

# Q19 series

Ø19 mm panel mount LED indicators



## DISTINCTIVE FEATURES

10 mm colored diffused epoxy lens or 10 mm water clear super bright LEDs

Prominent and flush bezel styles

(2.8 x 0.8) solder lug/faston terminals, pins or (200 mm long) wire terminations

Custom engraving available

Available in RGB



## ENVIRONMENTAL SPECIFICATIONS

- IP67 sealing option (EN60529)
- Operating & Storage Temperature Range:  
**Rear plastic body:** -30 °C to +65° C (-22 °F to +149 °F)  
**Rear epoxy body:** -40 °C to +85° C (-40 °F to +185 °F)



## GENERAL SPECIFICATIONS

- Max Reverse Voltage: 5 V
- Viewing Angle: 30–100° (dependant on model)
- Life Expectancy: 100,000 hours
- Torque: 75 cNm (dependent on option)
- Maximum panel thickness 11 mm

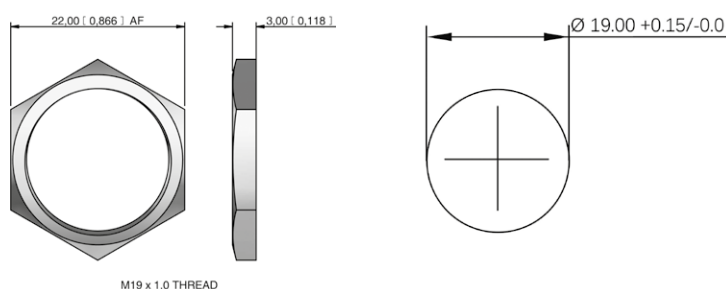


## MATERIALS

- Plated brass bezel finished in bright chrome, black or satin grey and moulded polycarbonate rear body



## MOUNTING



The company reserves the right to change specifications without notice.

All LED characteristics are dependent upon environmental conditions. Therefore published data should be considered nominal and subject to variations.



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## ELECTRICAL SPECIFICATIONS

### STANDARD LED INTENSITY

| LED COMPONENT SPECIFICATIONS           |                        |              |                   |
|--|------------------------|--------------|-------------------|
|  | Prominent and Recessed | Flush        | Forward Voltage   |
| HE Red                                 | 80 mcd                 | 10 mcd       | 2.0 V             |
| Green                                  | 60 mcd                 | 5 mcd        | 2.2 V             |
| Yellow                                 | 50 mcd                 | 4 mcd        | 2.1 V             |
| Blue                                   | 540 mcd                | 100 mcd      | 3.3 V             |
| White                                  | 1000 mcd               | 150 mcd      | 3.3 V             |
| Orange                                 | 80 mcd                 | 200 mcd      | 2.2 V             |
| Bi-color (Typical) (Red/Green)         | 15/15 mcd              | 14/10 mcd    | 2.0 V/2.2 V       |
| Tri-color (Typical) (Red/Green/Yellow) | 60/50/50 mcd           | 15/10/30 mcd | 2.0 V/2.2 V/2.1 V |

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 INTENSITY

| LED COMPONENT SPECIFICATIONS |                        |           |                 |
|------------------------------|------------------------|-----------|-----------------|
|                              | Prominent and Recessed | Flush     | Forward Voltage |
| HE Red                       | 17,000 mcd             | 2,000 mcd | 2.0 V           |
| Green                        | 11,000 mcd             | 680 mcd   | 3.5 V           |
| Yellow                       | 4,000 mcd              | 350 mcd   | 2.3 V           |
| Blue                         | 2,500 mcd              | 250 mcd   | 3.3 V           |
| White                        | 4,400 mcd              | 250 mcd   | 3.3 V           |
| Orange                       | 2,800 mcd              | 300 mcd   | 2.1 V           |

### HYPER BRIGHT LED INTENSITY

| LED COMPONENT SPECIFICATIONS |                        |         |                 |
|------------------------------|------------------------|---------|-----------------|
|                              | Prominent and Recessed | Flush   | Forward Voltage |
| HE Red                       | 2,800 mcd              | 800 mcd | 2.1 V           |
| Green                        | 2,200 mcd              | 250 mcd | 3.2 V           |
| Yellow                       | 1,300 mcd              | 250 mcd | 2.0 V           |
| Orange                       | 850 mcd                | 200 mcd | 2.1 V           |

