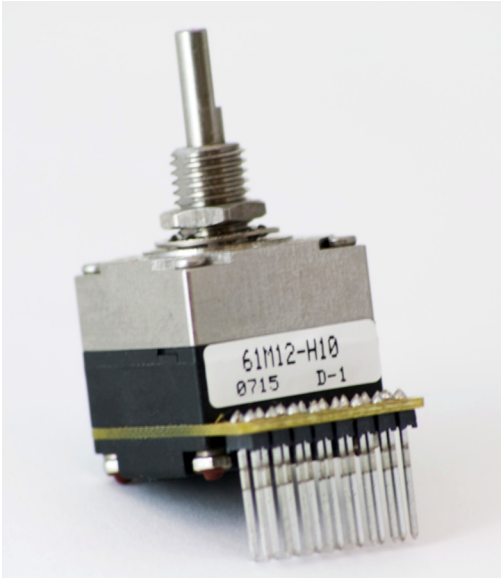
SERIES 61M

Optically Coupled for Simulated Mechanical Rotary Switch Output



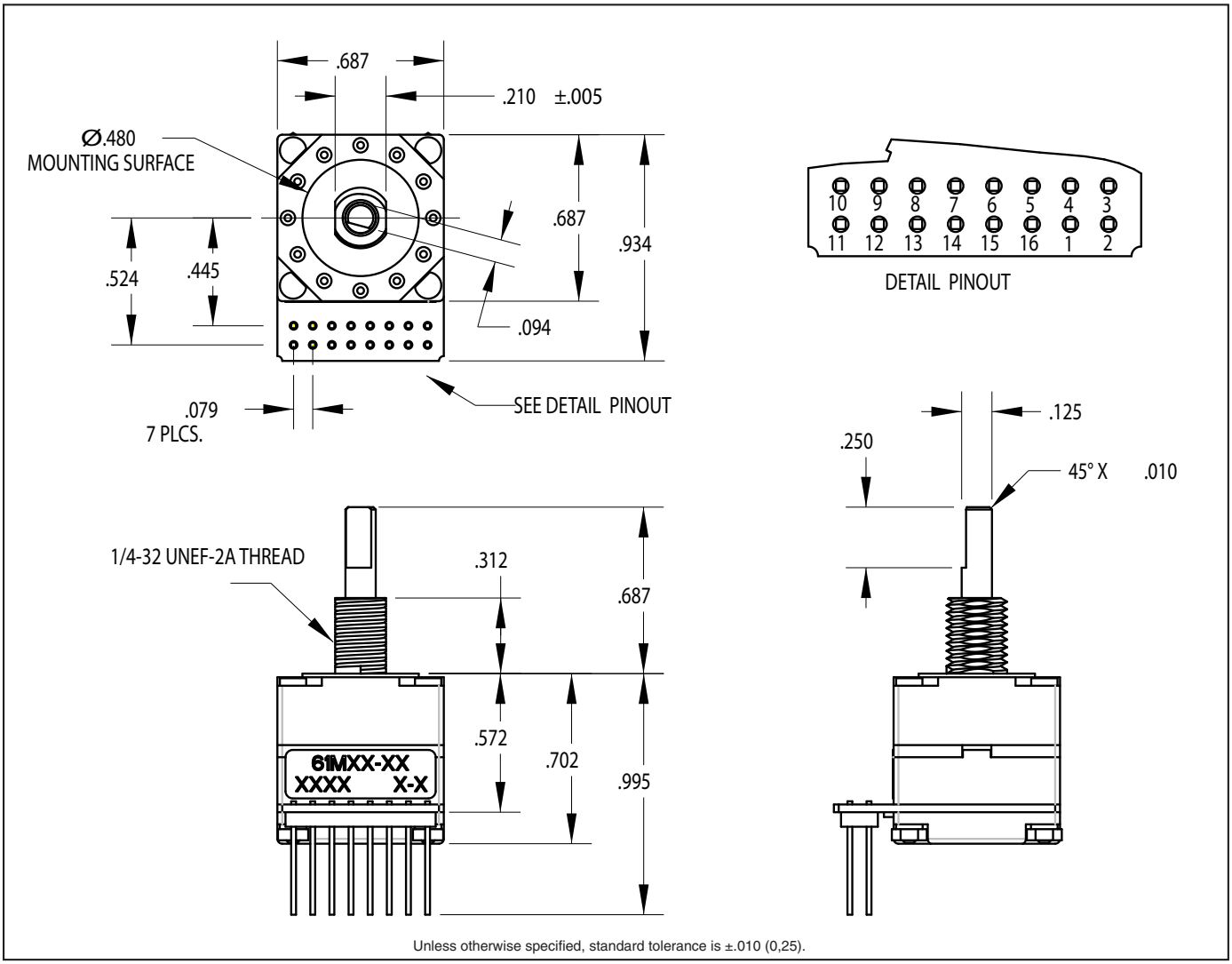
FEATURES

- 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

Applications

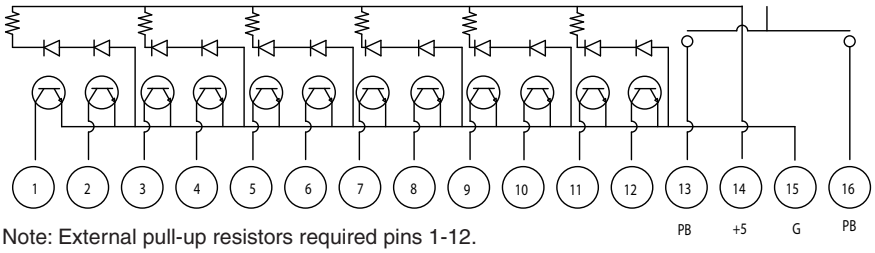
- Avionics
- Any application requiring rotary switch output and the increased reliability of an optical device.

DIMENSIONS In inches (and millimeters)



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

CIRCUITRY and TRUTH TABLE



Note: External pull-up resistors required pins 1-12.

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 Specifications

Rating: 10mA at 5 Vdc
Contact Resistance: Less than 10 Ohms
Contact Bounce: Less than 4 mS at make and less than 10 mS at break
Actuation Life: 3,000,000 actuations
Actuation Force: 8- 850±200g, 5- 550±200g
Shaft Travel: .020±.010 inch

Rotary Specifications

Rating: 5.0 ± .25 Vdc
Supply Current: 60mA maximum at 5 Vdc
Output: Open collector phototransistor, external pull-up resistors are required
Output Code: One pulse per position per rotation (360 degrees CW/CCW)
Logic High: 3.0V minimum
Logic Low: 1.0V maximum
Power Consumption: 300mW maximum

Mechanical Life: 1 million cycles of operation (1 cycle=360° rotation)
Rotational Torque: H- 10.0±3.0 in*oz, **(initial)** L- 4.0±1.5 in*oz
(torque shall be within 50% of initial value throughout life)
