

# QRM SERIES Rear Panel Mount LED Indicators

Distinctive features and specifications

VOYC1507US

## Features

- Ø6mm and Ø8mm rear mounting LED indicator
- 5mm flush diffused LED, standard or hyper bright
- Bi-color and Tri-color LED options
- Black chrome finish
- 2VDC – 28VAC.DC
- 200mm wires or pin terminations
- IP67 sealed (EN60529)
- Epoxy sealed rear end
- Supplied with fixing nut, spring washer and O-ring (Dress nut available as an option - contact APEM)



NB: UL Recognized Component

## TECHNICAL SPECIFICATIONS

| Voltage            | Operating Voltage | Operating Current   |
|--------------------|-------------------|---------------------|
|                    | (Min to Max)      | (Typical All Types) |
| 2VDC (No Resistor) | 1.8 to 2.5VDC     | 20mA*               |
| 6VDC               | 5.4 to 6.6VDC     | 20mA                |
| 12VDC              | 10.8 to 13.2VDC   | 20mA                |
| 24VDC              | 21.6 to 26.4VDC   | 20mA                |
| 28VDC              | 25.2 to 30.8VDC   | 20mA                |

|   |
|---|
| Max Reverse Voltage: 5V                   |
| Viewing Angle: 60°                        |
| Life Expectancy: 100,000 hours            |
| Operating Temperature Range: -40 to +85°C |
| Storage Temperature Range: -55 to +100°C  |
| Max panel thickness: 3.5mm                |
| Torque: 60cNm                             |

| Materials                              |                                  |
|--|----------------------------------|
| <b>Body:</b> Black chrome plated brass | <b>Lock washer:</b> Spring steel |
| <b>Nut:</b> Black chrome plated brass  | <b>Terminal seal:</b> Epoxy      |
| <b>Panel seal:</b> Nitrile O-ring      | <b>Wires:</b> 24AWG to UL1061    |

| Standard LED Intensity                 | MCD Output     | Forward Voltage |
|--|----------------|-----------------|
|  | (all voltages) |                 |
| HE Red                                 | 10mcd          | 2.0V            |
| Green                                  | 8mcd           | 2.2V            |
| Yellow                                 | 6mcd           | 2.1V            |
| Blue                                   | 200mcd         | 3.8V            |
| White                                  | 500mcd         | 3.3V            |
| Bi-color (Typical) (Red/Green)         | 10/8mcd        | 2.0V/2.2V       |
| Tri-color (Typical) (Red/Green/Yellow) | 10/8/6mcd      | 2.0V/2.2V/2.1V  |

The color is changed by reversing the polarity of the supply voltage.

Tri-color - The indicator has red and green LEDs, when both connected yellow is produced.

| Hyper Bright                           | MCD Output     | Forward Voltage |
|--|----------------|-----------------|
|  | (all voltages) |                 |
| HE Red                                 | 980mcd         | 2.2V            |
| Green                                  | 300mcd         | 3.2V            |
| Yellow                                 | 250mcd         | 2.2V            |
| Bi-color (Typical) (Red/Green)         | 350/300mcd     | 2.2/3.2V        |
| Tri-color (Typical) (Red/Green/Yellow) | 110/30/20mcd   | 1.9V/2.2V/2.1V  |

Luminous intensity will be reduced with lower operating current.

Note: The operating voltage must not be exceeded by more than 10% as this will result in reduced life expectancy.

The company reserves the right to change specifications without notice.

\* Customer to supply resistor for desired operating current.

Luminous intensity is measured at 20mA on a discrete LED unless otherwise stated.

Luminous intensities and color shades of white LEDs may vary within a batch.

APEM



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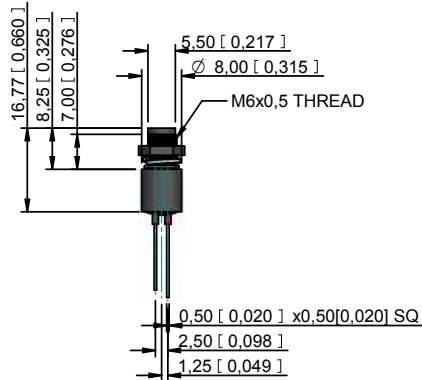
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## Technical Drawings

