

19MM PANEL SEALED METAL ELECTRO-MECHANICAL

Built on the proven series 48 platform these rugged switches come in stainless steel or chrome plated housings with either momentary or maintained action and lighted or unlighted versions. The variety of options in this compact package size make the 48M ideal for many applications

Series 48M-EM



ACTUAL SIZE

APPLICATIONS

- Outdoor Controls
- Security Equipment
- Medical Equipment
- Food Processing Equipment
- Military Equipment
- Industrial Machinery
- Transportation: Mass-Transit, Lift Trucks

KEY FEATURES:

- Momentary or Maintained Action
- Stainless Steel Housing
- Center Spot or Ring Illumination
- Variety of LED colors
- Electro-Mechanical
- Panel Sealed to IP67
- ROHS Compliant
- Gold Plated Contact and Terminals

ORDERING INFORMATION:

SWITCH FUNCTION:

1. MECHANICAL, MOMENTARY, SOLDER TERMINAL
2. MECHANICAL, MAINTAINED, SOLDER TERMINAL
5. MECHANICAL, MOMENTARY, PC TERMINAL
6. MECHANICAL, MAINTAINED, PC TERMINAL
- A. MECHANICAL, MOMENTARY, WIRE LEADS
- B. MECHANICAL, MAINTAINED, WIRE LEADS
9. SPECIAL, DIGITS ARE IN SERIAL ORDER

HOUSING MATERIAL:

1. STAINLESS STEEL
2. ZINC ALLOY CHROME PLATED

ILLUMINATION †:

0. NON-LIT
1. CENTER SPOT ILLUMINATION
2. RING ILLUMINATION
3. ILLUMINATED POWER SYMBOL

LED COLOR:

- N. NONE
- G. GREEN L.E.D.
- R. RED L.E.D.
- A. AMBER L.E.D.
- B. BLUE L.E.D.
- W. WHITE L.E.D.
- RB. RED/BLUE L.E.D.
- RG. RED/GREEN L.E.D.

VOLTAGE RESISTOR

- If BLANK *
- 05 5V FORWARD
 - 12 12V FORWARD **
 - 24 24V FORWARD **

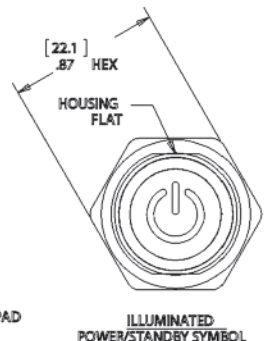
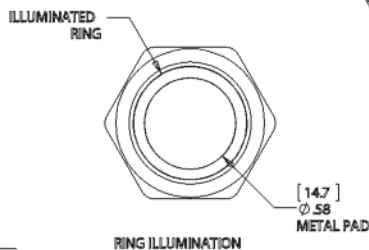
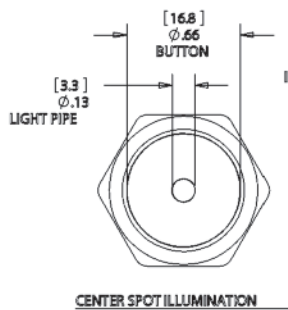
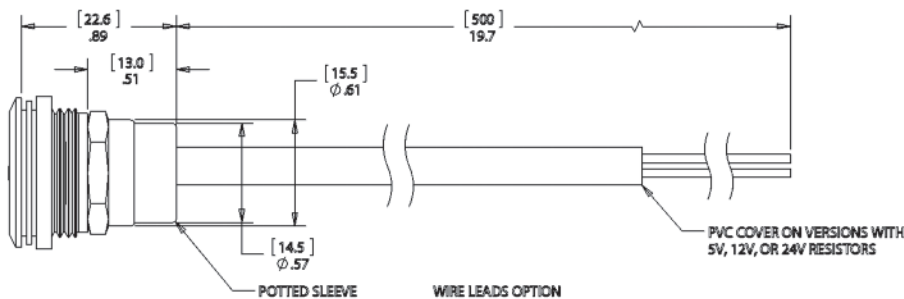
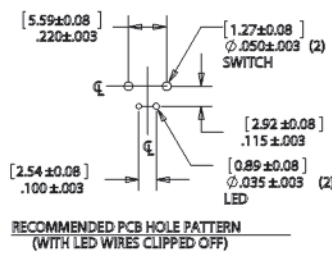
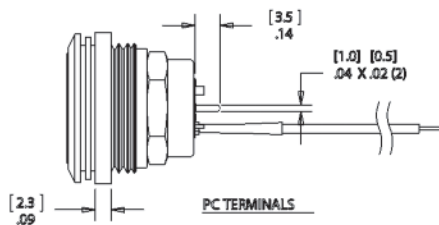
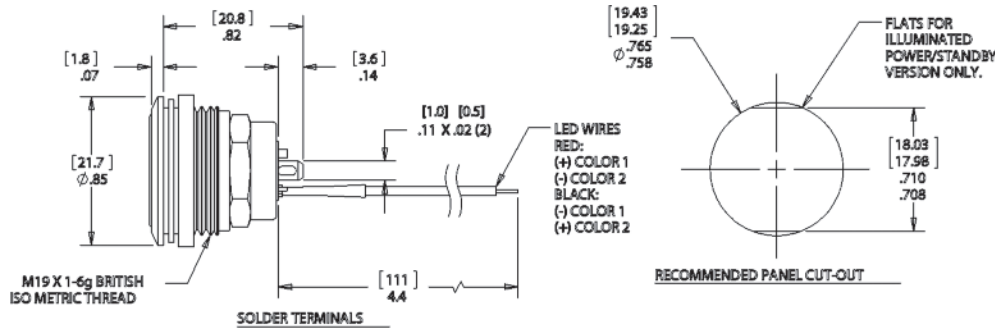
48M- [] [] [] [] []

