

## 12MM MINIATURE SEALED ELECTRO-MECHANICAL

This rugged multi-option sealed pushbutton series offers the utmost in choices of mounting styles, colors, terminations, bezels, lighting and momentary or alternate-action switching. The Series 48 offers all these options in one compact package size.

# Series 48EM



### APPLICATIONS

- Office equipment
- Medical equipment
- Industrial machinery
- Outdoor controls
- Mass transportation
- Food processing equipment

### KEY FEATURES:

- Momentary or maintained action
- Gold contacts
- Many button colors
- Choice of LED colors (or non-lighted versions)
- Long life
- Solder, PC terminals or Wireleads
- Panel sealed to IP 67

ACTUAL SIZE

### ORDERING INFORMATION:

Switch Function	Switch Termination	Module Type	Bezel Type	LED Color †	Button Color	Mounting Type	Voltage Resistor
Momentary	Solder Tabs	<b>48-1</b>	<b>RB</b> - Round, Black	<b>N</b> - None	<b>RD</b> - Red	<b>B</b> - Bushing	If Blank*
Maintained	Solder Tabs	<b>48-2</b>	<b>SB</b> - Square, Black	<b>R</b> - Red	<b>GR</b> - Green	<b>S</b> - Snap-fit	<b>05</b> - 5V forward
Momentary	PC	<b>48-5</b>	<b>RC</b> - Round, Chrome	<b>G</b> - Green	<b>BK</b> - Black		<b>12</b> - 12V forward **
Maintained	PC	<b>48-6</b>	<b>SC</b> - Square, Chrome	<b>Y</b> - Yellow	<b>BL</b> - Blue		<b>24</b> - 24V forward **
Momentary	Wire Leads	<b>48-A</b>		<b>A</b> - Amber	<b>YL</b> - Yellow		
Maintained	Wire Leads	<b>48-B</b>		<b>B</b> - Blue	<b>OR</b> - Orange		
				<b>W</b> - White	<b>CR</b> - Chrome		
				<b>RB</b> - Red / Blue	<b>PK</b> - Black with Standby Symbol		
				<b>RG</b> - Red / Green	<b>WH</b> - White		

† Lighted switches come with wires on LEDs to protect from solder heat.

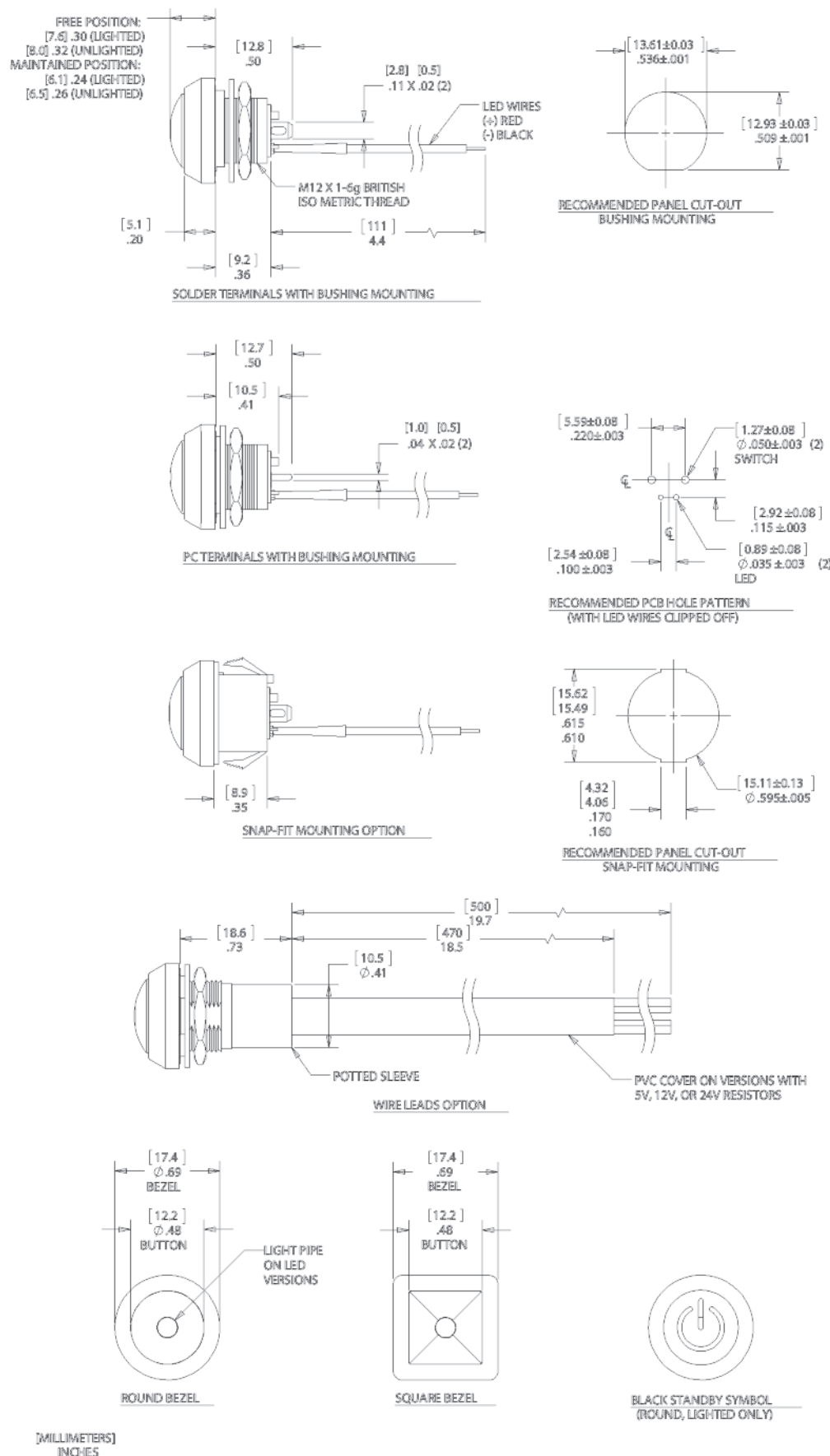
\* Current limiting resistor is required to limit LED forward current to 20 mA (not included).

