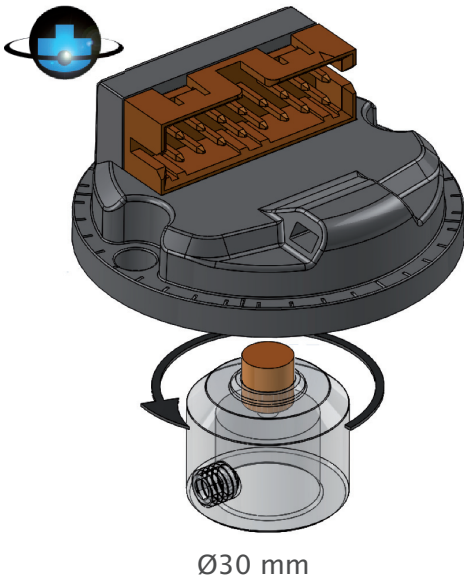


Model 30M incremental Encoder Module



Features

- Large Air Gap and Tolerance to Misalignment
- Resolutions of 1 to 1024 PPR
- Optional 2-Pole to 32-Pole Commutation
- Temperature Range -40°C to 120°C
- Sealing Options to IP69K
- Easy Alignment and Installation

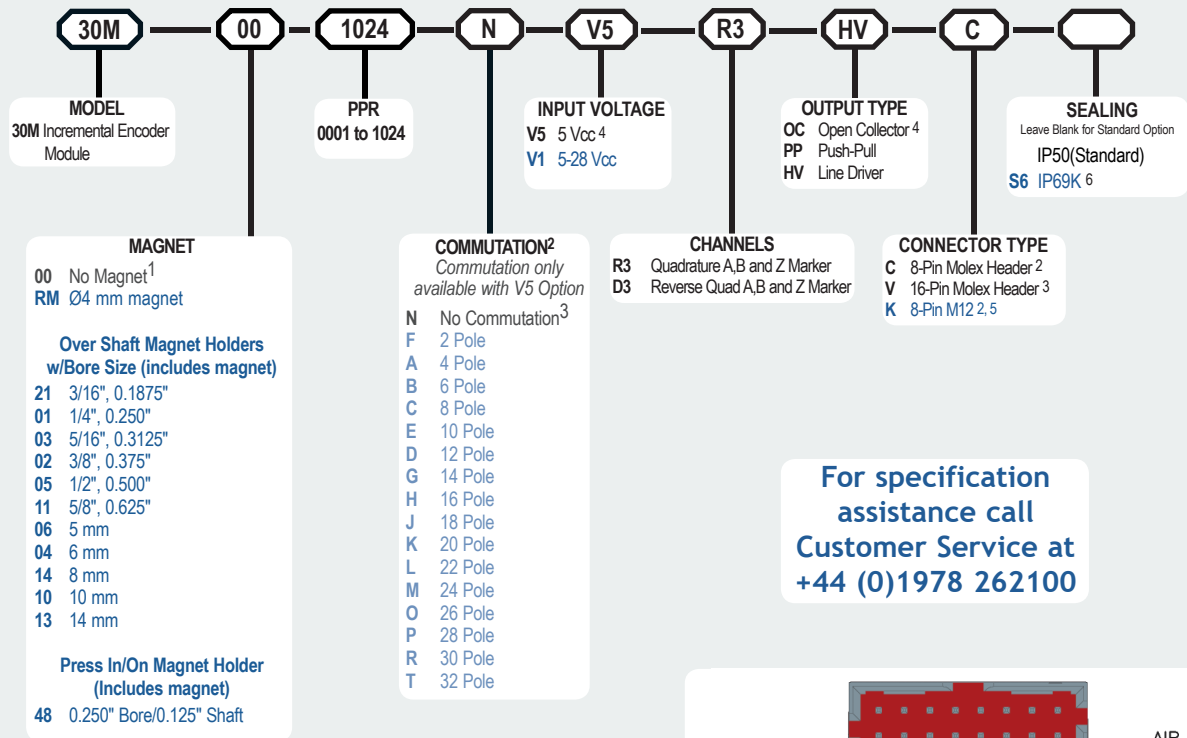
The Model 30M is a compact, incremental encoder module with advanced magnetic sensing and signal processing technology. Featuring resolutions from 1 to 1024 PPR, commutation channels, several output types and two supply voltage options, it can be configured for a wide range of industrial, commercial and consumer feedback applications. With a non-contact magnetic sensor and optional sealing up to IP69K, the Model 30M can be applied in environments where dirt, dust and liquids are present.

