

12MM MIRROR 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 12mm Metal Switches offers all these options in one compact package size.

APPLICATIONS:

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

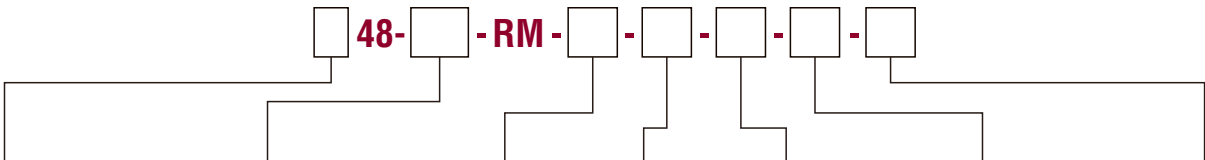
KEY FEATURES:

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

Series 48 Mirror



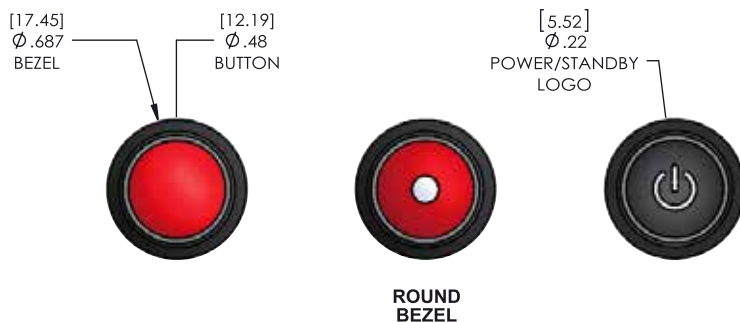
ORDERING INFORMATION:



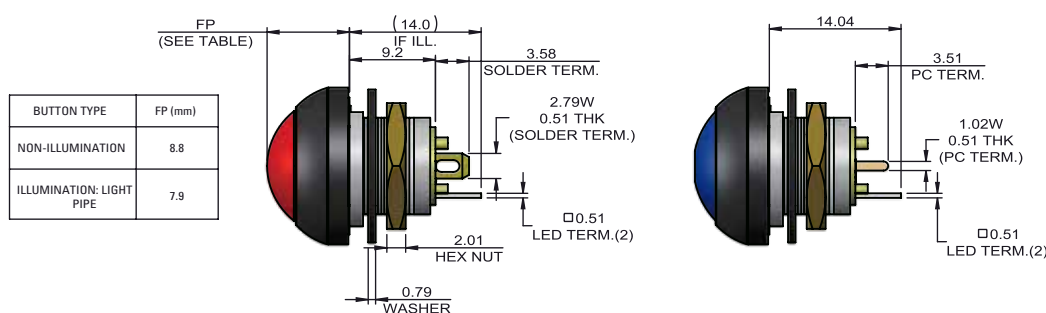
Series:	Switch Function:	LED Color: #	Button Color:	Mounting Type:	Voltage Resistor:	Special Request:
<b>BLANK</b> Gold Contact IP67	<b>A</b> Momentary, Wireleads <b>B</b> Maintaine, Wireleads <b>E</b> Momentary, Solder Terminal <b>F</b> Maintaine, Solder Terminal <b>G</b> Momentary, PC Terminal <b>H</b> Maintaine, PC Terminal	<b>N</b> None <b>R</b> Red <b>A</b> Amber <b>Y</b> Yellow <b>G</b> Green <b>B</b> Blue <b>W</b> White <b>RG</b> Red/Green <b>RB</b> Red/Blue	<b>BK</b> Black <b>RD</b> Red <b>GR</b> Green <b>BL</b> Blue <b>YL</b> Yellow <b>OR</b> Orange <b>WH</b> White	<b>B</b> Bushing	<b>BLANK*</b> See Spec. Table <b>5</b> 5V <b>12</b> 12V <b>24</b> 24V	<b>BLANK</b> N/A <b>xxx</b> Per Customer Special Request
<b>S</b> Silver Contact IP67	<b>1</b> Momentary, Solder Terminal <b>2</b> Maintaine, Solder Terminal <b>5</b> Momentary, PC Terminal <b>6</b> Maintaine, PC Terminal <b>A</b> Momentary, Wireleads <b>B</b> Maintaine, Wireleads					
<b>G</b> Silver Contact IP67/2A	<b>1</b> Momentary, Solder Terminal <b>2</b> Maintaine, Solder Terminal <b>5</b> Momentary, PC Terminal <b>6</b> Maintaine, PC Terminal <b>A</b> Momentary, Wireleads <b>B</b> Maintaine, Wireleads					
<b>SA</b> Silver Contact IP67/5A	<b>1</b> Momentary, Solder Terminal <b>A</b> Momentary, NO Wireleads <b>C</b> Momentary, NC Wireleads <b>E</b> Momentary, NO/NC Wireleads <b>2</b> Maintaine, Solder Terminal <b>B</b> Maintaine, NO Wireleads <b>D</b> Maintaine, NC Wireleads <b>F</b> Maintaine, NO/NC Wireleads	<b>N</b> None <b>G</b> Green <b>R</b> Red <b>B</b> Blue <b>W</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).	

