -50 °C ... +125 °C |
| Relative humidity | 90 %, non-condensing |
| Weight | 6.2 g |
| Connection | 5 pole header (Accessory: 30 cm ribbon cable with connector, ordering code CA0050012) |
| Recommended mating connector | AMP, ordering code 103969-4 (on request) |

TECHNICAL DATA electrical

| | |
|-----------------------|----------------------|
| Supply voltage | DC 5 V ±10 % |
| Max. current w/o load | 10 mA |
| Code | Incremental, optical |
| Max. pulse frequency | 200 kHz |
| Index pulse width (N) | 90° ± 36° electrical |
| Phasing | 90° ± 18° electrical |

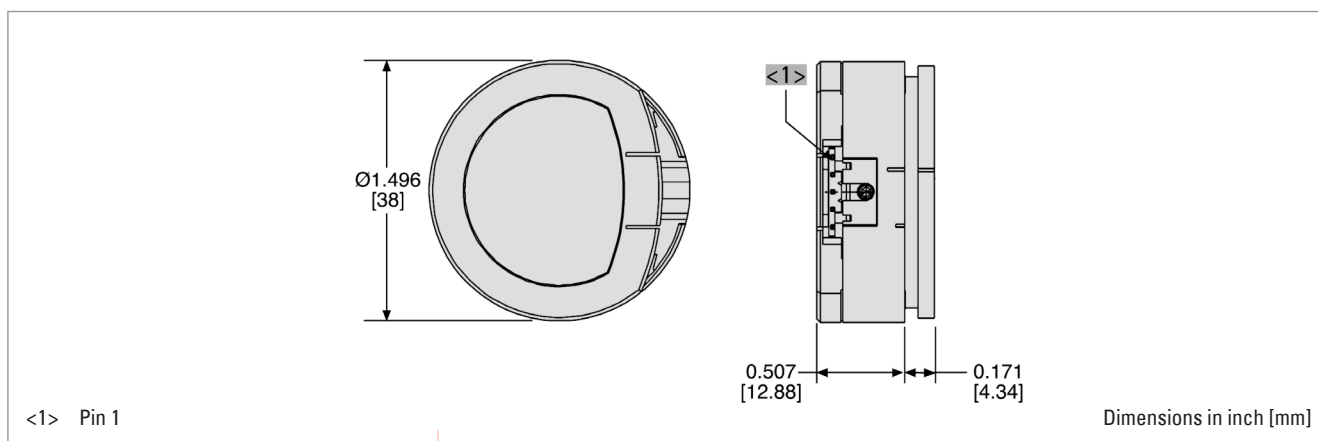
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TECHNICAL DATA electrical (continued)

| | |
|------------------|---------------------------------|
| Symmetry | 180° ± 18° electrical |
| Number of pulses | 200 ... 1024 |
| Output signals | min. 2.5 V high, max. 0.5 V low |
| Output current | 6 mA (25°C), 4 mA (100°C) |

DIMENSIONED DRAWINGS



OUTPUT WAVEFORMS AND CONNECTIONS (Direction viewing encoder cover)

| PIN | FUNCTION | | CABLE WIRE |
|-----|-----------------|--|------------|
| 1 | GND | | BLACK |
| 2 | CH N | | BLUE |
| 3 | CH A | | WHITE |
| 4 | +U _B | | RED |
| 5 | CH B | | BROWN |

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ORDERING INFORMATION

| Type | Number of pulses / poles | Mounting ¹ | Shaft Ø | |
|--------------------------|---|--|--|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| M14 | 0200 / 0 0400 / 0 0500 / 0 0512 / 0 Higher on request | 0 No mounting base A 2 x #2-56 on 32,51 mm (1,28") B.C. B 3 x #0-80 on 20,9 mm (0,823") B.C. C 2 x #2-56 on 19,05 mm (0,75") B.C. | 3,0 4,0 5,0 6,0 8,0 125 187 249 250 312 374 375 | 3.0 mm 4.0 mm 5 mm 6 mm 8 mm 0.125" 0.1873" 0.2498" 0.2501" 0.2501" 0.3748" 0.3748" |

¹ Further information (drawings and mounting) see homepage www.hengstler.com

Important:

To properly install type M14, a specialized **mounting kit** must be purchased.
Only one kit is required to install any number of encoders with the same hub shaft size.

MK M14

Hub shaft

| | |
|------------------------|------------------------|
| 3.0 3 mm | 187 0.1873 inch |
| 4.0 4 mm | 249 0.2498 inch |
| 5.0 5 mm | 250 0.2501 inch |
| 6.0 6 mm | 312 0.3123 inch |
| 8.0 8 mm | 374 0.3748 inch |
| 125 0.1248 inch | 375 0.3750 inch |

Please designate
hub shaft diameter.

Example: Kit for installing encoders with 0.1248" mm hub shaft = MK M14 125

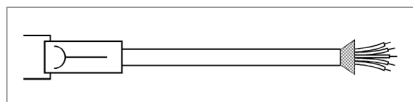
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Incremental Encoder M 14 Accessories

MOUNTING

| | Ordering code |
|---------------------|-----------------------|
| Mounting kit (M 14) | MK M14 + Hohlwellen-Ø |

CONNECTING CABLES



| Connecting cables with plug (socket) on one end | Ordering code |
|---|---------------|
| 30 cm ribbon cable with connector | CA 0 060 012 |