### RGB LED INTENSITY

| ITEM               | SYMBOL        | CONDITION | TYP.    |
|--------------------|---------------|-----------|---------|
| DC Forward Voltage | $V_F(R)$      | IF=20 mA  | 2.1     |
|                    | $V_F(B/G)$    | IF=20 mA  | 2.1     |
| Luminous Intensity | $I_v$ (Red)   |           | 220 mdc |
|                    | $I_v$ (Green) |           | 500 mdc |
|                    | $I_v$ (Blue)  |           | 100 mdc |

| Voltage          | Operating Voltage | Operating Current   |
|------------------|-------------------|---------------------|
|                  | (Min to Max)      | (Typical All Types) |
| 02 (No Resistor) | 1.8 to 3.3 VDC    | 20 mA max*          |
| 6 VDC            | 5.4 to 6.6 VDC    | 20 mA               |
| 12 VDC           | 10.8 to 13.2 VDC  | 20 mA               |
| 24 VDC           | 21.6 to 26.4 VDC  | 20 mA               |
| 28 VDC           | 25.2 to 30.8 VDC  | 20 mA               |
| 110 VAC          | 99 to 121 VAC     | 6 mA                |
| 220 VAC          | 207 to 235 VAC    | 3 mA                |

\* Customer to supply resistor for desired operating current.

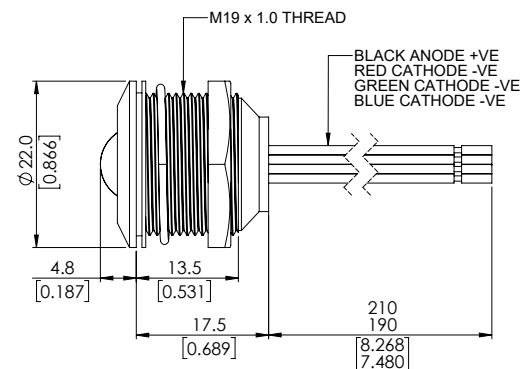
### ADDITIONAL INFORMATION ON LED COMPONENTS

- The operating voltage must not be exceeded by more than 10% as this will result in reduced life expectancy
- Luminous intensity is measured at 20 mA on a discrete led unless otherwise stated.
- Luminous intensities and color shades of white LEDs may vary within a batch.
- Luminous intensity will be reduced with lower operating current.



## CONNECTIONS

### REAR EPOXY WIRES FOR RGB OPTION



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## BUILD YOUR PART NUMBER

|        |                  |                    |  |                           |                          |                           |                        |                |                     |
|--------|------------------|--------------------|--|---------------------------|--------------------------|---------------------------|------------------------|----------------|---------------------|
| Q      | —                | —                  | —  | —                         | —                        | —                         | —                      | —              | —                   |
| SERIES | MOUNTING HOLE    | BEZEL STYLE        | TERMINALS                                | TERMINALS                 | TERMINALS                | BEZEL FINISH              | BEZEL FINISH           | BEZEL FINISH   | BEZEL FINISH        |
|        | <b>19</b> Ø19 mm | <b>Metal</b>       | <b>1</b> Solder Lug/ Fastons (2.8 x 0.8) | <b>5</b> Rear epoxy Wires | <b>6</b> Short body Pins | <b>Metal</b>              | <b>C</b> Bright Chrome | <b>B</b> Black | <b>G</b> Satin Grey |
|        |                  | <b>P</b> Prominent | <b>2</b> Pins                            | <b>7</b> Short body Wires |                          | <b>R</b> Recessed         |                        |                |                     |
|        |                  | <b>F</b> Flush     | <b>3</b> Wires                           |                           |                          | <b>EP</b> Extra Prominent |                        |                |                     |
|        |                  |                    | <b>4</b> Rear epoxy Pins                 |                           |                          |                           |                        |                |                     |