## 12MM MIRROR MINIATURE SEALED ELECTRO-MECHANICAL

### PRODUCT DRAWINGS

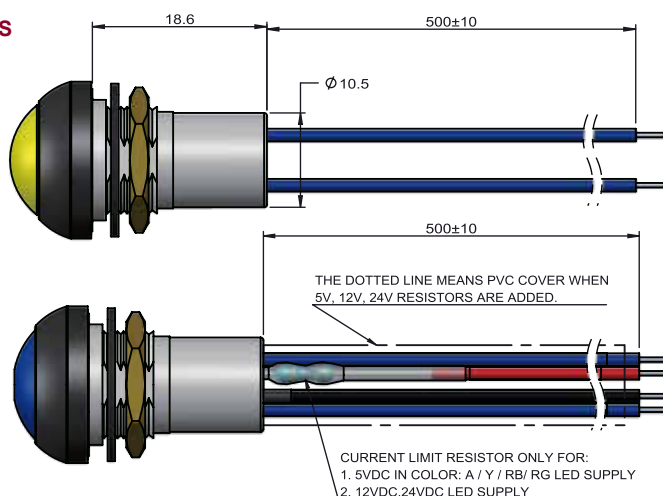


### 48 SERIES

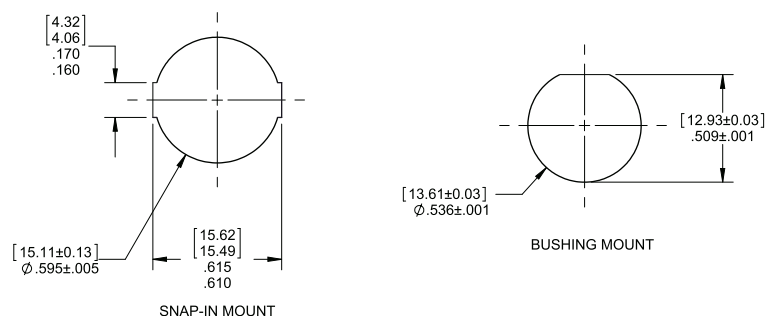


BUTTON TYPE	FP (mm)
NON-ILLUMINATION	8.8
ILLUMINATION: LIGHT PIPE	7.9

### WIRELEADS



### RECOMMENDED PANEL CUT-OUT



### MECHANICAL CHARACTERISTICS

SPST-NO-DB (FORM X)

**BUTTON TRAVEL (NOM):**

[2.3mm] .09"