COMMON APPLICATIONS

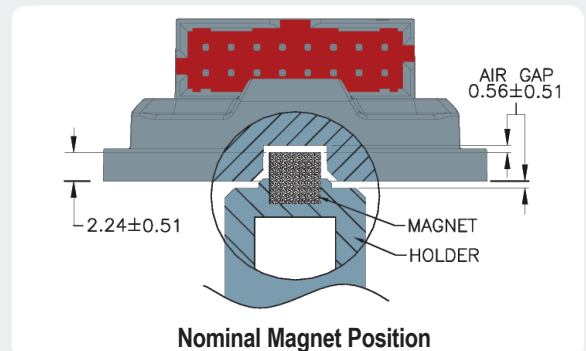
Servo/stepper motor feedback, Mobile equipment speed and steering sensing, Timber processing machinery, Studio lighting and stage equipment control, Rotary valve position monitoring and control, Solar panel positioning, Vending machines, Punch presses, Tank level monitoring, Robotics

Model 30M Ordering Guide

Blue type indicates price adder options. Not all configuration combinations may be available. Contact Customer Service for details.



For specification assistance call Customer Service at +44 (0)1978 262100



NOTES:

- 1 A high quality magnet is required to generate a reliable signal; magnet options provided by BEPC have been pre-qualified to provide a clear and reliable signal.
- 2 Commutation is not available with 8 pin M-12 or 8-pin Molex Header.
** Part codes for Commutation pole options have now changed since Revision A **
- 3 16 Pin Molex Header is only available with commutation
- 4 OC Output type and 8-pin M-12 are not available with V5 Input Voltage option.
- 5 8-Pin M-12 only available in V1 Input Voltage.
- 6 IP69K sealing available with 8-Pin M12 Connector Type only.

Model 30M Incremental Encoder Module

Model 30M Specifications

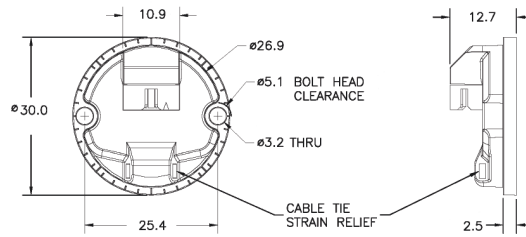
ELECTRICAL

Input Voltage	5 Vcc +10% Fixed Voltage 4.5 to 28 Vcc (4.5 to 20 Vcc over 105°C)
Input Current	80 mA max, 50 mA or less typical with no output load
Output Format	Two square waves in quadrature with channel A leading B for clockwise rotation as viewed from the encoder mounting face. Index gated to A and B.
Output Types	Open Collector Open Collector with Differential Outputs Differential Line Driver (Meets RS422 at 5 Vcc) Push-Pull
Electrical Protection	All outputs 20 mA max per channel Reverse voltage and output short circuit protected. NOTE: Sustained reverse voltage may result in permanent damage.
Max Frequency	350 kHz
Min Edge Sep	20° electrical min, 50° electrical typical
Accuracy	Typically within ±0.7° mechanical from true position. Accuracy improves at nominal air gap with minimized magnet runout, offset and endplay.

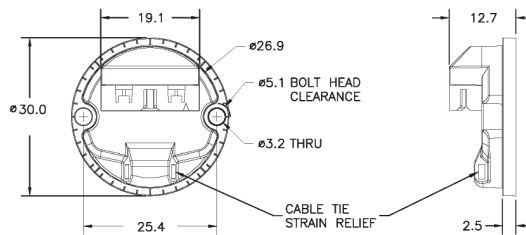
MECHANICAL/ENVIRONMENTAL

Air Gap	0.56mm nominal recommended
User Shaft Tolerances	
Axial Endplay	±0.50mm max
Radial Runout	0.20mm max
Axial Offset	0.20mm max
Mounting Bolts	Max Ø5.08mm Head, 2-56 or M2.5 Button, Socket or Pan Head or 4-40 Socket Head
Housing Material	High Temp, Toughened Nylon Composite
Weight	14.17 Grams typical or less
Humidity	98% RH non-condensing
Vibration	20 g @ 10 to 2000 Hz (MIL-STD-202G Method 204D)
Shock	100 g @ 11 ms duration (MIL-STD-202G Method 213B)
Sealing	IP50 standard; IP69K available with M12 connector option