Shaft Pushout Force: 50 lbs. minimum
Shaft Pullout Force: 50 lbs. minimum

Environmental

Operating and Storage Temperature Range: -40°C to +85°C
Humidity: 90-95% Relative Humidity at 40°C for 96 hours
Vibration: Harmonic motion with amplitude of 15g, within a varied frequency of 10-2000 hZ
Mechanical Shock: 100g's, 6 ms, Half Sine, 12.3 ft/s and 100g's, 6 ms, Sawtooth, 9.7 ft/s

Materials and Finishes

Shaft: Stainless steel
Detent/Bushing Housing: Stainless steel
Code Rotor: Reinforced Thermoplastic
Stop Arm: Stainless steel
Deck Spacer: Reinforced thermoplastic
Detent Springs: Piano wire
Detent Balls: Nickel plated stainless steel
Pushbutton Actuator: Zytel 70G33L
Domes: Stainless steel
Backplate: Reinforced Thermoplastic
Printed Circuit Boards: NEMA Grade FR-4, double clad copper, gold plated over nickel
Phototransistor: Planar silicone
Infrared Emitter: Gallium aluminum arsenide
Solder Pins: Tin plated brass
Header: Hi-temp glass filled thermoplastic UL94V-0, phosphor bronze
Resistor: Metal oxide on ceramic substrate

ORDERING INFORMATION

61MXX-XX

Series
"M" Style
Angle of Throw: Detent
12 = 30° or 12 positions

Pushbutton Force: 0 = no PB, 5 = 550g, 10 = 1,000g
Rotational Torque: L = low torque, H = high torque

Rotational Torque \ Pushbutton Force	**0** none	**5** 550g	**10** 1,000g
L 5in-oz	L0	L5	L10
H 10in-oz	H0	N/A	H10

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.