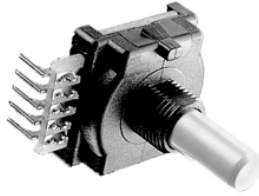


Mechanical Encoder



FEATURES

- Cost Effective - Eliminates A/D Converters
- High Resolution - Up to 36 Positions
- Stability - Operating Range of - 40°C to + 105°C
- Variability - Horizontal and Vertical Mounting

The Model 110E is a 7/8" square mechanical encoder which provides a 2 - bit grey code for relative reference and a 4 - bit grey code for absolute reference applications. Manually operated it has a rotational life of 100,000 shaft revolutions, a positive detent feel and can be combined with a second modular section in a concentric - shaft construction. Its small size makes it suitable for panel-mounted applications where the need for costly front - panel displays can be completely eliminated.

ELECTRICAL SPECIFICATIONS

PARAMETER	
Output	2 - bit grey code, channel L leads channel R by 90 degrees electrically in the CW direction 4 bi - grey code, absolute electrical position output
Closed Circuit Resistance	5Ω maximum
Open Circuit Resistance	100KΩ minimum
Contact Rating	Resistance load 250mA @ 28VDC
Switching Loads	1.5mA @ 115VDC 150mA @ 14VDC
Bounce	5ms/cycle @ 15 RPM
Dielectric Withstanding Voltage	1000VAC @ sea level
Electrical Travel	Continuous
Operating Speed	50 RPM maximum

ORDERING INFORMATION

110E	1	A	48	F	204P	P
MODEL		BUSHING	SINGLE SHAFT FMS CODED IN 64ths		2-4 - BIT GREY CODE OPTIONS	
110E	1 = @ 9'0 clock 0 = None	A = 3/8 (9.53mm) dia x 1/4 (6.35mm) long G = 3/8 (9.53mm) dia x 3/8 (6.35mm) long	48 = 0.750" 56 = 0.875"	S: Slotted F: Flatted	204P = 4 cycles/rev 16 detents/rev 206P = 6 cycles/rev 24 detents/rev 209P = 9 cycles/rev 36 detents/rev 416P = 16 electrical positions/rev 16 detents/rev	B: PC terminals straight (horizontal mount) C: PC terminals bent back (vertical mount) Type C - 30 P: Type B with mounting bracket D: Type C with mounting bracket S: Solder Hook
Example: 110E - 1 - A - 48 - F - 204P - P						Hardware not included

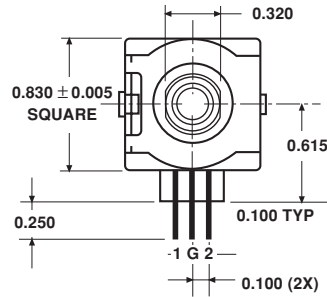
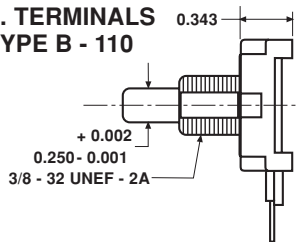


DIMENSIONS in inches

2 - BIT, 36 - POSITION INCREMENTAL OUTPUT

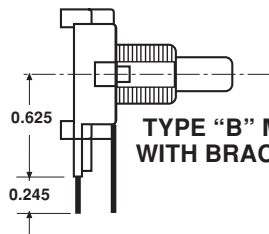
STEP	1	G	2
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			

P.C. TERMINALS TYPE B - 110

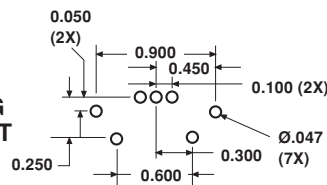


4 - BITS, 6 - POSITION INCREMENTAL OUTPUT

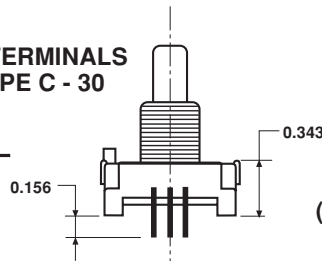
STEP	1	4	2	G	8
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					



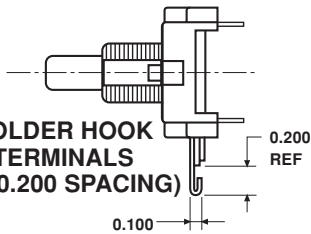
TYPE "B" MTG WITH BRACKET



PC TERMINALS TYPE C - 30



SOLDER HOOK TERMINALS (ON 0.200 SPACING)



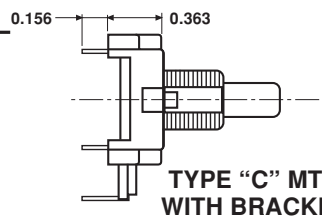
Output Codes

At start position, step 1, is with shaft flat at 12 o'clock position when looking at shaft end with terminals down.

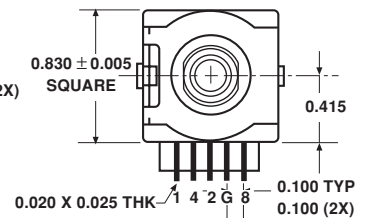
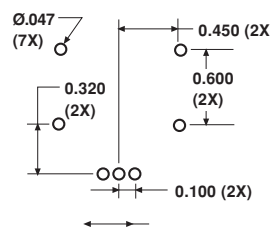
2 - BIT
16 POS.

4 - BIT
16 POS.

2 - BIT
24 OS.

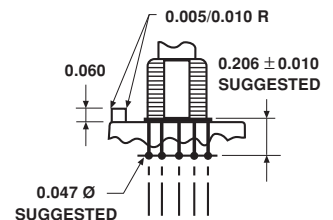
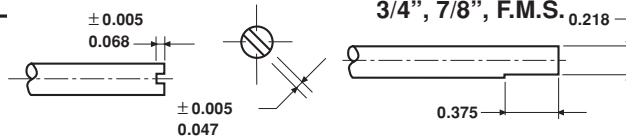


TYPE "C" MTG WITH BRACKET



SHAFT DIMENSIONS

FLATTED SHAFT 3/4", 7/8", F.M.S.



**MECHANICAL SPECIFICATIONS**

MECHANICAL SPECIFICATIONS	
PARAMETER	
Rotational Torque	3.5 oz - in (2.16 - 3.60 Ncm)
Mechanical Travel	Continuous
Panel Mounting Torque	7 lbs - in (1.13 Nm) maximum
Shaft Load Force	10 lbs - in (1.13 Nm) maximum
Shaft Pull Force	10 lbs - in maximum
Terminals	Standard PC style, 3 terminals on 0.100" (2.54mm) grid - in - line perpendicular or parallel to shaft. Solder hook available on 0.200" grid
Molded Construction	Molding compound used for housing/bushing and shaft has a UL94V - 2 rating
Rotational Life	100,000 detented cycles at rated load typical (1 cycle = 720 degrees)

ENVIRONMENTAL SPECIFICATIONS

ENVIRONMENTAL SPECIFICATIONS	
Temperature Range	- 40°C to + 105°C (Operating temperature) - 55°C to + 120°C (Storage temperature)
Humidity	Per MIL-STD 202, Method 106C Insulation resistance shall be 1 MΩ maximum of a relative humidity 90% @ 25°C
Shock	Per MIL-STD 202, Method 213, Test Condition G consisting of 1 MIL-STD