

110E

Vishay Spectrol



Mechanical Encoder



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

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

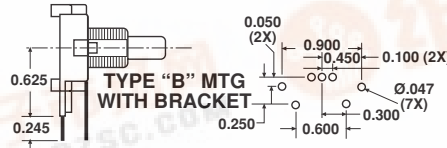
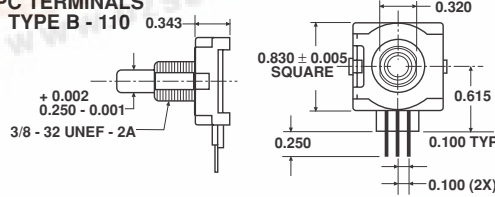
modular section in a concentric - shaft construction. Its small size makes it suitable for panel-mounted applications where the need for costly front - panel displays can be completely eliminated.

DIMENSIONS in inches

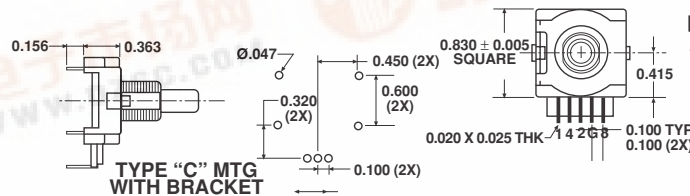
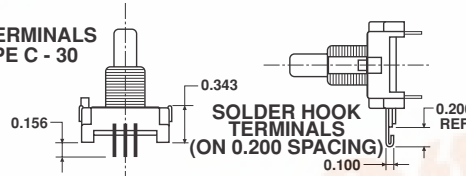
2 - BIT, 36 - POSITION INCREMENTAL OUTPUT

| STEP | 1 | G | 2 |
|------|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| 11 | | | |
| 12 | | | |
| 13 | | | |
| 14 | | | |
| 15 | | | |
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| 32 | | | |
| 33 | | | |
| 34 | | | |
| 35 | | | |
| 36 | | | |

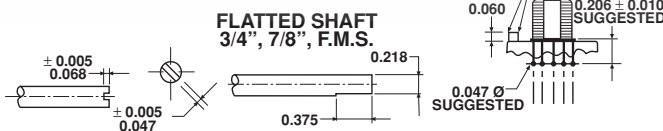
PC TERMINALS TYPE B - 110



PC TERMINALS TYPE C - 30



SHAFT DIMENSIONS



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 | | | | | |

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



| 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 | 1 | A | 48 | F | 204P | P |
| MODEL | | BUSHING | SINGLE SHAFT FMS CODED IN 64ths | | 2-4 - BIT GREY CODE OPTIONS | |
| 110E | 1 = at 9'o 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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