#### Distinctive features and specification

O22 VOY1609R3US

#### **Features**

- · 22mm panel mounting LED indicator
- 18mm colored diffused epoxy lens or 18mm super bright LEDs
- Plated brass bezel finished in bright chrome, black chrome or satin grey and moulded polycarbonate rear body
- Chamfer bezel option in 316L stainless steel and anodized aluminum finish only
- · Prominent, Recess and flush bezel styles
- · Custom engraving & secret until lit options available
- (2.8 x 0.8) solder lug/faston terminals, pins or (200mm long) wire terminations
- IP67 sealing option (EN60529)
- · Supplied with fixing nut and spring washer

NB: UL Recognized Component



| TECHNICAL SPECIFICATIONS |                   |                     |  |  |
|--------------------------|-------------------|---------------------|--|--|
| Voltage                  | Operating Voltage | Operating Current   |  |  |
|                          | (Min to Max)      | (Typical All Types) |  |  |
|                          |                   |                     |  |  |
| 05 (No Resistor)         | 3.3 to 9.9VDC     | 40mA max*           |  |  |
| 12VDC                    | 10.8 to 13.2VDC   | 40mA                |  |  |
| 24VDC                    | 21.6 to 26.4VDC   | 40mA                |  |  |
| 28VDC                    | 25.2 to 30.8VDC   | 40mA                |  |  |
| 110VAC                   | 99 to 121VAC      | 5mA                 |  |  |
| 220VAC                   | 207 to 253VAC     | 3mA                 |  |  |

| Max Reverse V   | Max Reverse Voltage: 5V                        |  |  |  |
|---|--|--|--|--|
| Viewing Angle   | : 30–100° (dependant on model)                 |  |  |  |
| Life Expectancy: 100,000 hours                        |  |  |  |  |
| Temperature Range: -40 to +85°C (operating & storage) |  |  |  |  |
| Torque: 100cN   | m  |  |  |  |
| <b>-</b>  | Ø 22.00 +0.15/-0.0 27.00[1.063] AF 3.25[0.128] |  |  |  |
|   |  |  |  |  |

| PANEL CUTOUT | M22 x 1,0 THREAD |
|--------------|------------------|
| _, ,         |                  |

| Standard LED Intensity                 | <b>Prominent and Recessed</b> | Flush       | Forward Voltage |
|--|-------------------------------|-------------|-----------------|
| HE Red                                 | 82mcd                         | 70mcd       | 5.7V            |
| Green                                  | 95mcd                         | 66mcd       | 6.0V            |
| Yellow                                 | 60mcd                         | 59mcd       | 5.9V            |
| Blue                                   | 120mcd                        | 101mcd      | 9.9V            |
| White                                  | 1,000mcd                      | 150mcd      | 3.3V            |
| Bi-color (Typical) (Red/Green)         | 80/50mcd                      | 80/50mcd    | 2.0V/2.2V       |
| Tri-color (Typical) (Red/Green/Yellow) | 80/50/50mcd                   | 80/50/50mcd | 2.0V/2.2V/2.1V  |

Bi-color - 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.

| Super bright LED (Diffused) | Prominent and Recessed | Flush    | Forward Voltage |
|-----------------------------|------------------------|----------|-----------------|
| HE Red                      | 465mcd                 | 800mcd   | 5.7V            |
| Green                       | 245mcd                 | 980mcd   | 9.0V            |
| Yellow                      | 365mcd                 | 1,250mcd | 6.0V            |

Luminous intensity will be reduced with lower operating current.

Note: The operating voltage must not be exceeded by more that 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.

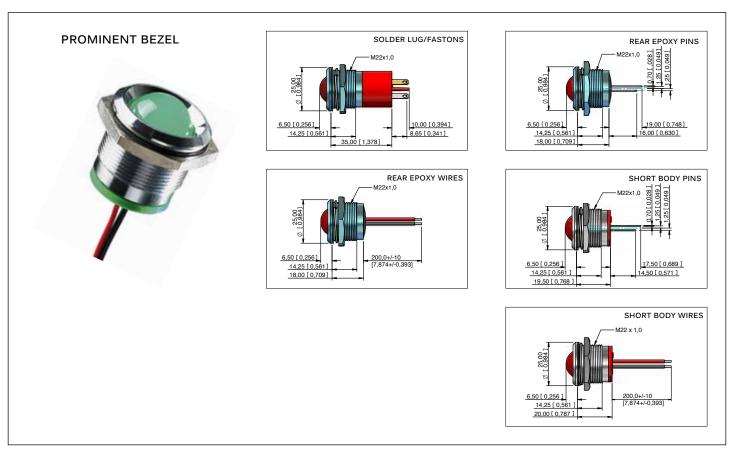
Luminous intensity is measured at 20mA on a discrete LED unless otherwise stated.

