

Data Sheet for Angle Sensors

Optical Encoders

Series MOT6



- Ultra compact high-end encoder in top quality
- Only 6mm housing diameter (housing bottom flattened)
- 1024 pulses per revolution (64 x 16 multiplier)
- 2 channels + index
- Ball bearing
- Supply voltage 3.2 ±0.1V
- Voltage output

The unique feature of the MOT6 is its almost unbeatable small package size combined with a relatively high resolution. Due to its price structure, the MOT6 is reserved for special applications that require the most technically feasible miniaturization in combination with the highest possible resolution and product quality.

Electrical Data

Output Signal	A, B, Z (Index)
Number of pulses	1024 ppr. (64 pulses x 16 multiplier)
Output high voltage @ IOH	≥ VSUP -0.3V (when IOH = -1mA)
Output low voltage @ IOL	VOL ≤ 0.3 V (when IOL +1mA)
Limit Frequency	100 kHz
Supply voltage	3.2 VDC ±0.1 V
Power consumption (no load)	≤ 20 mA
Output load	IOL = +8mA, IOH = -2mA
Max. pull-up voltage	≤ 3.3V
Output electronics	Voltage output (NPN)
Switch-on delay	max. 2 μs

Mechanical and Environmental Data

Mechanical angle of rotation /stroke 1.)	360° without stop
Bearing	Ball bearing
Max. operational speed	6000 rpm.
Operational torque @ RT 1.) 2.)	≤ 0.1 Ncm
Operating temperature range	0 °C up to +60 °C
Storage temperature range	-20 °C up to +80 °C
Protection grade (IEC 60529)	IP40
Vibration (IEC 68-2-6, Test Fc)	55 Hz; 1.5 mm; each 2 h in X, Y, Z
Shock (IEC 68-2-27, Test Ea)	(50 G) 500 m/s ² , each 3 times in X, Y, Z

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Mechanical Data and Environmental Data

Housing diameter / length	6 mm (bottom flattened)
Housing depth	6.1 mm
Shaft diameter	1.5 mm
Shaft type	Solid shaft
Max. radial load	0.98 N
Max. axial load	0,98 N
Connection type	Foil flatbandcable app. 150 mm with FPC-Connector IL-FPR-8S-HF-N1 incl. PCB with plug
Connection position	Radial
Sensor mounting	Bushing
Mass	app. 5g (incl. cable)
Fastening parts included in delivery	Hex nut AF6
Fastening torque mounting nut	≤ 1 Nm
Material shaft	Stainless steel
Material housing	Aluminium
Material disc	Nickel

1.) According IEC 60393

2.) Determined by climatic conditions according to IEC 68-1, para. 5.3.1 without load collectives

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Order Code

Description	Selection: standard=black/bold , possible <i>options=grey/italic</i>					
Series:	MOT6					
Number of pulses (ppr.): Standard 1024 ppr.		1024				
Supply voltage: Standard 3.2 V			3.2			
Output signal: Standard 2 channels with index (A, B, Z)				BZ		
Output electronics: Standard Voltage output					NPN	
Electrical connection: Standard FPC-Connector IL-FPR-8S-HF-N1 incl. 150 mm ±2 mm signal cable and connector <i>Option user defined cable length in m</i>						- X.XX

Order example MOT6

Requirement:

1024 pulses per revolution, supply voltage 3,2V, 2 channels + index, output electronics voltage output, electrical connection FPC-Connector with 150 mm signal cable

Example for order code:

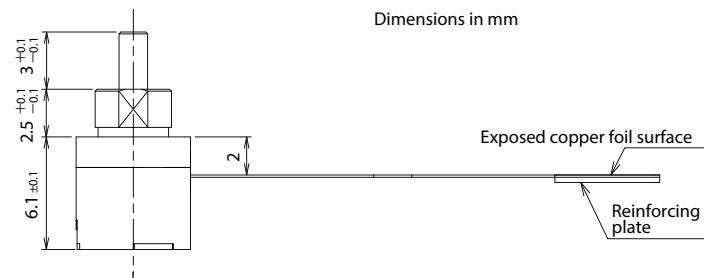
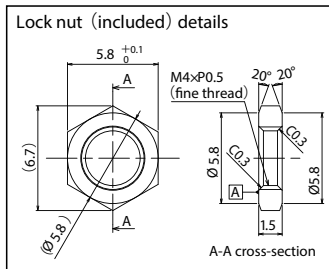
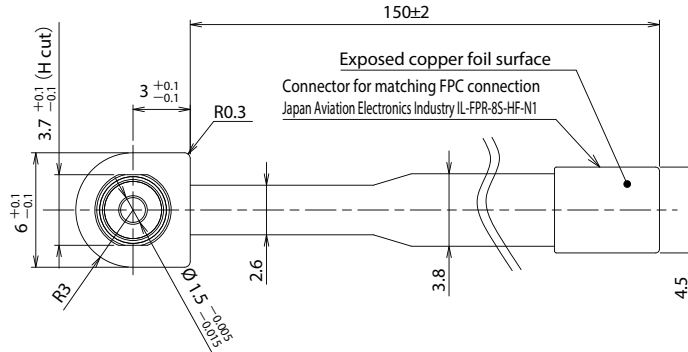
MOT6 1024 3.2 BZ NPN

For higher quantities or on-going demand, additional options are available as described below

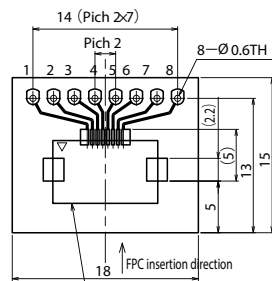
For example:

- Other resolutions
- Specials shaft design
- Special connector and cable design

Drawing



Terminal board (included) details

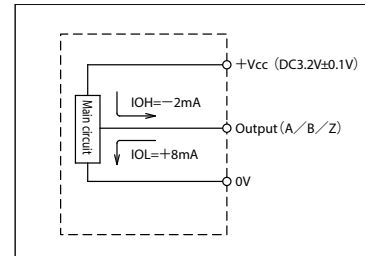


Connector: Japan Aviation Electronics Industry
IL-FPR-85-HF-N1

Wiring chart

TH No.	Signal name
1	Vcc (DC3.2V±0.1V)
2	N.C. (Not connected)
3	N.C. (Not connected)
4	Vcc (DC3.2V±0.1V)
5	Z phase output
6	B phase output
7	A phase output
8	0V

Output circuit diagram



Output waveform