|  |                            |                               |                               |                             |                               |                      |                      |                    |                         |
|--|----------------------------|-------------------------------|-------------------------------|-----------------------------|-------------------------------|----------------------|----------------------|--------------------|-------------------------|
| —  | —                          | —                             | —                             | —                           | —                             | —                    | —                    | —                  | —                       |
| TYPE OF ILLUMINATION                     | LED COLOR                  | LED COLOR                     | LED COLOR                     | LED COLOR                   | LED COLOR                     | VOLTAGE              | VOLTAGE              | VOLTAGE            | SEALING                 |
| <b>XX</b> Fixed Light                    | <b>R</b> Red               | <b>HG</b> Hyper Bright Green  | <b>SB</b> Super bright blue   | <b>02</b> no resistor**     | <b>(Blank)</b> Unsealed       | <b>06</b> 6 VDC      | <b>06</b> 6 VDC      | <b>12</b> 12 VDC   | <b>E</b> IP67           |
| <b>KK</b> Flashing Light (12 V – 28 VDC) | <b>G</b> Green             | <b>HY</b> Hyper Bright Yellow | <b>SW</b> Super bright white  | <b>12</b> 12 VDC            | <b>(Blank)</b> Common cathode | <b>12A</b> 12 VAC/DC | <b>12</b> 12 VDC     | <b>24</b> 24 VDC   | <b>-CA</b> Common anode |
| <b>YY</b> Bi-color                       | <b>Y</b> Yellow            | <b>HO</b> Hyper Bright Orange | <b>SW</b> Super bright Orange | <b>24</b> 24 VDC            | <b>24A</b> 24 VAC/DC          | <b>24</b> 24 VDC     | <b>24A</b> 24 VAC/DC | <b>28</b> 28 VDC   |                         |
| <b>ZZ</b> Tri-color                      | <b>B</b> Blue              | <b>SR</b> Super Bright Red    | <b>RG</b> Red/green           | <b>24A</b> 24 VAC/DC        | <b>28</b> 28 VDC              | <b>28A</b> 28 VAC/DC | <b>28</b> 28 VDC     | <b>110</b> 110 VAC |                         |
|  | <b>W</b> White             | <b>SG</b> Super Bright Green  | <b>RY</b> Red/yellow          | <b>28A</b> 28 VAC/DC        | <b>220</b> 220 VAC            | <b>110</b> 110 VAC   | <b>220</b> 220 VAC   | <b>220</b> 220 VAC |                         |
|  | <b>O</b> Orange            | <b>SY</b> Super Bright Yellow | <b>GY</b> Green/yellow        | <b>RYG</b> Red/yellow/green |                               |                      |                      |                    |                         |
|  | <b>HR</b> Hyper Bright Red |                               | <b>RGB</b> Red/Green/Blue*    | <b>RGB</b> Red/Green/Blue*  |                               |                      |                      |                    |                         |



## ABOUT THIS SERIES

\* Terminals option 5 and common anode only

\*\* please refer to the forward voltage in electrical specifications

- Notice:** please note that not all combinations of above numbers are available.
- Gold faston terminal denotes anode (+), silver terminal denotes cathode (-)
  - Standard wire length is 200 mm, 22 AWG UL1007, red wire denotes anode (+), black wire denotes cathode (-) for other wire lengths consult APEM
  - 110 VAC and 220 VAC, short body terminal options, 5, 6 and 7 please consult the factory
  - 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 28 VDC
  - Take care when soldering to the faston terminals (recommended solder temperature 300 °C - 3 sec)
  - Short body pins and wires are only available up to 28 VDC
  - 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
  - We recommend using hyperbright or superbright leds for use at 110 VAC and 220 VAC
  - For leds with alternative voltages and for multi-voltage options please consult APEM

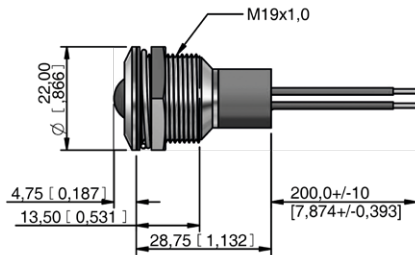
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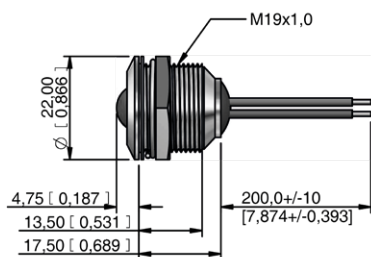
## PROMINENT BEZEL