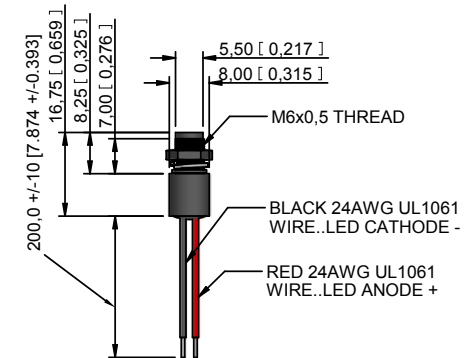
6mm



Pins



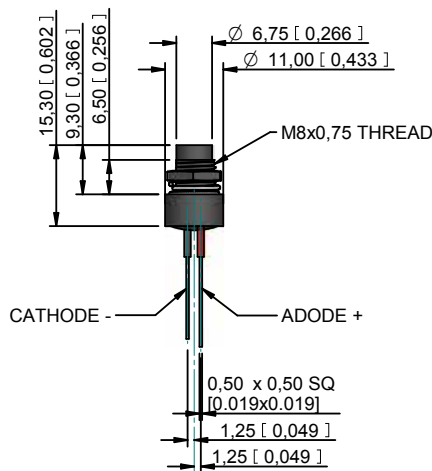
Wires



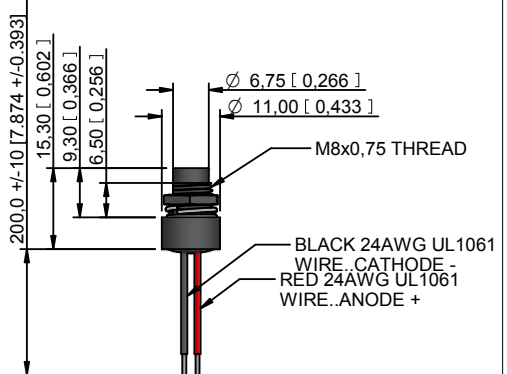
8mm



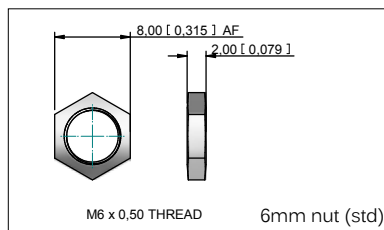
Pins



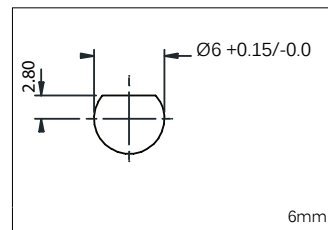
Wires



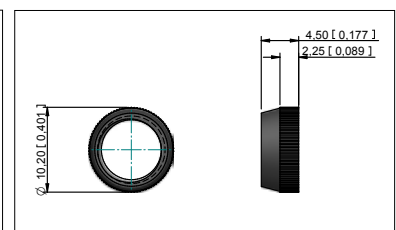
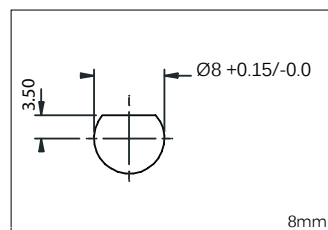
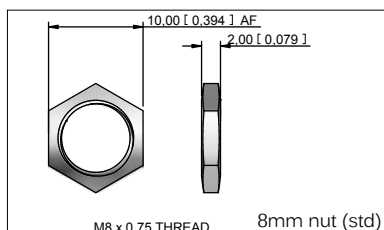
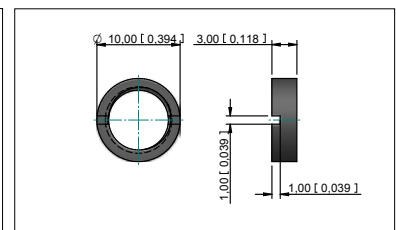
Hardware



