



Ø30 mm / 1.181"

### FEATURES

Large air gap and tolerance to misalignment Resolutions of 1 to 1024 CPR (4096 PPR with quadrature counting) Optional 2-pole to 32-pole commutation Sealing options to IP69K Operating temperature range -40° to 120° C 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 CPR, 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 noncontact 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.





### **MODEL 30M SPECIFICATIONS**

Electrical			
Input Voltage	5 VDC ±10% fixed voltage 4.5 to 28 VDC (4.5 to 20 VDC over 105℃)		
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 magnet 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 VDC) Push-Pull All outputs 20 mA max per channel		
Max Frequency	350 kHz		
Electrical Protection	Reverse voltage and output short circuit protected. NOTE: Sustained reverse voltage may result in permanent damage.		
Min Edge Separation	20° electrical typical @ 25° C		
Accuracy	Typically within ±0.7° mechanical from true position. Accuracy improves at nominal air gap with minimized magnet runout, offset and endplay.		
Mechanical/Environmental			
Operating Temp	40° C to 120° C; reduced to 110° C max above 200 KHz with 20V input and 20mA/channel output		
Air Gap	0.022" nominal recommended		
User Shaft Tolerances			
Axial Endplay	±0.020" max		
Radial Runout	0.008" max		
Axial Offset	0.008" max		
Mounting Bolts	Max Ø0.200" head, 2-56 or M2.5 button, socket or pan head or 4-40 socket head		
Housing Material	High temp, toughened nylon composite		
Weight	0.5 oz 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 MOLEX HEADER OPTION (C)



### **16-PIN MOLEX HEADER OPTION (V)**



### 8-PIN M12 OPTION (K)





#### WAVEFORM DIAGRAMS



NOTE: All degree references are electrical degrees.

Waveform shown with optional complementary signals  $\overline{A}$ ,  $\overline{B}$ ,  $\overline{Z}$  for HV output only

If commutation is selected with the reverse quadrature option D3, note that the commutation signals will also be reversed – W leads V, and V leads U.

### WIRING TABLE

For EPC-supplied mating cables, refer to wiring table provided with cable. Trim back and insulate unused wires.

Function	8-Pin M12	8-Pin Header	16-Pin Header	
Com	7	4	8	
+VDC	2	2	6	
А	1	8	12	
Α'	3	6	10	
В	4	5	9	
В'	5	7	11	
Z	6	1	5	
Z'	8	3	7	
U			2	
U'			1	
V			14	
V			13	
W			4	
W'			-3	



### INSTALLATION

Below is the suggested installation for the Model 30M. For additional installation options, please contact EPC Application Support for assistance.



### **OVER SHAFT MAGNET HOLDERS**

STOCK #	ØID	ØOD	BL	L
176596-01	3/16" (0.1875")	0.365	0.375	0.580
176597-01	5mm (0.1969")	0.365	0.375	0.580
176598-01	6mm (0.2362")	0.490	0.375	0.580
176599-01	1/4" (0.2500")	0.490	0.375	0.580
176600-01	5/16" (0.3125")	0.490	0.475	0.680
176601-01	8mm (0.3150")	0.490	0.475	0.680
176602-01	3/8" (0.3750")	0.615	0.475	0.680
176603-01	10mm (0.3937")	0.615	0.475	0.680
176604-01	1/2" (0.5000")	0.740	0.750	0.955
176605-01	14mm (0.5512")	0.740	0.750	0.955
176606-01	5/8" (0.6250")	0.865	0.750	0.955





Over Shaft Magnet Holder

#### PRESS IN/ON MAGNET HOLDER

Stock #176607-01





Press In/On Magnet Holder

## MATING CABLES / CORDSETS

Molex Mating Cables (24 AWG Wires)		M12 Mating Cordsets	
Stock #	Description	Stock #	Description
075230 8-pin Molex Mating Connector w/ 24" Cable		075100	8-Pin M12 Mating Cordset, 0.5 Meters
075232	16-Pin Molex Mating Connector w/ 24" Cable	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