

### SERIES 48EM:



ACTUAL SIZE



### FLEX-TECH MINIATURE SEALED PUSHBUTTON SWITCHES

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.

#### KEY FEATURES:

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

#### APPLICATIONS

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

#### 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		
Maintained	PC	<b>48-6</b>	<b>SC</b> - Square, Chrome	<b>Y</b> - Yellow	<b>BL</b> - Blue		
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>PK</b> - Black with Standby Symbol		
					<b>WH</b> - White		

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

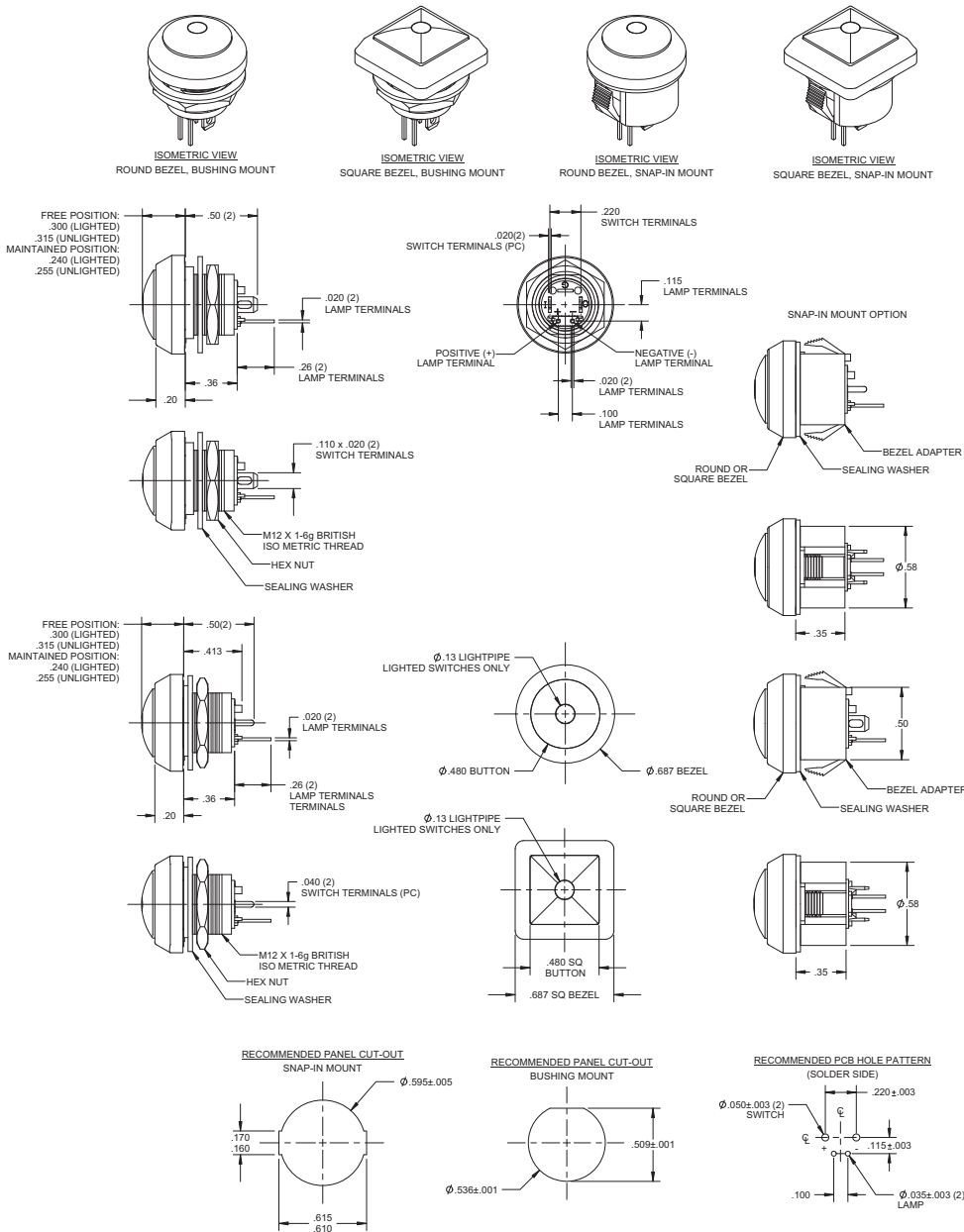
#### STANDARDS / AGENCY / RATINGS:



# SERIES 48: ELECTRO-MECHANICAL MINIATURE SEALED

# PUSHBUTTON SWITCHES

## PRODUCT DRAWINGS



## MECHANICAL / ELECTRICAL CHARACTERISTICS:

- Circuit:**  
SPST-NO-DB
- Button travel (nominal):**  
0.09 inches / 2.3 mm
- Operating force (nominal):**  
3N / 306 grams
- Contact bounce (nominal):**  
1 millisecond
- Panel thickness:**  
0.02 – 0.12 inches / 0.5 – 3mm
- Temperature index:**  
-40° F to + 185° F
- LED operating temperature:**  
-13° F to +185° F /  
-25° C to +85° C
- Current ratings (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:**  
50 mΩ max (initial)
- Torque (max):**  
10 inch pounds

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**IN2CONNECT**  
ELECTRONIC CONNECTORS

Designs and specifications are subject to change without notice due to product improvement.

# PUSHBUTTON SWITCHES

## 12MM MINIATURE HALL-EFFECT SEALED

This rugged sealed pushbutton switch uses a Hall-Effect sensor to achieve extremely long life, up to 1,000,000 cycles momentary. This switch is suited for harsh environments where long life and reliability are needed.

# Series 48SS



## APPLICATIONS

- Communications
- Data entry
- Hand-held control modules
- Outdoor controls
- Mass transport controls
- Instrumentation

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## KEY FEATURES:

- 1,000,000 cycles momentary
- Momentary and maintained action
- Hall-Effect technology
- Choice of LED colors (or non-lighted versions)
- Panel sealed to IP67
- Variety of Button colors
- Square and round versions available
- Solder, PC terminals or Wireleads

ACTUAL SIZE



**IN2CONNECT**  
ELECTRONIC CONNECTORS

## ORDERING INFORMATION:

Switch Function	Switch Termination	Module Type	Bezel Type	LED Color †	Button Color	Mounting Type	Voltage Resistor
Momentary	Solder Tabs	<b>48-3</b>	<b>RB</b> - Round, Black	<b>N</b> - None	<b>RD</b> - Red	<b>B</b> - Bushing	If Blank*
Maintained	Solder Tabs	<b>48-4</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>48-7</b>	<b>RC</b> - Round, Chrome	<b>G</b> - Green	<b>BK</b> - Black		
Maintained	PC	<b>48-6</b>	<b>SC</b> - Square, Chrome	<b>Y</b> - Yellow	<b>BL</b> - Blue		
Momentary	Wire Leads	<b>48-C</b>		<b>A</b> - Amber	<b>YL</b> - Yellow		
Maintained	Wire Leads	<b>48-D</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).

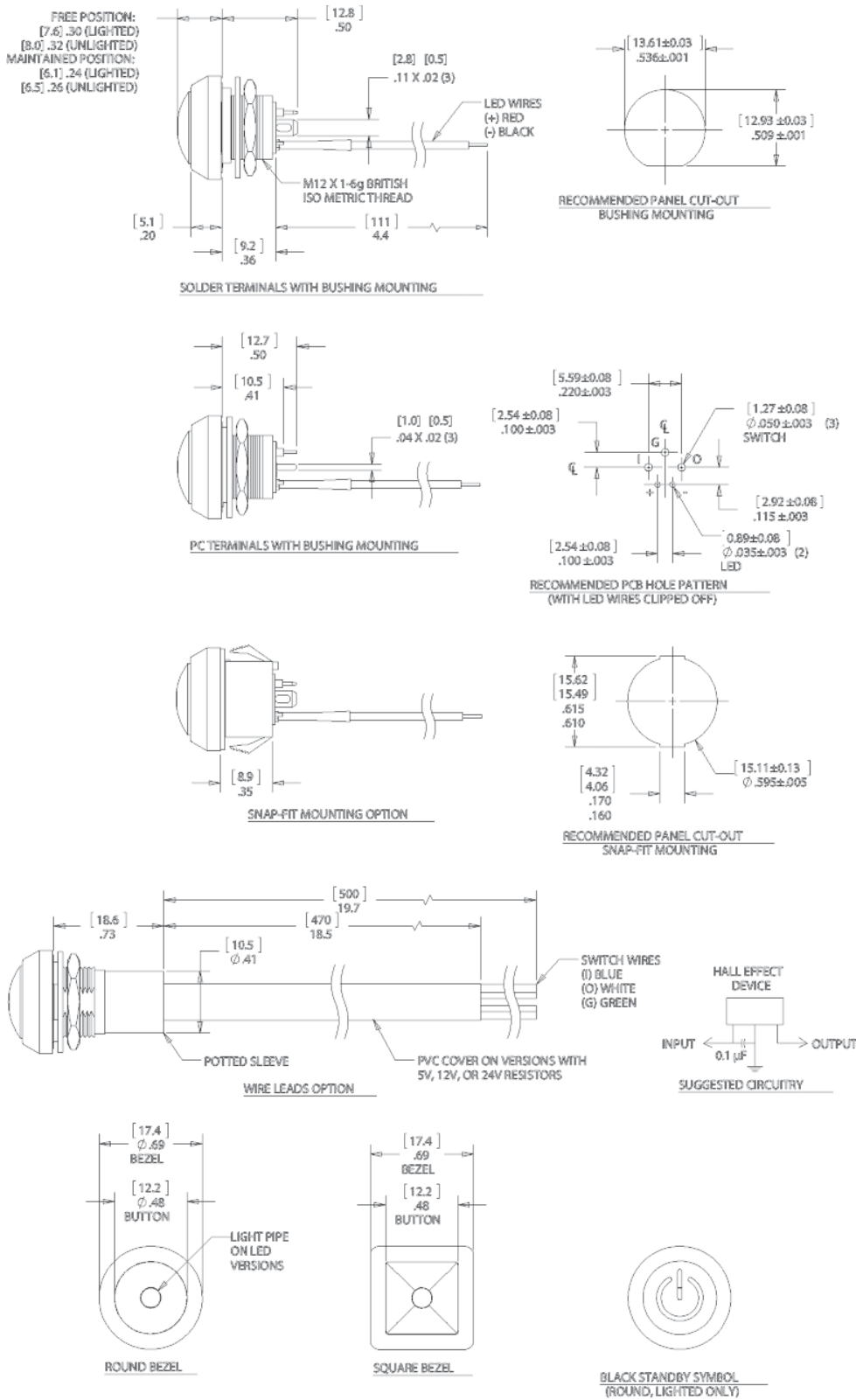
## STANDARDS / AGENCY / RATINGS:



# SERIES 48: 12MM MINIATURE HALL-EFFECT SEALED

# PUSHBUTTON SWITCHES

## PRODUCT DRAWINGS



## MECHANICAL CHARACTERISTICS

### CIRCUIT:

SPST-NO-DB (FORM X)

### BUTTON TRAVEL (NOM):

[2.3] .09

### OPERATING FORCE (NOM):

[3N] 306g

### 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

### SUPPLY VOLTAGE:

4.2V TO 24V, 26.5 MAX

### SUPPLY CURRENT:

B<Brp, Vcc=12V:  
3mA TYP to 8mA MAX

B>Bop, Vcc=12V:  
4mA TYP to 8mA MAX

### OUTPUT LOAD:

SINKING (I out MAX = 25mA)

### REVERSE BATTERY VOLTAGE:

-30V MAX

### REVERSE OUTPUT CURRENT:

-50mA MAX

### SWITCH LIFE:

MOMENTARY: 1,000,000 CYCLES  
MAINTAINED: 50,000 CYCLES

### WIRE LEADS:

UL STYLE 1007  
26 AWG, STRANDED

[MILLIMETERS]  
INCHES

# C48 SERIES - SCREW TERMINALS

### KEY FEATURES:

- Screw Terminals
- Momentary or maintained action
- Silver contacts
- Large choice of button colours
- Choice of LED colours (or non-illuminated versions)
- Long life
- Solder or PC terminals
- Panel sealed to IP67
- Square and round bezel versions available



### MECHANICAL/ELECTRICAL CHARACTERISTICS

**Circuit:**

SPST-NO-DB

**Button Travel (nominal):**

2.3mm (0.09")

**Life (Mechanical):**

20,000 cycles nominal

**Operating Force (nominal):**

3N (306 grams)

**Contact Bounce (nominal):**

1 millisecond

**Panel Thickness:**

0.5 ~ 3.0mm

**Temperature (Operating):**

-40°C to + 85°C

**Current Ratings (resistive):**

10mA @ 12VDC, 200,000 cycles (momentary)

10mA @ 12VDC, 20,000 cycles (maintain)

**Dielectric Strength:**

1000V AC

**Insulation Resistance**

1 GΩ

**Contact Resistance:**

50 mΩ

**Torque (maximum) (Fixing Nut):**

1.2 Nm

### C48 Series - Miniature Sealed Pushbuttons Screw Terminals

This multi-option sealed pushbutton series offers the utmost in choices of mounting style, button colours, terminations, bezels, lighting and momentary or maintained switching.

The Series 48 offers all these options in one compact package size.

Contact us to learn more about the options available!