**OPERATING FORCE (NOM):**

[3N] 306g

**CONTACT BOUNCE (NOM):**

1 ms

**PANEL THICKNESS:**

**BUSHING MOUNTING:** [0.5-3.0mm]  
.02"-.12"

**NUT TORQUE (MAX):**

[6 kgf-cm] 5.2 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):**

**48 (Momentary)**

10mA @ 12VDC, 1 MILLION CYCLES

**48 (Maintained)**

50K CYCLES NOMINAL

**DIELECTRIC STRENGTH:**

1,000 VAC

**INSULATION RESISTANCE:**

1G OHM

**CONTACT RESISTANCE:**

50m OHMS (Non-Wireleads)

250m OHMS (Wireleads)

**WIRE LEADS:**

UL STYLE 1007

26 AWG, STRANDED

**ITW SWITCH  
LUMEX®**

## 12MM MIRROR MINIATURE SEALED ELECTRO-MECHANICAL

### MECHANICAL CHARACTERISTICS

#### CIRCUIT:

SPST-NO-DB (FORM X)

#### BUTTON TRAVEL (NOM):

[2.3mm] .09"

#### OPERATING FORCE (NOM):

[3N] 306g

#### CONTACT BOUNCE (NOM):

1 ms

#### PANEL THICKNESS:

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

#### NUT TORQUE (MAX):

[6 kgf-cm] 5.2 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):