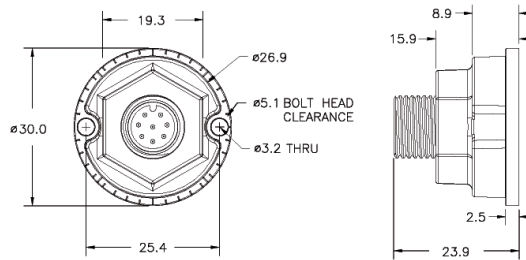
8-Pin Header Option (C)



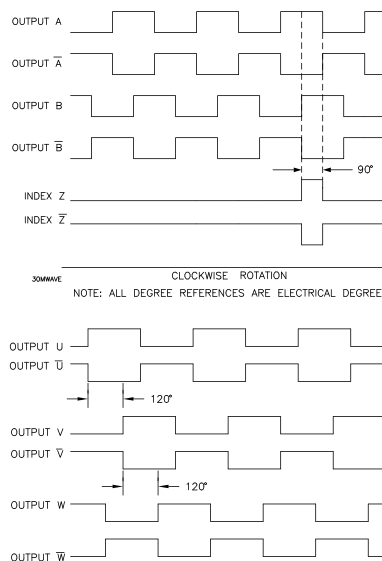
16-Pin Header Option (V)



8-Pin M12 Option (K)



Waveform Diagrams



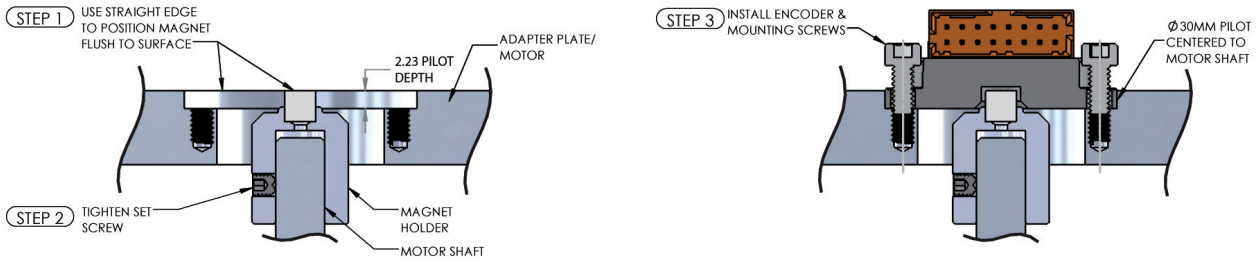
Wiring Table

Function	8-pin M12	8-pin Header	16-pin Header
0 Volts	7	4	8
+VCC	2	2	6
A	1	8	12
A'	3	6	10
B	4	5	9
B'	5	7	11
Z	6	1	5
Z'	8	3	7
U	--	--	2
U'	--	--	1
V	--	--	14
V'	--	--	13
W	--	--	4
W'	--	--	-3

Model 30M incremental Encoder Module

Preferred Installation

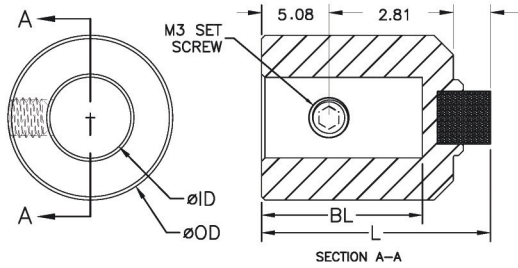
Contact BEPC Support for assistance with additional installation options.



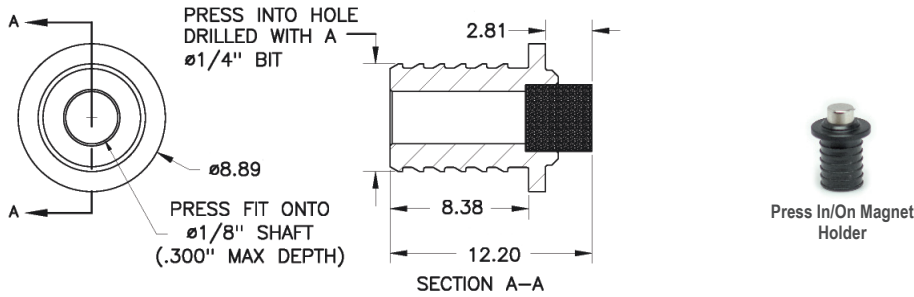
OVER SHAFT MAGNET HOLDERS

STOCK #	Ø ID	Ø OD	BL	L
176596-01	3/16"	9.27	9.525	14.73
176597-01	5mm	9.27	9.525	14.73
176598-01	6mm	12.44	9.525	14.73
176599-01	1/4"	12.44	9.525	14.73
176600-01	5/16"	12.44	12.06	17.27
176601-01	8mm	12.44	12.06	17.27
176602-01	3/8"	15.62	12.06	17.27
176603-01	10mm	15.62	12.06	17.27
176604-01	1/2"	18.79	19.05	24.25
176605-01	14mm	18.79	19.05	24.25
176606-01	5/8"	21.97	19.05	24.25