\*\* 12 and 24 V resistors are available with wirelead versions only.

### STANDARDS / AGENCY / RATINGS:



## PRODUCT DRAWINGS



## MECHANICAL CHARACTERISTICS

### CIRCUIT:

SPST-NO-DB (FORM X)

### BUTTON TRAVEL (NOM):

[2.3] .09

### OPERATING FORCE (NOM):

[3N] 306g

### CONTACT BOUNCE (NOM):

1 ms

### PANEL THICKNESS:

BUSHING MOUNTING: [0.5-3.0]  
.02-.12

SNAP-FIT MOUNTING: [1.3-3.0]  
.05-.12

### NUT TORQUE (MAX):

[11.5 kgf/cm] 10 lb/in

### HARDWARE

BUSHING MOUNTING: BULK  
PACKAGED SEALING WASHER  
AND HEX NUT ARE INCLUDED.

## ENVIRONMENTAL SPECIFICATIONS

### ACTUATOR INGRESS

#### PROTECTION:

IP67

### OPERATING TEMPERATURE:

[-40 C to +85 C] -40 F to +185 F

## ELECTRICAL SPECIFICATIONS

### CURRENT RATING (resistive):

250mA @ 12VDC, 100K CYCLES

150mA @ 28VDC, 150K CYCLES

(MOMENTARY)

100mA @ 48VDC, 100K CYCLES

10mA @ 12VDC, 1 MILLION CYCLES  
(MOMENTARY)

### DIELECTRIC STRENGTH:

1,000 VAC

### INSULATION RESISTANCE:

1G OHM

### CONTACT RESISTANCE:

50m OHMS

### WIRE LEADS:

UL STYLE 1007

26 AWG, STRANDED

# Mouser Electronics

Authorized Distributor

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## ITW Switches:

[48-2-RC-N-CR-B](#) [48-1-SB-N-BK-B](#) [48-1-RB-N-BK-B](#) [48-1-SB-N-RD-B](#) [48-1-RB-N-RD-B](#) [48-5-RB-N-BK-B](#) [48-2-RB-](#)  
[R-BK-B](#) [48-1-RB-R-BK-B](#) [48-2-RB-N-BK-B](#) [48-2-RB-N-RD-B](#) [48-1-RC-N-CR-B](#) [48-1-SB-R-BK-B](#) [48-1-SB-R-GR-B](#)  
[48-1-RB-N-YL-B](#) [48-1-RB-N-GR-B](#) [48-1-RB-N-OR-B](#) [48-1-RB-N-BL-B](#) [48-1-RB-N-BK-S](#) [48-2-RB-W-YL-B](#) [48-1-RB-](#)  
[G-BK-B](#) [48-1-RB-N-RD-S](#) [48-A-SB-N-WH-S](#) [48-A-SB-N-BK-S](#) [48-A-SB-N-GR-B](#) [48-A-SB-N-BK-B](#) [48-A-SB-N-BL-B](#)  
[48-A-RB-N-YL-B](#) [48-A-RB-N-OR-B](#) [48-A-RB-N-WH-B](#) [48-5-RB-G-BK-B](#) [48-2-RB-N-GR-B](#) [48-5-RB-G-GR-B](#)