† 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



[MILLIMETERS]
[INCHES]

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:

[0.5 to 4.5] .02 to .18

NUT TORQUE (MAX):

[11.5 kgf/cm] 10 lb/in

HARDWARE:

BULK PACKAGED SEALING WASHER AND HEX NUT ARE INCLUDED.

ENVIRONMENTAL SPECIFICATIONS

ACTUATOR INGRESS

PROTECTION:

IP67

OPERATING TEMPERATURE:

NON-LIT: [-40 C to +85 C]

-40 F to +185 F

ILLUMINATED: [-25 C to +85 C]

-13 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

Series 48M-SS

19MM PANEL SEALED METAL HALL-EFFECT

Built on the proven series 48 platform these rugged switches come in stainless steel or chrome plated housings with either momentary or maintained action and lighted or unlighted versions. The variety of options in this compact package size make the 48M ideal for many applications.

APPLICATIONS

- Outdoor Controls
- Security Equipment
- Medical Equipment
- Food Processing Equipment
- Military Equipment
- Industrial Machinery
- Transportation: Mass-Transit, Lift Trucks



ACTUAL SIZE

KEY FEATURES:

- Momentary or Maintained Action
- Stainless Steel Housing
- Center Spot or Ring Illumination
- Variety of LED colors
- Solid State
- Panel Sealed to IP67
- ROHS Compliant
- Gold Plated Contact and Terminals

ORDERING INFORMATION:

SWITCH FUNCTION:

- 3. SOLID STATE, MOMENTARY, SOLDER TERMINAL
- 4. SOLID STATE, MAINTAINED, SOLDER TERMINAL
- 7. SOLID STATE, MOMENTARY, PC TERMINAL
- 8. SOLID STATE, MAINTAINED, PC TERMINAL
- C. SOLID STATE, , MOMENTARY, WIRE LEADS
- D. SOLID STATE, , MAINTAINED, WIRE LEADS
- 9. SPECIAL, DIGITS ARE IN SERIAL ORDER

HOUSING MATERIAL:

- 1. STAINLESS STEEL
- 2. ZINC ALLOY CHROME PLATED

ILLUMINATION †:

- 0. NON-LIT
- 1. CENTER SPOT ILLUMINATION
- 2. RING ILLUMINATION
- 3. ILLUMINATED POWER SYMBOL

LED COLOR:

- N. NONE
- G. GREEN L.E.D.
- R. RED L.E.D.
- A. AMBER L.E.D.
- B. BLUE L.E.D.
- W. WHITE L.E.D.
- RB. RED/BLUE L.E.D.
- RG. RED/GREEN L.E.D.