OD, BL and L all in mm



PRESS IN/ON MAGNET HOLDER : stock #176607-01



All dimensions are in mm with a tolerance of $\pm 0.127\text{mm}$ or ± 0.254 unless otherwise specified

MATING CABLES & CORDSETS

Molex Mating Cables (24 AWG Wires)	
Stock #	Description
075230	8-pin Molex Mating Connector w/ 24" Cable
075232	16-Pin Molex Mating Connector w/ 24" Cable

M12 Mating Cordsets	
Stock #	Description
075100	8-Pin M12 Mating Cordset, 0.5 Meters
075101	8-Pin M12 Mating Cordset, 2 Meters
075102	8-Pin M12 Mating Cordset, 4 Meters
075103	8-Pin M12 Mating Cordset, 6 Meters
075104	8-Pin M12 Mating Cordset, 10 Meters

INSTALLATION, CENTERING AND GAPPING TOOLS

Stock #	Description
176615	Centers magnet and sets proper distance to 30M Encoder sensor.



When to Choose a Magnetic Encoder Module

Magnetic encoder modules can be used in a wide range of applications, including, but certainly not limited to, the following:

- Servo/stepper motor feedback
- Mobile equipment speed and steering sensing
- Timber processing machinery
- Studio lighting and stage equipment control
- Rotary valve position monitoring and control
- Solar panel positioning
- Vending machines
- Punch presses
- Tank level monitoring
- Robotics



The Model 30M Incremental Magnetic Encoder Module has 3 connector options.

How do you know when you need something as specialized as a magnetic encoder module? There are many points to consider when trying to determine if it's the best solution for your application.

1. You need an encoder with a bearing-less design. In the vast majority of applications, an encoder with bearings is the best choice, because it provides an easier installation and a more stable platform for the encoder to run on. However, there are instances where a bearing-less encoder is a better option:

- In your application, there are factors that are hard on bearings. Magnetic encoder modules tend to be more tolerant to shock and vibration – factors that typically shorten bearing life. If your encoder will be subjected to factors that are hard on bearing life, a magnetic encoder module might be the right encoder solution for your application.
- You need an encoder that can work in a high-speed application. An encoder's bearings often limit operational speed to 12,000 RPMs or less. If you need to run at higher speeds, a bearing-less module might be the solution.
- Cost is a major factor. Since encoder modules have no bearings and associated support parts, they often cost less and can be more economical. If cost is a factor, an encoder module might be the right solution.

2. You have limited space. It can happen for different reasons. Maybe the encoder was overlooked in the design phase, and you suddenly find yourself with very little space for a key component in your configuration. Maybe the constraints of your machine's design simply won't allow more space. In any case, magnetic encoder modules tend to be compact in size, but – when designed well – will still give you the accurate feedback and motion control you need.



The Model 30MT Incremental Magnetic Encoder Module comes with a threaded housing.

3. You need versatile mounting options. The “magnetic” in “magnetic encoder module” gives you some options you may not have with typical encoders. Even with the tolerance for a large air gap and tolerance for misalignment, you may still have a tricky installation that requires a creative solution. Both the Model 30M and the Model 30MT have been designed with that in mind, and they are easy to mount and install.

4. You need a heavy-duty seal on your encoder. Not all magnetic encoder modules offer heavy-duty sealing options, so be sure to check the IP Ratings. If you need protection from washdown, you cannot settle for IP50. Conversely, if your encoder will be fairly well protected, it might not make sense to pay for a higher IP Seal than you need. EPC's Model 30M and Model 30MT are compact magnetic encoder modules with sealing options up to IP69K and an operating temperature range of -40° to 120° C, so it can handle the most extreme industrial environments.

With a large air gap and tolerance to misalignment, up to 1024 PPR (4096 PPR with Quadrature Counting), optional 1 to 16 pole commutation, and easy alignment and installation, the Model 30M or the threaded Model 30MT are excellent solutions when you need a magnetic encoder module.

Contact BEPC today and you'll talk to real engineers who can help you incorporate the 30M or 30MT into your application.

For specification assistance call Customer Service at +44 (0)1978 262100