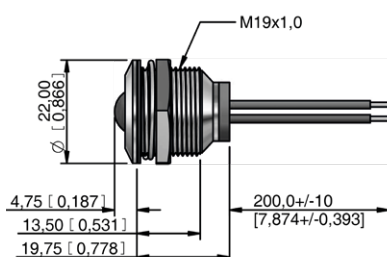
## WIRES



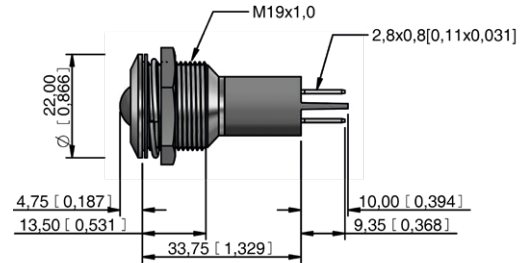
## REAR EPOXY WIRES



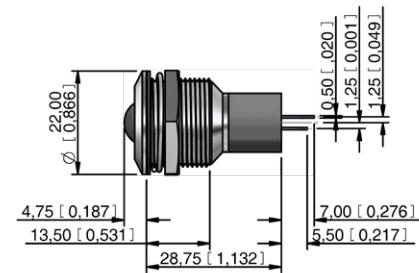
## SHORT BODY WIRES



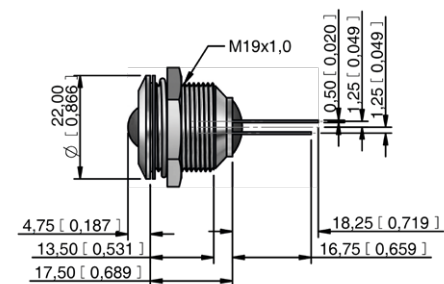
## SOLDER LUG/FASTON



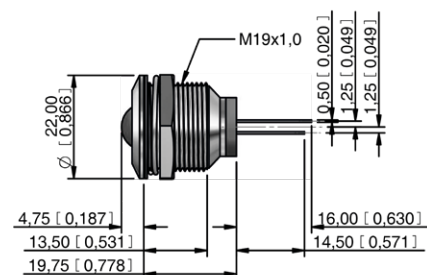
## PINS



## REAR EPOXY PINS



## SHORT BODY PINS



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## FLUSH BEZEL

## SOLDER LUG/FASTON

## WIRES

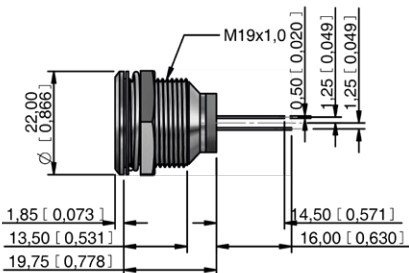
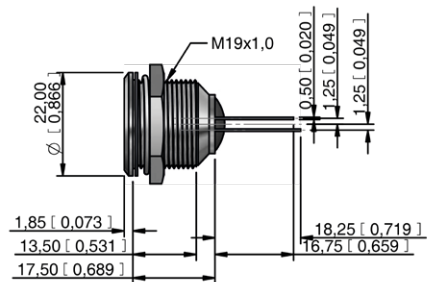
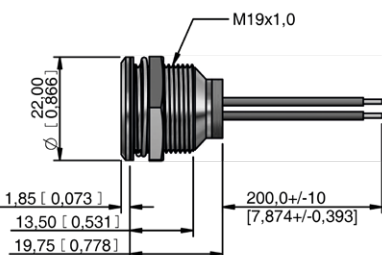
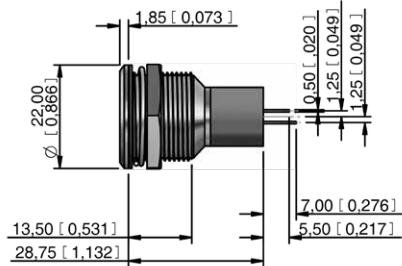
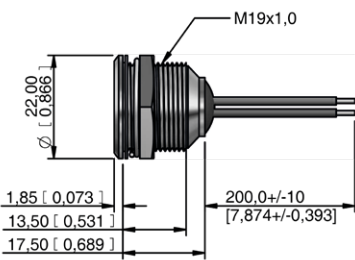
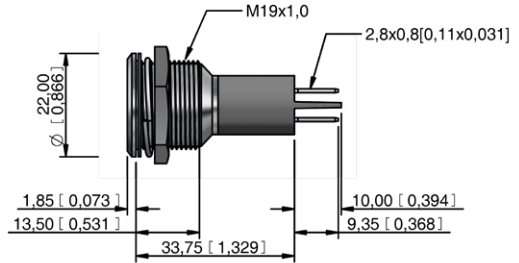
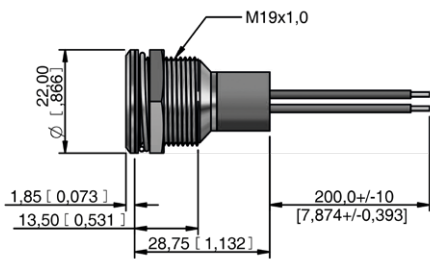
## PINS

