

## SERIES 26

Pull to Turn

Isolated Positions

BCD or Gray Code

Shaft & Panel Seal

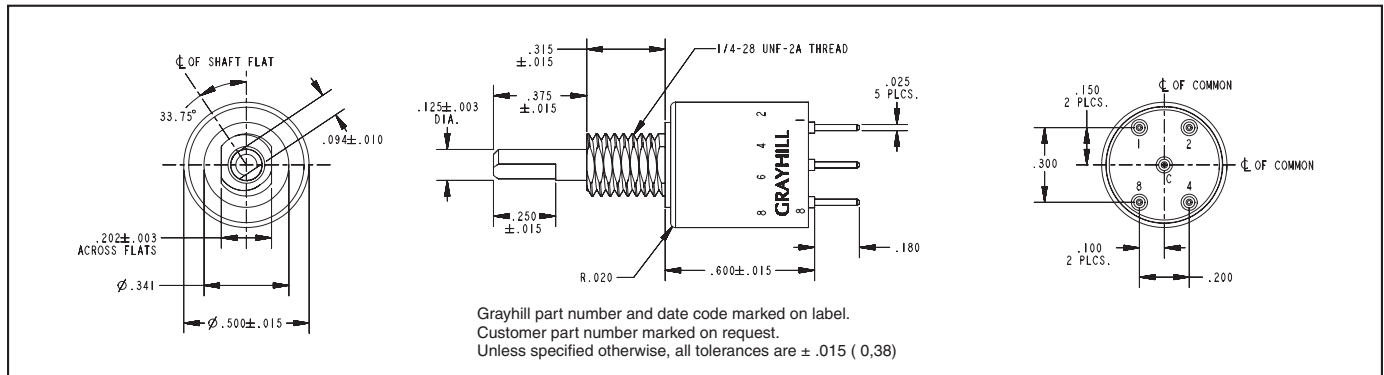


### DESCRIPTION

An isolated position is one that cannot be reached by normal rotation. This version of the Series 26 mechanical encoder requires that the operator Pull-To-Turn in order to reach the isolated position. To rotate out of the isolated position, the operator must Pull-to-Turn again.

Use isolated positions to protect a switch position from indiscriminate rotation. This feature is typically used for positions such as “calibrate”, “off” and/or “stand-by”.

### DIMENSIONS in inches (and millimeters)



### SPECIFICATIONS

#### Electrical Ratings

**Rated:** 25,000 cycles with logic compatible loads. Make and break 200 mA.

**Contact Resistance:** 500 milliohms maximum (less than 100 milliohms initially)

**Insulation Resistance:** 1000 megohms minimum (10,000 megohms initially)

**Dielectric Strength:** 250 Vac minimum

#### Materials and Finishes

**Panel Seal:** Silicone Rubber

**Shaft Seal:** Fluorosilicone

**Mounting Nut:** Brass, tin/zinc-plated

**Lockwasher:** Steel, tin/zinc-plated

**Detent Balls:** Carbon steel, nickel-plated

**Detent Spring:** Pretinned music wire

**Detent Rotor:** Thermoplastic

**Shaft, Stop Arm and Pins:** Stainless steel

**Bushing:** Zamak 3 zinc alloy, tin plate

**Switch Base:** Diallyl phthalate

**Printed Circuit Board:** NEMA Grade FR-4

**Terminals:** Brass, gold over nickel plate

**Contacts:** Copper alloy, gold over nickel

#### Additional Characteristics

**Shaft Vertical Travel:** .050 +/- .010

**Pull Force Required:** 1.75 +/- .75 lbs.

**Rotational Torque:** 7 to 13oz-in

**Vibration Resistance:** 10 to 55 Hz at 0.060" double amplitude; no damage and no contact openings per MIL-STD-202, Method 201A

**Shock Resistance:** Passes medium requirement per MIL-DTL-3786

**Stop Strength:** 5 in-lbs minimum

**Mounting Strength:** 15 in-lbs max

**Relative Humidity:** 90-95% at 40°C for 240 hours (MIL-STD-202 Method 103, Test Condition A)

### OPTIONS

#### Isolated Positions

The Grayhill system for isolating positions lets you choose the positions to be isolated. Grayhill inserts isolation posts next to the positions to be isolated. Consider a continuous rotation switch with a 22.5° angle of throw. The terminals are listed here from 1 through 16 with a space between each to indicate where isolation posts might be inserted.

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

To isolate position 1 and position 2 from all other positions and from each other, indicate isolation posts as shown here:

16P1P2P3 4 5 6 7 8 9 10 11 12 13 14 15 16

To isolate just position 1, describe like this:

16P1P2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

To isolate positions 1 and 2 from all other positions, but not from each other, do this:

16P1 2P3 4 5 6 7 8 9 10 11 12 13 14 15 16

#### Fixed Stop Switches

The switch may have continuous rotation, or specified to limit the rotation.

When a 1-pole switch has less than the maximum number of positions, consider also the stop system. Following is the arrangement for a 6 position switch with the position 1 isolated.

STOP 1P2 3 4 5 6 STOP

The word “STOP” indicates the conventional switch stops, which limit rotation to positions 1 through 6. To isolate position 1 we insert only one isolation post—between terminals 1 and 2. The stop system already prevents rotation beyond terminal 1.

### CODE AND TRUTH TABLE

Switch Position	Code Position	BCD Output*				Gray Output*			
		1	2	4	8	1	2	4	8
1	0								
2	1	●				●			
3	2		●			●	●		
4	3	●	●				●		
5	4			●			●	●	
6	5	●		●		●	●	●	
7	6		●	●		●		●	
8	7	●	●	●				●	
9	8				●			●	●
10	9	●			●	●		●	●
11	10		●		●	●	●	●	●
12	11	●	●		●		●	●	●
13	12			●	●		●		●
14	13	●		●	●	●	●		●
15	14		●	●	●	●			●
16	15	●	●	●	●				●

\*Dot indicates terminal tied to common.

### ORDERING INFORMATION

Due to the vast number of possible configurations of isolated positions and stop arrangements, each Series 26 Pull-to-Turn Mechanical Encoder will be assigned a unique part number. For example, part 26YY50202 is a 16 position gray code switch with positions 1 and 16 isolated and a STOP at each extreme.

Contact Grayhill or an authorized representative to create a part number and obtain pricing.