**G48 (Momentary)**

2A @ 24VDC, 40k CYCLES

1A @ 250VDC, 40k CYCLES

**G48 (Maintained)**

2A @ 24VDC, 20k CYCLES

1A @ 250VDC, 20k CYCLES

**S48 (Momentary)**

10mA @ 12VAC, 200k CYCLES

**S48 (Maintained)**

20K CYCLES NOMINAL

#### DIELECTRIC STRENGTH:

1,000 VAC

#### INSULATION RESISTANCE:

1G OHM

#### CONTACT RESISTANCE:

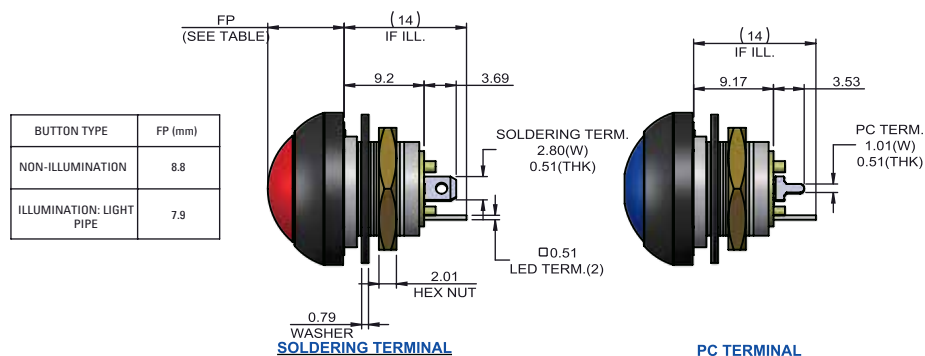
50m OHMS

#### WIRE LEADS:

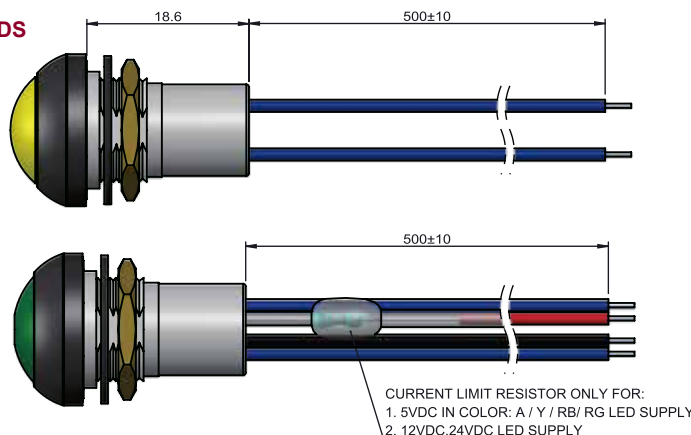
UL STYLE 1007

26 AWG, STRANDED

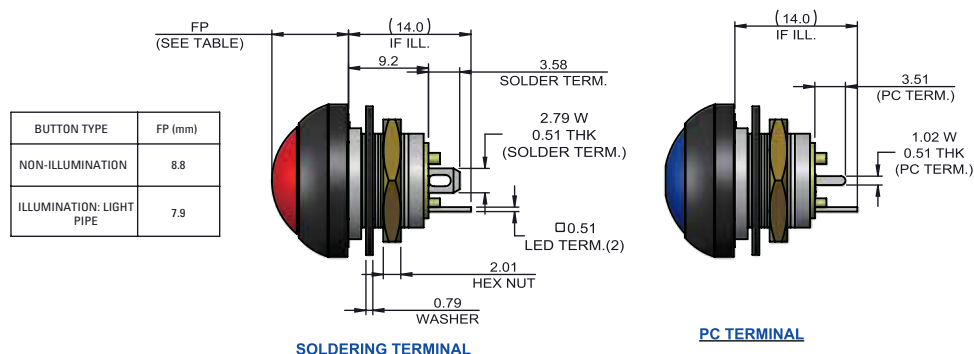
### G48 SERIES



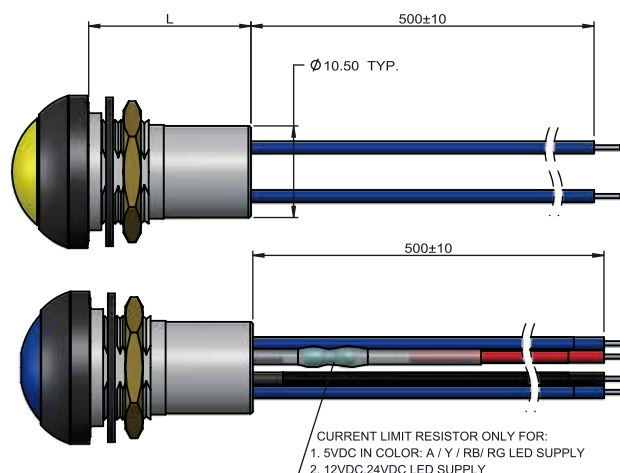
#### WIRELEADS



### S48 SERIES



#### WIRELEADS



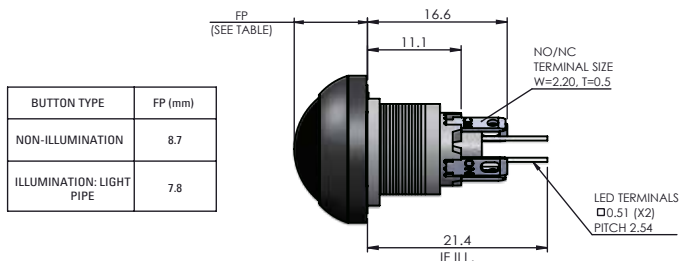
SLEEVE CODE	L (mm)
IF BLANK (STANDARD)	18.6
D (SHORT)	15.2

**ITW SWITCH LUMEX**

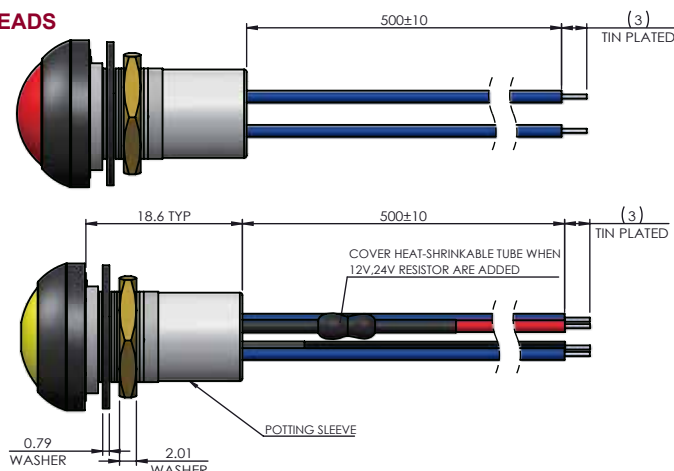
[www.itweba.com](http://www.itweba.com)