## REAR EPOXY WIRES

## REAR EPOXY PINS

## SHORT BODY WIRES

## SHORT BODY PINS



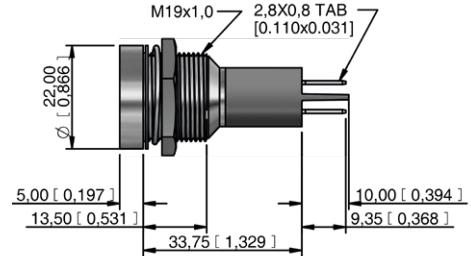
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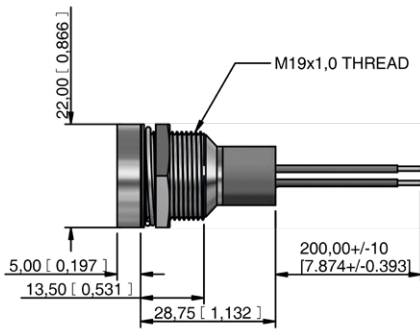
## RECESSED BEZEL



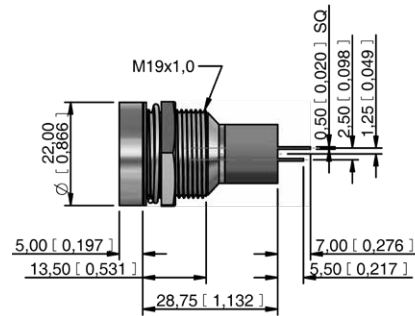
## SOLDER LUG/FASTON



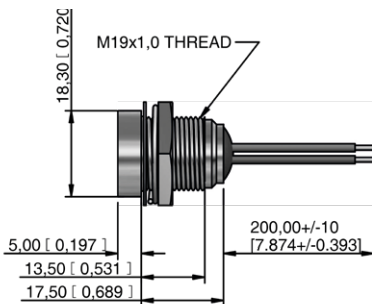
## WIRES



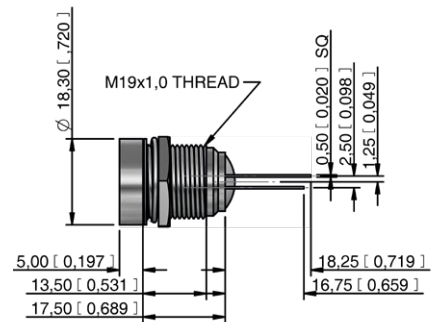
## PINS



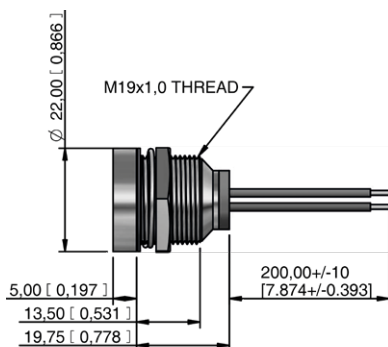
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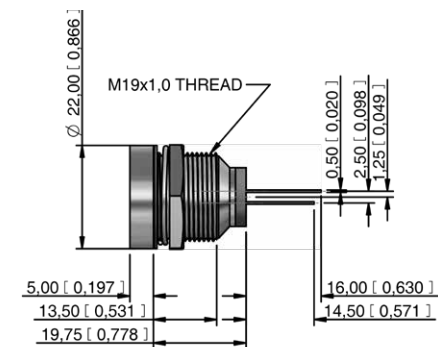
## REAR EPOXY PINS



