

for Miniature DC and Stepper Motors



- 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
- Drop-in replacement for HP 5540
- CE-qualified

GENERAL INFORMATION

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

Weight	6.2 g	
Moment of inertia	0.13 gcm ²	
Hollow shaft diameter	3.0 bis 8.0 mm	
Hollow shaft tolerance	+0.010 mm / -0.000 mm	
Mating shaft length	max. 13.3 mm; min. 11.07 mm	
Mating shaft runout	± 0.0125 mm	
Mating shaft endplay	>512 ppr	±0.076 mm;
	500 / 512 ppr	±0.127 / - 0.076 mm;
	< 500 ppr	+ 0.178 / - 0.076 mm
Operating temperature	-40 °C ... 100 °C	
Storage temperature	-50 °C ... 125 °C	
Relative humidity	90 % non-condensing	

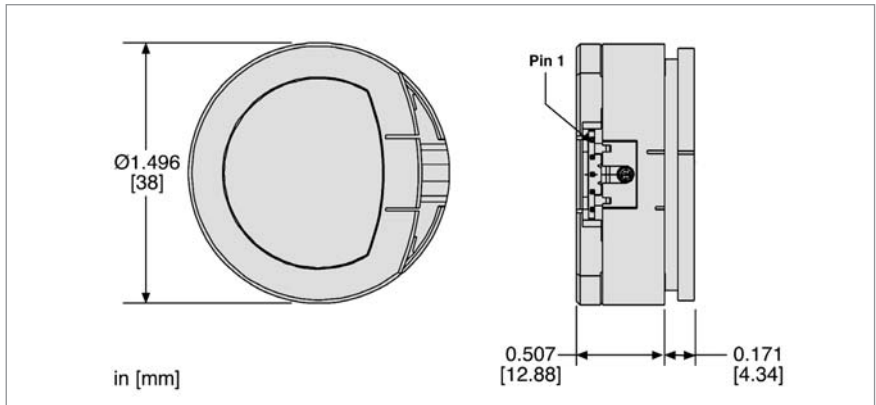
Motor Feedback Systems Type M 14

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TECHNICAL DATA electrical

Code	Incremental, optical
Resolution	200 up to 1 024 ppr
Phasing	90° ±18° electrical
Symmetry	180 ±18° electrical
Index pulse width	90° ±36° electrical
Supply voltage	DC 5 V ±10 %
Supply current	10 mA, typ.
Output signals	min. DC 2.5 V high (V _{OH}) max. DC 0.5 V low (V _{OL})
Output current	6mA sink/source (25°C) 4 mA (100°C)
Max. output frequency	200 kHz
Connection	5 pole header
Recommended mating connector	AMP, part number. 103969-4 (on request)

DIMENSIONAL DRAWING



OUTPUT WAVEFORMS & CONNECTIONS (Direction viewing encoder cover)

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

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ACCESSORIES

	Ordering code
5 pole header, 30 cm ribbon cable with connector	CA 0 060 012

ORDERING INFORMATION

Type	Pulses ppr / poles	Mounting	Hub shaft
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M14-	0 200 / 0 0 400 / 0 0 500 / 0 0 512 / 0 1 000 / 0 1 024 / 0	0 No mounting base A 2 x #2-56 on 1.28" TK B 3 x #0-80 on 0.823" TK C 2 x #2-56 on 0.75" TK	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

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.

<div style="border: 1px solid black; padding: 2px; display: inline-block;">MK</div> <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-left: 5px;">M 14</div> <div style="border: 1px solid black; width: 30px; height: 15px; display: inline-block; margin-left: 5px;"></div>	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