## 12MM MIRROR MINIATURE SEALED ELECTRO-MECHANICAL

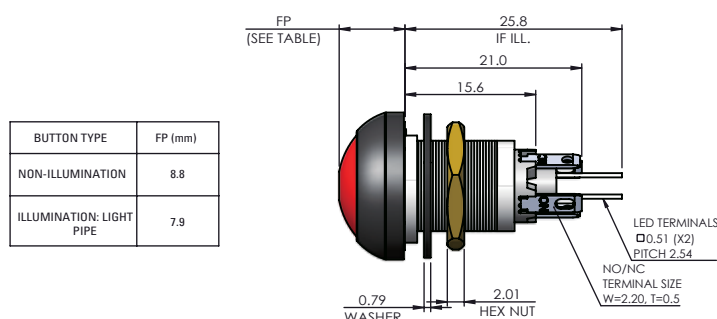
### SA48 SERIES (MOMENTARY)



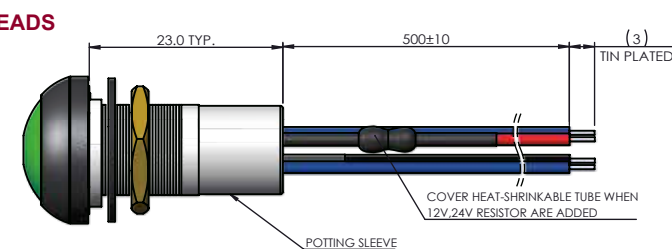
#### WIRELEADS



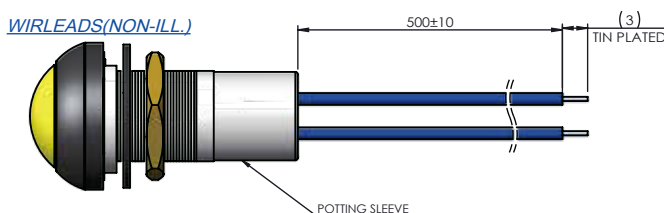
### SA48 SERIES (MAINTAIN)



#### WIRELEADS



#### WIRELEADS(NON-ILL.)



### ELECTRICAL SPECIFICATIONS

#### CIRCUIT:

SPDT-DB ( Form X )

#### PRETRAVEL (Nominal):

[1.27mm] .050"

#### OVERTRAVEL (Nominal):

[0.25mm] .010"

#### TOTAL TRAVEL (Nominal):

[1.52mm] .060"

#### OPERATING FORCE (Nominal):

5.15N [525g]

#### RELEASE FORCE (Nominal):

3.45N [340g]

#### PANEL THICKNESS:

Bushing Mount:  
0.020" - 0.118" [0.5 - 3.0mm]

#### CONTACTS:

Silver

#### NUT TORQUE FORCE:

Max 5.2 lb-in [6 kgf-cm]

#### ACTUATOR INGRESS PROTECTION:

IP67 (Front Panel)

#### OPERATING TEMPERATURE:

-40° to +185°F [-40° to +85°C]

#### CURRENT RATINGS (Nominal):

5A@ 28 VDC ,25k Cycles  
5A@ 125/250 VAC, 25k Cycles

### ELECTRICAL SPECIFICATIONS

#### DIELECTRIC STRENGTH:

1,000 VAC

#### INSULATION RESISTANCE:

1GΩ

#### CONTACT RESISTANCE:

Max 50mΩ (Non-Wirelead)  
Max 250mΩ (Wirelead)