## SHORT BODY WIRES



## SHORT BODY PINS



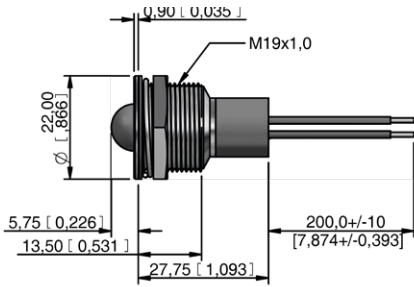
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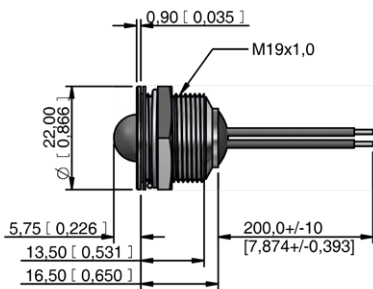
## EXTRA PROMINENT BEZEL



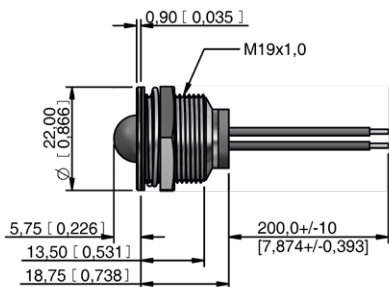
## WIRES



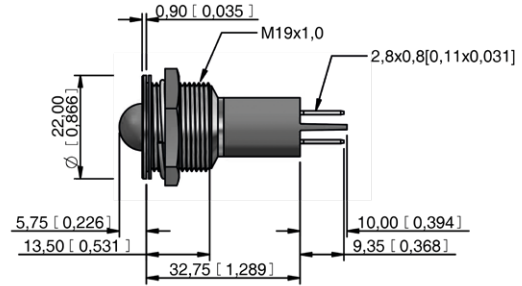
## REAR EPOXY WIRES



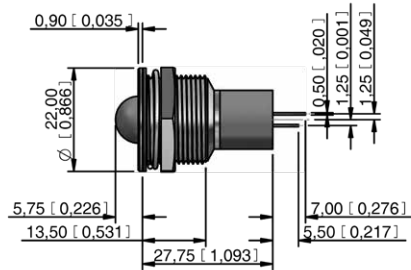
## SHORT BODY WIRES



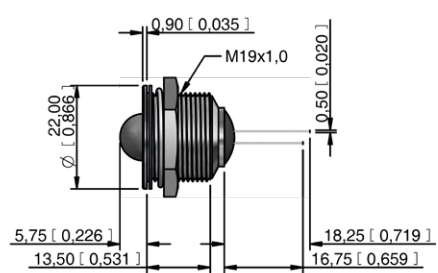
## SOLDER LUG/FASTON



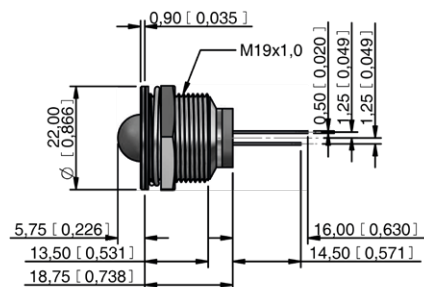
## PINS



## REAR EPOXY PINS



## SHORT BODY PINS





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## CUSTOM ENGRAVING

Some common codes are listed above, for your custom requirements please contact APEM.  
Unless specified standard engraving with white infill will be supplied.  
Suffix the part number with legend code :



High beam  
-0AJ



Low beam  
-097



Rear fog  
-027



Front fog  
-026



Windscreen  
wiper  
-021



Windscreen  
washer  
-022



Ventilator  
fan  
-023



Turn Signal  
-0AH



Side lights  
-098



Horn  
-041



Hazard  
warning  
-013



Heating  
-018



Brake test  
-0BU



Arrow  
-0K6



Battery  
-0AG



Oil can  
-0GP



Windscreen  
heating  
-020



ABS  
-086



Engine coil  
-0EL



Seat belt  
-0SB



USB  
connection  
-0BU



Steam  
-0ST



ECU  
-0EU



Side step  
-0AD



Air con  
-012



Engine  
-040



Boot/Trunk  
Release  
-0BR



## CABLE LENGTH AND CONNECTOR



For custom cable length and connectors contact APEM.