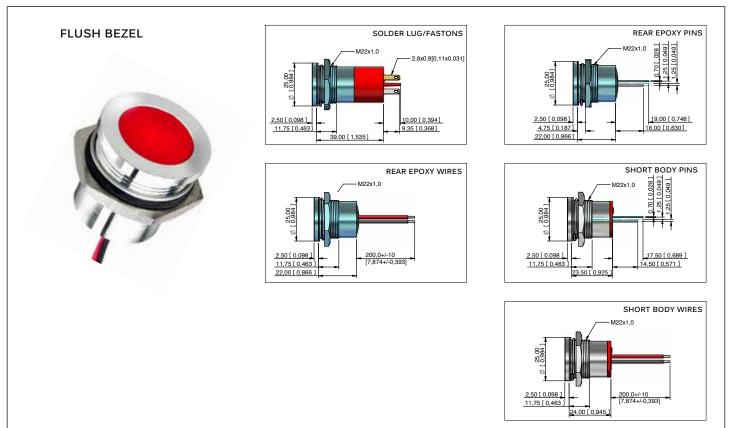
Luminous intensities and color shades of white LEDs may vary within a batch.

LED characteristics are dependent upon environmental conditions. Therefore published data should be considered nominal.

www.apem.com **APEM** 

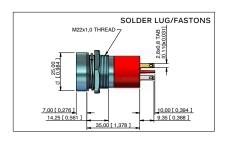
**Technical Drawings** 

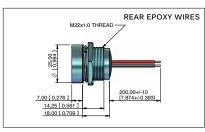


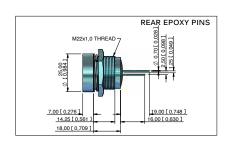


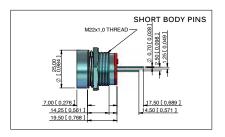
#### **Technical Drawings**

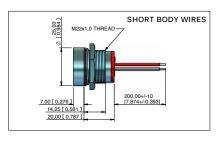










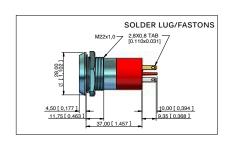


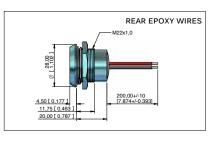
REAR EPOXY PINS

SHORT BODY PINS

17.50 [ 0.689 ] 14,50 [ 0,571 ]







SHORT BODY WIRES 4,50 [ 0,177 ]

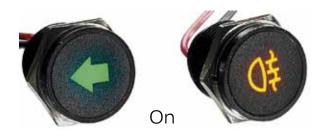
4,50 [ 0,177 ]

Designed to match the bezel syle of APEM's range of Ø22mm panel mounting Piezo pushbutton switches PBAR, PBAR6, PBARY and PBARZ. Search on apem.com for detail

# Q SERIES Ø22mm (.866") Panel Mount LED Indicators Custom options

## Secret Until Lit Polycarbonate Inserts





Suffix the part number with legend code (see example on page 5)

Code Symbol Description

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| Code | Symbol   | Description |  |
|------|----------|-------------|--|
| -3AH |          | Turn Signal |  |
| -313 |          | Hazard      |  |
| -3GP | P        | Oil can     |  |
| -3AG |          | Battery     |  |
| -327 | ()#      | Rear fog    |  |
| -397 | <b>D</b> | Low beam    |  |
| -3BU |          | Brake test  |  |
| -3K6 |          | Arrow       |  |
| -3AJ | D        | High beam   |  |

| Code | Symbol           | Description           |
|------|------------------|-----------------------|
| -3PB | P                | Park Brake            |
| -398 | ₹DQE             | Side Lights           |
| -3SB | X                | Seat Belt             |
| -3TP |                  | Tyre<br>Pressure      |
| -3CE | CHECK            | Check<br>Engine       |
| -3EC |                  | Engine<br>Temperature |
| -3FP |                  | Fuel                  |
| -3BF | BRAKE<br>FAILURE | Brake Failure         |
|      |                  |                       |

Some common codes are listed above, for your custom requirements please contact APEM.