VOLTAGE RESISTOR

- IF BLANK *
- 05 5V FORWARD
- 12 12V FORWARD **
- 24 24V FORWARD **

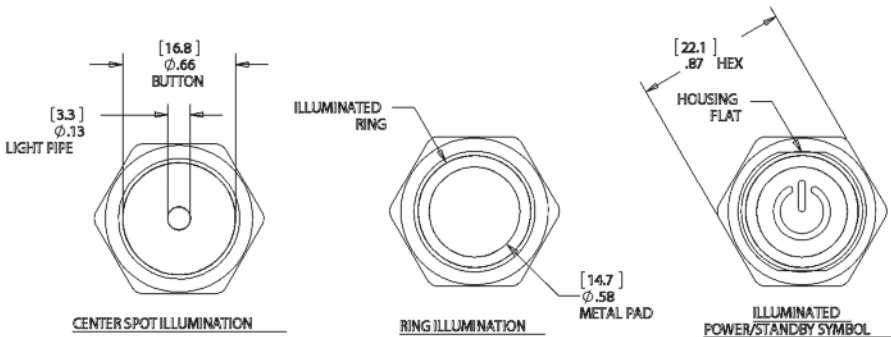
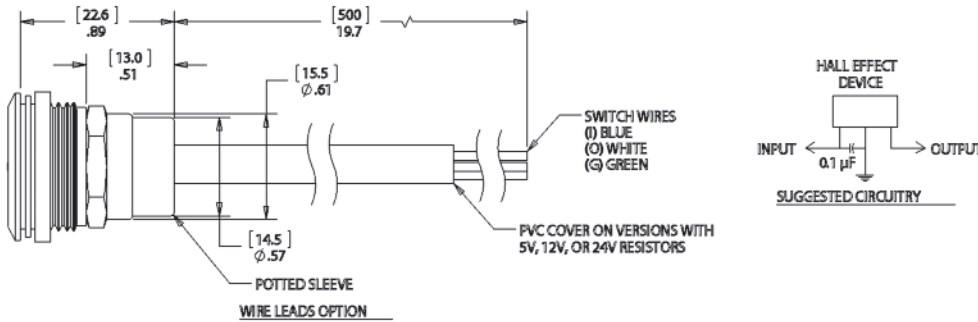
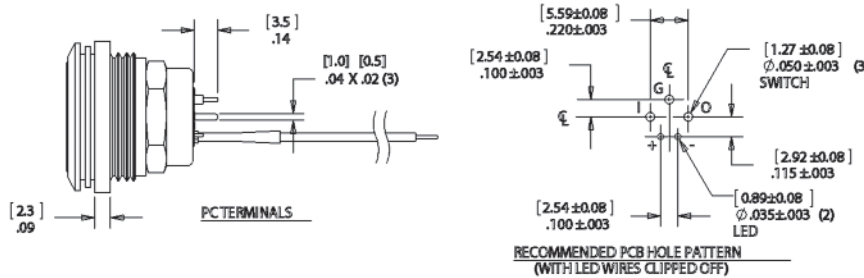
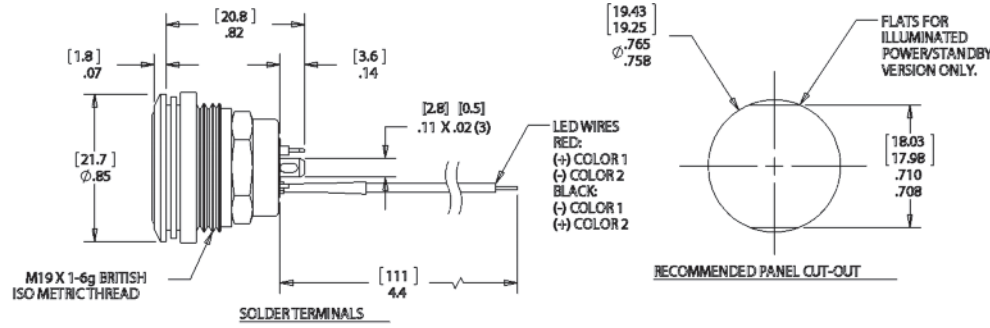
48M- [] [] [] [] []

† 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



[MILLIMETERS]
INCHES

MECHANICAL CHARACTERISTICS

CIRCUIT:
SPST-NO-DB (FORM X)

BUTTON TRAVEL (NOM):
[2.3] .09

OPERATING FORCE (NOM):
[3N] 306g

PANEL THICKNESS:
[0.5 to 4.5] .02 to .18

NUT TORQUE (MAX):
[11.5 kgf/cm] 10 lb/in

HARDWARE:

BULK PACKAGED SEALING WASHER AND HEX NUT ARE INCLUDED.

ENVIRONMENTAL SPECIFICATIONS

ACTUATOR INGRESS PROTECTION:
IP67

OPERATING TEMPERATURE:
NON-LIT: [-40 C to +85 C]
-40 F to +185 F
ILLUMINATED: [-25 C to +85 C]
-13 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

Engelking Elektronik GmbH
Albstrasse 16
D-78609 Tuningen
Tel: +49 (0) 7464 9865 0
Fax: +49 (0) 7464 9865 71
sales@itw-switches.de
www.itw-switches.de

ITW Switches
SENSORS, SWITCHES, ELECTRONIC CONTROLS