SERIES 61M

Optically Coupled for Simulated Mechanical Rotary Switch Output

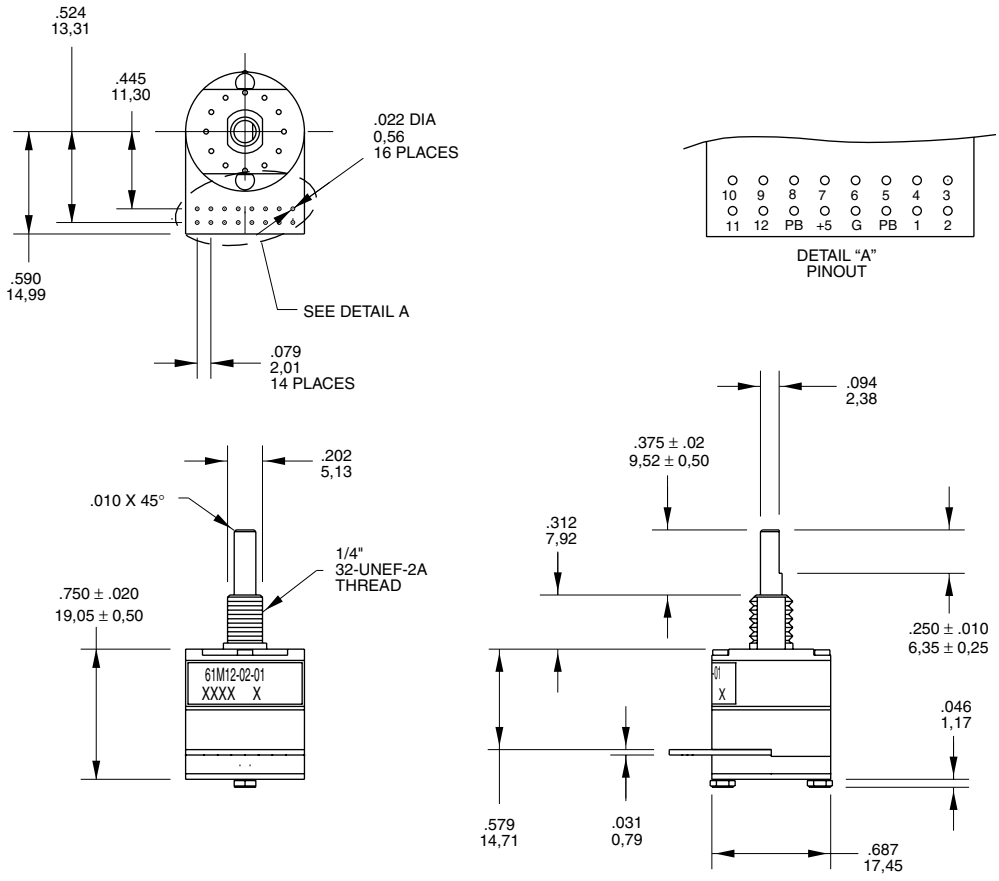
FEATURES

- Optical Alternative to Rotary Contacts
- One Pulse Per Detent Position Per Rotation
- Long Life of a Million Cycles
- With or Without Pushbutton
- Continuous Rotation and Fixed Stops Available
- Rugged Construction
- 8, 10 and 12 Positions Available

Applications

- Avionics
- Any application requiring rotary switch output and the increased reliability of an optical device

DIMENSIONS In inches (and millimeters)

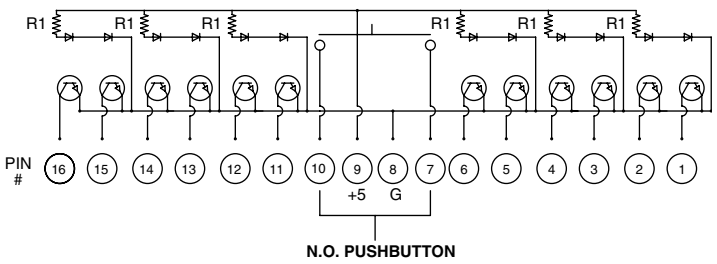


Unless otherwise specified, standard tolerance is ±.010 (0,25).

Grayhill, Inc. • 561 Hillgrove Avenue • LaGrange, Illinois 60525-5997 • USA • Phone: 708-354-1040 • Fax: 708-354-2820 • www.grayhill.com

CIRCUITRY, TRUTH TABLE, AND WAVEFORM Standard Quadrature 2-Bit Code

SWITCH SCHEMATIC



Note: External pull-up resistors required for operation. 20kÝ is suggested.

POSITION	PIN NUMBER											
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
1	●											
2		●										
3			●									
4				●								
5					●							
6						●						
7							●					
8								●				
9									●			
10										●		
11											●	
12												●

Note:
Blank Indicates high state
• Indicates low state
Code repeats every 12 positions

SPECIFICATIONS

Pushbutton Ratings

Operating Voltage: 5 Vdc, 60mA maximum, resistive
Contact Resistance: Less than 10 Ohms
Voltage Breakdown: 250 Vac between mutually insulated parts
Contact Bounce: Less than 4 mS at make and less than 10 mS at break
Actuation Life: 3,000,000 operations
Actuation Force: Maximum actuation force of 650 grams and a minimum force of 300 grams
Pushbutton Travel: .010/.025

Mechanical Ratings

Life Expectancy: 1 million cycles of operation; (1 cycle=360° rotation and return)
Rotational Torque: 10 in-oz. ±3 in-oz. customs also available.
Shaft Pushout Force: 50 lbs. minimum
Mounting Torque: 20 in-lbs. maximum

Switch Ratings

Output: One pulse per position per rotation (360 degrees CW/CCW)
Operating Voltage: 5.0 ± .25 Vdc
Supply Current: 60mA maximum at 5 Vdc
Logic High: 3.8V minimum
Logic Low: .8V minimum
Logic Rise and Fall Time: 30mS Typ.

Environmental

Operating Temperature Range: -40°C to +85°C
Storage Temperature Range: -55°C to + 100°C
Vibration: MIL-STD 202, Method 204, Condition B
Mechanical Shock: 100g's, 6 ms, Half Sine, 12.3 ft/s and 100g's, 6 ms, Sawtooth, 9.7 ft/s
Humidity: 90-95% Relative Humidity at 40°C for 96 hours

Materials and Finishes

Code Housing: Nylon (Red) Hiloy 610
Detent Housing: Stainless Steel
Rotor: Reinforced Thermoplastic, 30% Glass Filled Polyester
Bushing: Zinc Die Cast, Cadmium Plated
Shaft: Stainless Steel
Detent Balls: 302 Stainless Steel
Through Bolts: 305 Stainless Steel
Through Bolt Nuts: Stainless Steel
Printed Circuit Boards: NEMA Grade FR-4
Terminals: Copper Alloy
Aperture: Chem Etched Stainless Steel and/or Electroformed Nickel
Dome Retainer: Thermoplastic
Mounting Hardware: One Brass, cadmium-plated nut and lockwasher supplied with each switch

OPTIONS

Contact Grayhill for customer application needs.

ORDERING INFORMATION

61MXX-XX-XX

Series
"M" Style
Angle of Throw: Detent
08 = 45° or 8 positions
10 = 36° or 10 positions
12 = 30° or 12 positions

Termination: 01 = without terminal pins, 02 = with terminal pins
Pushbutton Option: 01 = without P.B., 02 = with P.B.

Custom materials, styles, colors, and markings are available. Control knobs available.

Available from your local Grayhill Component Distributor. For prices and discounts, contact a local Sales Office, an authorized local Distributor, or Grayhill.