# Q SERIES Ø22mm (.866") Panel Mount LED Indicators Custom Options

### **Custom Marking**

### Cable length & connector







#### **CUSTOM ENGRAVING**

Code Symbol Description

Suffix the part number with legend code (see example on page 5)

| Code | Symbol     | Description          |
|------|------------|----------------------|
| -0AJ |            | High Beam            |
| -097 |            | Low Beam             |
| -027 | <b>Q</b> ≢ | Rear Fog             |
| -026 | <b>≢</b> D | Front Fog            |
| -021 |            | Windscreen<br>Wiper  |
| -022 |            | Windscreen<br>Washer |
| -023 | <b>%</b>   | Ventilator<br>Fan    |
| -0AH | <b>\$</b>  | Turn<br>Signal       |
| -098 | =>0=       | Side Lights          |

5

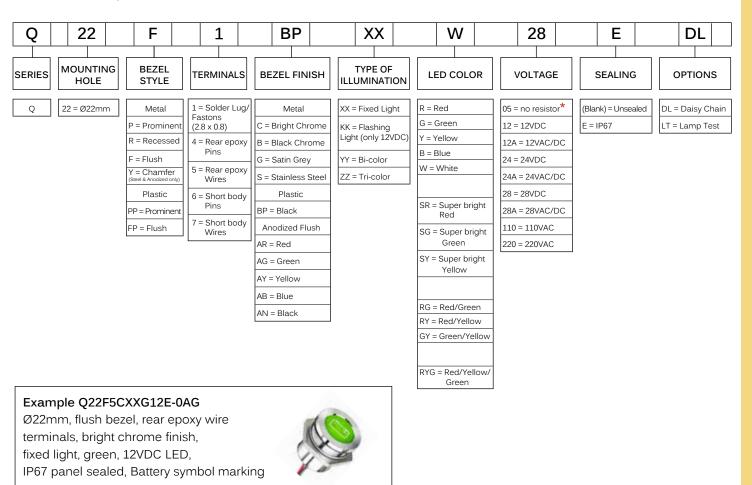
| Code | Зуптоот  | Description           |
|------|--|-----------------------|
| -041 | P  | Horn                  |
| -013 |  | Hazard<br>Warning     |
| -018 |  | Heating               |
| -0BU |  | Brake Test            |
| -0K6 | 4  | Arrow                 |
| -0AG |  | Battery               |
| -0GP | المراقع المراق | Oil Can               |
| -020 |  | Windscreen<br>Heating |
| -086 | (ABS)  | ABS                   |

| Symbol   | Description           |
|----------|-----------------------|
| 000      | Engine<br>Coil        |
| <b>X</b> | Seat Belt             |
| 4        | USB<br>Connection     |
|          | Steam                 |
| ECU      | ECU                   |
|          | Side Step             |
| *        | Air Con               |
|          | Engine                |
|          | Boot/Trunk<br>Release |
|          |                       |

Some common codes are listed above, for your custom requirements please contact APEM. Unless specified standard engraving with white infill will be supplied

#### STANDARD OPTIONS

The Q22 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.



- Gold Faston terminal denotes Anode (+), silver terminal denotes Cathode (-)
- Standard wire length is 200mm, 22AWG UL1007, red wire denotes Anode (+), black wire denotes Cathode (-) for other wire lengths consult APEM
- For LEDs with alternative voltages consult APEM
- Bi-color LEDs, by connecting the gold Faston (+) one color is produced, by reversing the supply voltage another color is produced Bi-colors are available up to 28VDC
- Take care when soldering to the Faston terminals (recommended solder temperature 300°C 3 sec)
- Pin and Wire options are epoxy sealed at the rear of the bezels, termination options 4 and 5
- The Tri-color LED has red and green LEDs when both are connected yellow is produced
- Standard Tri-color Faston terminals are 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: Prominent = 12mm, Flush = 10mm
- · Plastic bezel material: ABS
- Daisy chaining option has negative (Cathode) terminals linked (3 x Fastons), solder lugs only
- Lamp test facility option 4 x solder lug/Faston only
- We recommend using super bright LEDs for use at 110 and 220VAC

\* = For resistorless versions (05) please refer to the forward voltage on page 1