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

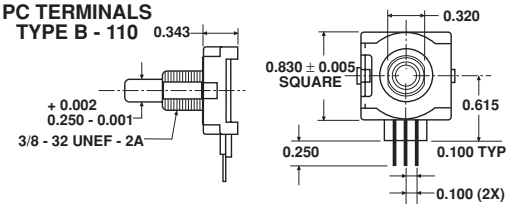
The Model 110E is a 7/8" square mechanical encoder which provides a 2 - bit grey code for relative reference and a 4 - bit grey code for absolute reference applications. Manually operated it has a rotational life of 100,000 shaft revolutions, a positive dentent feel and can be combined with a second 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.

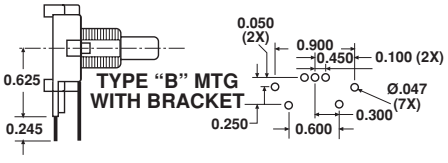
DIMENSIONS in inches

2 - BIT, 36 - POSITION INCREMENTAL OUTPUT

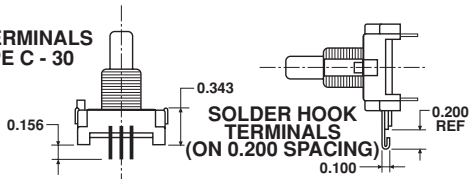
STEP	1	G	2	
1		■		
2	■	■		
3	■	■	■	
4		■	■	
5		■		
6	■	■		
7	■	■	■	
8		■	■	
9		■		
10	■	■		
11	■	■	■	
12		■	■	
13		■		
14	■	■		
15	■	■	■	2 - BIT 16 POS.
16		■	■	
17		■		
18	■	■		
19	■	■	■	
20		■	■	
21		■		
22	■	■		
23	■	■	■	
24		■	■	2 - BIT 24 POS.
25		■		
26	■	■		
27	■	■	■	
28		■	■	
29		■		
30	■	■	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

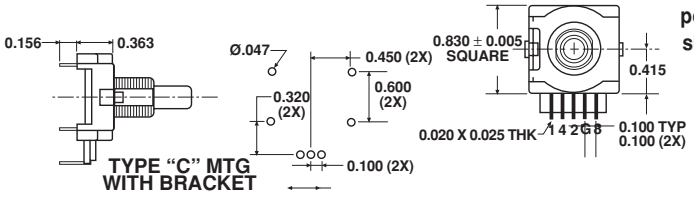
PC TERMINALS TYPE B - 110





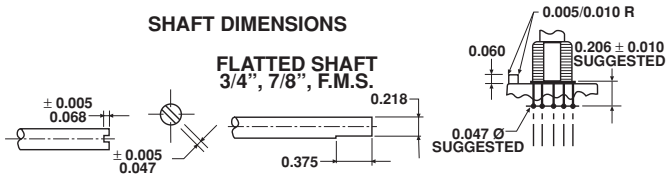
PC TERMINALS TYPE C - 30





SHAFT DIMENSIONS

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



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					■	4 - BIT 16 POS.
16						

■ □

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

For technical questions, contact: sfer@vishay.com

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ELECTRICAL SPECIFICATIONS

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 at 28VDC
Switching Loads	1.5mA at 115VDC 150mA at 14VDC
Bounce	5ms/cycle at 15 RPM
Dielectric Withstanding Voltage	1000VAC at sea level
Electrical Travel	Continuous
Operating Speed	50 RPM maximum

MECHANICAL SPECIFICATIONS

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

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

PACKAGING

Box of 50 pieces

ORDERING INFORMATION

110E MODEL	**1**	**A** BUSHING	**48** SINGLE SHAFT FMS CODED IN 64ths	**F**	**204P** 2-4 - BIT GREY CODE OPTIONS	**P**
110E	1 = at 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 (9.53mm) 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 Hardware not included

SAP PART NUMBERING GUIDELINES

1	1	0	E	W	1	G	H	F	P	2	0	4	P	B	2	5	
MODEL				BUSHING	PEG	SHAFT			LEADS	CODE OPTIONS				PACKAGING			SPECIAL

See the end of this data book for conversion tables

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