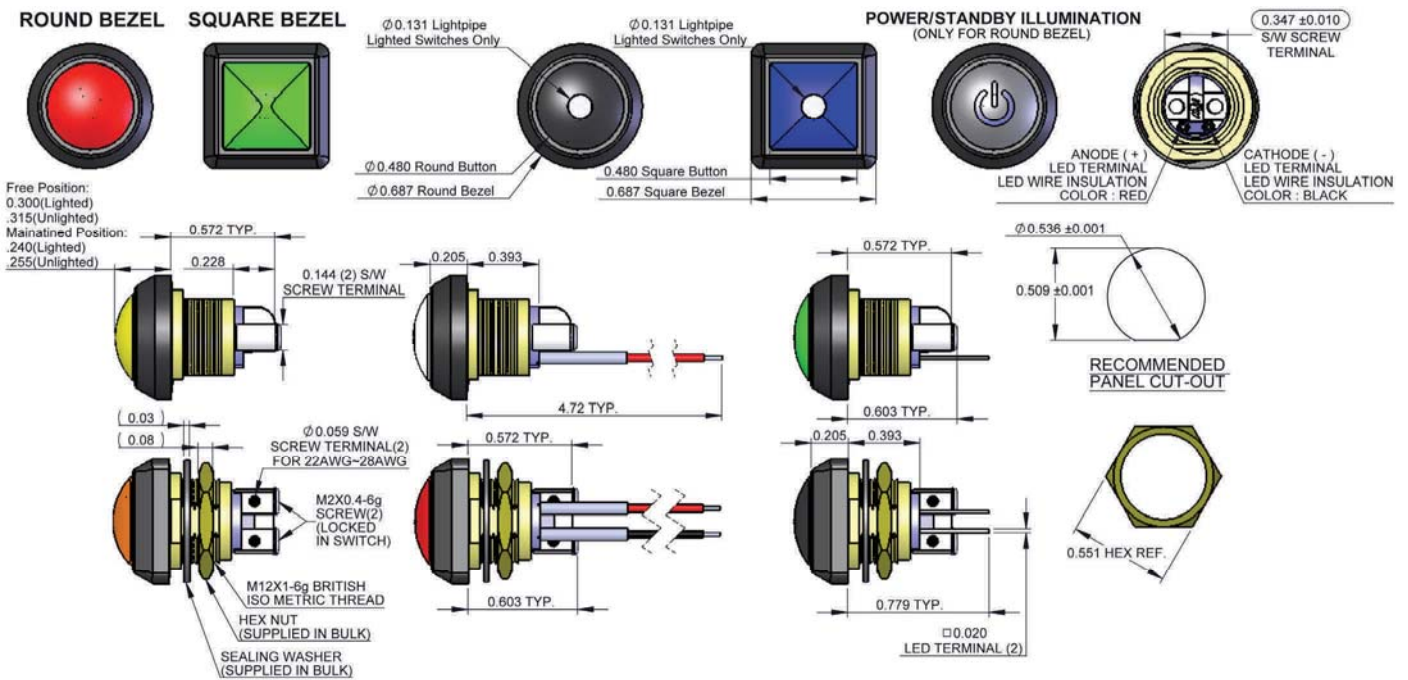
### TYPICAL APPLICATIONS:

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



# C48 SERIES - SCREW TERMINALS

### DIMENSIONS & ILLUMINATION OPTIONS:



### How To ORDER:

C48- X XX X XX X XX												
SWITCH FUNCTION CODE	SWITCH FUNCTION DESCRIPTION	BEZEL TYPE CODE	BEZEL TYPE DESCRIPTION	LED COLOR CODE	LED COLOR	BUTTON COLOR CODE	BUTTON COLOR	MOUNTING TYPE CODE	MOUNTING TYPE	LED INLET VOLTAGE CODE		LED INLET VOLTAGE
1	MECHANICAL MOMENTARY, SCREW TERMINAL	RB	ROUND, BLACK	N	NONE	RD	RED	B	BUSHING	NONE- WIRELEADS	IF BLANK*	(SEE NOTE)
2	MECHANICAL MAINTAINED, SCREW TERMINAL	SB	SQUARE, BLACK	G	GREEN	GR	GREEN			05		5V
E	MECHANICAL MOMENTARY, SCREW TERMINAL	RC	ROUND, CHROME	R	RED	BK	BLACK					
F	MECHANICAL MAINTAINED, SCREW TERMINAL	SC	SQUARE, CHROME	A	AMBER	BL	BLUE					
				B	BLUE	YL	YELLOW					
				W	WHITE	OR	ORANGE					
				Y	YELLOW	WH	WHITE					
				RB	RED/BULE	CR	CHROME					
				RG	RED/GREEN	PK	POWER/STANDBY BLACK					