Panel Cut out

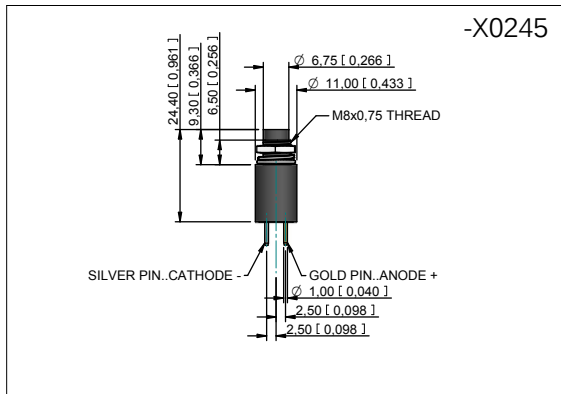


Dress nuts for 8mm QRM



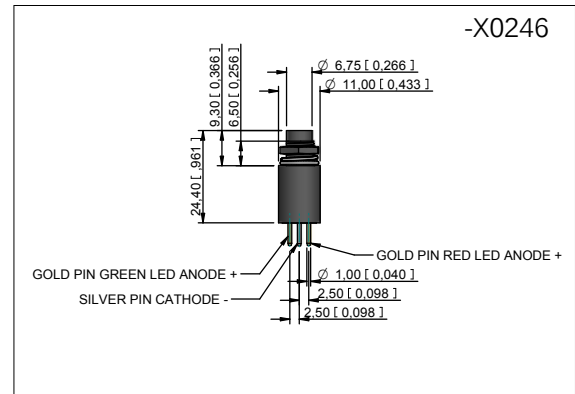
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Custom options

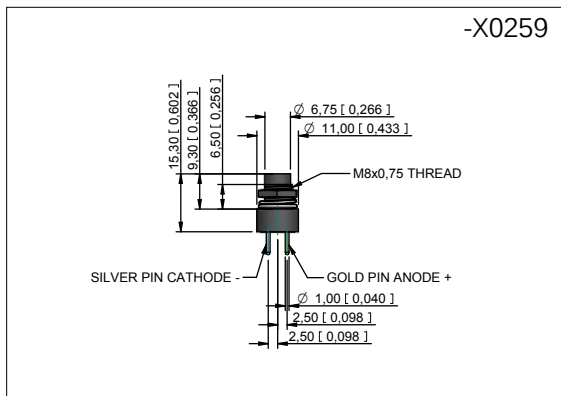


Fixed and Bi-color long body rigid pins

Long body matches the behind panel depth of APEM 12200X778 PCB mounting military grade toggle switches



Tri-color long body and rigid PCB



Fixed and Bi-color standard body rigid pins

To apply the above custom option, suffix the part number with the -X reference number  
Example QRM84BXXHB24AE-X0245

# QRM SERIES Rear Panel Mount LED Indicators

## Overview

### STANDARD OPTIONS

The QRM Series is available with a range of standard options, to specify your LED, simply choose one option from each column. An example is shown below.

| QRM    | 8                    | 4                     | B                | XX  | HB   | 24A  | E                   |
|--------|----------------------|-----------------------|------------------|---|--|--|---------------------|
| SERIES | MOUNTING HOLE        | TERMINALS             | BEZEL FINISH     | TYPE OF ILLUMINATION                                | LED COLOR  | VOLTAGE  | SEALING             |
| QRM    | 6 = Ø6mm<br>8 = Ø8mm | 4 = Pins<br>5 = Wires | B = Black Chrome | XX = Fixed light<br>YY = Bi-color<br>ZZ = Tri-color | R = Red<br>G = Green<br>Y = Yellow<br>B = Blue<br>W = White<br><br>HR = Hyper Bright Red<br>HG = Hyper Bright Green<br>HY = Hyper Bright Yellow<br>HB = Hyper Bright Blue<br>HW = Hyper Bright White<br><br>RG = Red/Green<br>RY = Red/Yellow<br>GY = Green/Yellow<br><br>RYG = Red/Yellow/Green | 02 = 2VDC<br>06 = 6VDC<br>12 = 12VDC<br>12A = 12VAC/DC<br>24 = 24VDC<br>24A = 24VAC/DC<br>28 = 28VDC<br>28A = 28VAC/DC | E = IP67 (Standard) |

#### Example QRM84BXXHR24AE

Ø8mm mounting hole with pin terminations, black chrome finish, fixed light, Red 24VAC, panel sealed to IP67



- Standard wire length is 200mm, 24AWG, red wire denotes Anode (+), black wire denotes Cathode (-) for other wire lengths consult APEM
- For LEDs with alternate voltages consult APEM
- Bi-color LEDs, by connecting the gold Faston (+) one colour is produced, by reversing the supply voltage another colour is produced – Bi-colours are available up to 28VDC
- Take care when soldering (recommended solder temperature 270°C - 2 sec)
- The Tri-color LED has red and green LEDs when both are connected yellow is produced
- Standard Tri-color termination is two Anodes (+) and one Cathode (-)
- Tri-color wires are one red (+) and one green (+) Anode and one black (-) Cathode
- Tri-color pins are center (-) Cathode, shortest (+) Anode pin green, longest (+) Anode pin red
- Maximum panel thickness 3.5mm
- For resistorless versions (02) please pay attention to the forward voltage
- For multi-voltage options please consult APEM