

SERIES 61M

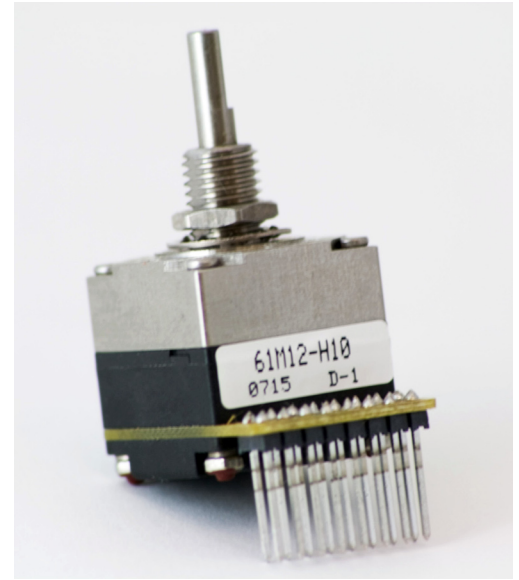
Optically Coupled for Simulated Mechanical Rotary Switch Output

FEATURES

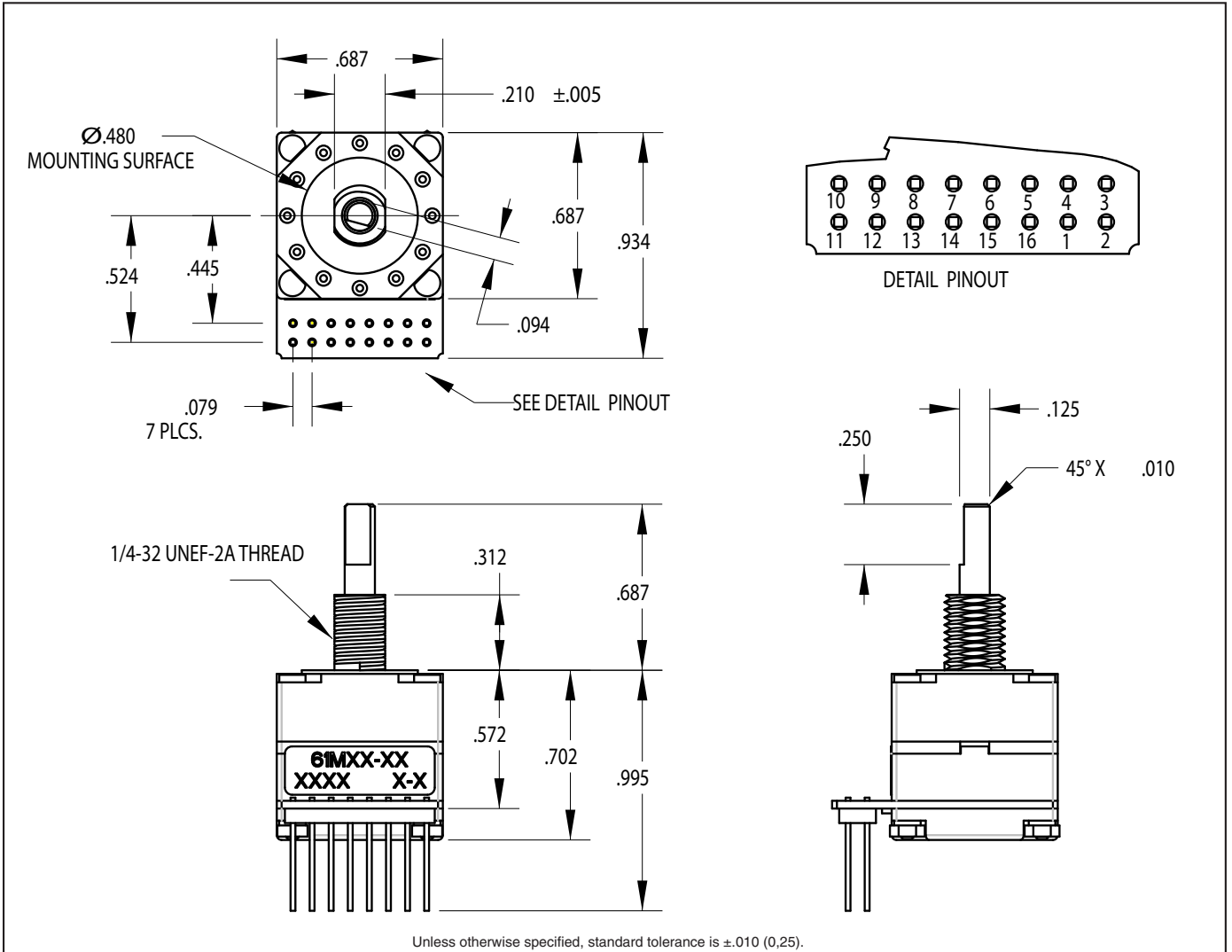
- Optical Alternative to Rotary Contacts
- One Pulse Per Detent Position Per Rotation
- Long Life of a Million Cycles
- With or Without Pushbutton
- Continuous Rotation and Fixed Stops Available
- Rugged Construction

Applications

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

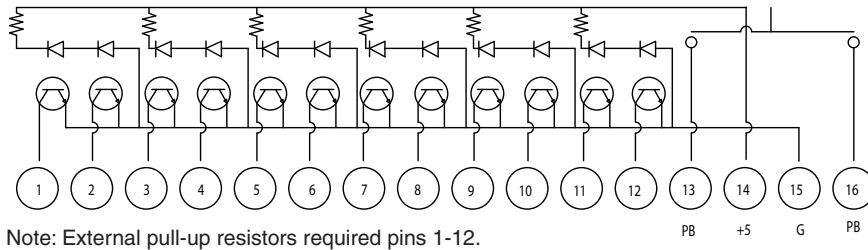


DIMENSIONS In inches (and millimeters)



Optical and Mechanical Encoders

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

Optical and Mechanical Encoders

ORDERING INFORMATION

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

		Pushbutton Force		
		0 none	5 550g	10 1,000g
Rotational Torque	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.