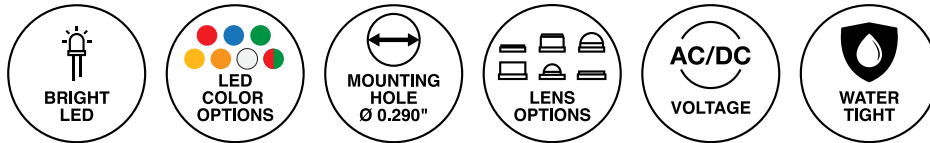




# 90 Series 0.290" (7.37mm) LED Panel Mount Indicator



90 Series with built-in long life LED offer superior construction and longer life  
Cartridge, bi-pin and wire leads termination styles



## Key features

- Built-in LED can be used with DC circuits (5 to 60 VDC) or 120VAC circuits
- Terminal Styles: cartridge, bi-pin and wire leads (6" 24 AWG wire leads)
- Available with a variety of LEDs including AlInGaP and InGaN technology for high brightness applications, bi-color and with integrated resistors
- Available in six LED solid colors: red, green, white, blue, amber, orange and in one bi-color: red/green with or without lens
- Seven lens colors available: red, amber, yellow, green, blue, water clear and smoke
- Offered with a variety of lens options: cylindrical, flush, dome, wide cylindrical or wide flush, all featured with fresnel pattern lens which provide excellent light focus and assure maximum light output
- Spring retainer clip and washer (included) secures uniform placement of the indicator to the panel and is ideal for high vibration environments
- Offered with white or black bezel, where the black bezel enhances LED contrast
- Resistant to shock and vibration
- Mounting hardware provided (spring retainer clip and washer)
- Watertight socket options for splashdown environments
- For use with spring retainer clip (included), socket holder (PS90 or PS90T - sold separately) or wiring plug (SH90 or CSH90 - sold separately)
- Compliant with RoHS and REACH

# Ordering Data

TO ORDER, FOLLOW THE EXAMPLE

Part Number: **94-LRG12H-CW0**

Mounting hardware included

Select one **BOLD** component from each numbered category in the tables below.

| 1 | Model     | 2 | LED         | 3 | Voltage    | 4 | Lens Diffusion | 5 | Lens Color | 6 | Bezel Color |
|---|-----------|---|-------------|---|------------|---|----------------|---|------------|---|-------------|
|   | <b>94</b> |   | <b>-LRG</b> |   | <b>12H</b> |   | <b>-C</b>      |   | <b>W</b>   |   | <b>0</b>    |

## Standard Intensity - Diffused Encapsulation

| 2 | LED                      | Color | $\lambda_{pk}$<br>(nm) | $I_v^{[1]}$<br>(mcd) | Viewing<br>Angle | V/C<br>Table <sup>[2]</sup> |
|---|--------------------------|-------|------------------------|----------------------|------------------|-----------------------------|
|   | <b>-BR<sup>[4]</sup></b> | RED   | 626                    | 6.1                  | 60               | I                           |
|   | <b>-BA<sup>[4]</sup></b> | AMB   | 585                    | 6.5                  | 60               | I                           |
|   | <b>-BG<sup>[4]</sup></b> | GRN   | 569                    | 4.7                  | 60               | I                           |

## Medium Intensity - Tinted Encapsulation

| LED         | Color | $\lambda_{pk}$<br>(nm) | $I_v^{[1]}$<br>(mcd) | Viewing<br>Angle | V/C<br>Table <sup>[2]</sup> |
|-------------|-------|------------------------|----------------------|------------------|-----------------------------|
| <b>-BCR</b> | RED   | 626                    | 60                   | 35               | I                           |
| <b>-BCA</b> | AMB   | 585                    | 60                   | 35               | I                           |
| <b>-BCG</b> | GRN   | 569                    | 70                   | 24               | I                           |

## High Intensity - Waterclear Encapsulation

| LED                       | Color | $\lambda_{pk}$<br>(nm) | $I_v^{[1]}$<br>(mcd) | Viewing<br>Angle | V/C<br>Table <sup>[2]</sup> |
|---------------------------|-------|------------------------|----------------------|------------------|-----------------------------|
| <b>-NWR</b>               | RED   | 634                    | 2800                 | 30               | I                           |
| <b>-NWO</b>               | ORG   | 605                    | 2000                 | 30               | I                           |
| <b>-NWA</b>               | AMB   | 592                    | 7500                 | 30               | I                           |
| <b>-NWG</b>               | GRN   | 520                    | 6500                 | 30               | II                          |
| <b>-NWB</b>               | BLU   | 465                    | 700                  | 45               | II                          |
| <b>-NWW<sup>[8]</sup></b> | CWHT  |                        | 6150                 | 30               | II                          |
| <b>-NWL<sup>[8]</sup></b> | WWHT  |                        | 4700                 | 30               | II                          |
| <b>-NKR</b>               | RED   | 634                    | 3600                 | 15               | I                           |
| <b>-NKO</b>               | ORG   | 605                    | 8000                 | 15               | I                           |
| <b>-NKA</b>               | AMB   | 592                    | 3600                 | 15               | I                           |
| <b>-NKG</b>               | GRN   | 520                    | 10000                | 15               | II                          |
| <b>-NKB</b>               | BLU   | 465                    | 9300                 | 20               | II                          |
| <b>-NKW<sup>[8]</sup></b> | CWHT  |                        | 27000                | 20               | II                          |
| <b>-NKL<sup>[8]</sup></b> | WWHT  |                        | 9200                 | 15               | II                          |

## Specialty LEDs - Diffused Encapsulation

| LED                       | Color   | $\lambda_{pk}$<br>(nm) | $I_v^{[3]}$<br>(mcd) | Viewing<br>Angle | V/C<br>Table <sup>[5]</sup> | Description           |
|---------------------------|---------|------------------------|----------------------|------------------|-----------------------------|-----------------------|
| <b>-RLP<sup>[7]</sup></b> | RED     | 634                    | 2.3                  | 50               | <sup>[5]</sup>              | Low Power             |
| <b>-ALP<sup>[7]</sup></b> | AMB     | 583                    | 2.1                  | 50               | <sup>[5]</sup>              | Low Power             |
| <b>-GLP<sup>[7]</sup></b> | GRN     | 565                    | 2.3                  | 50               | <sup>[5]</sup>              | Low Power             |
| <b>-LRG<sup>[8]</sup></b> | RED/GRN | 568/640                | 60/200               | 35               | I                           | Bi-Color, Red Cathode |

1

|               | Cartridge              | Bi-Pin   | Wire Leads |
|---------------|------------------------|--|------------|
| Black Housing | <b>C<sup>[1]</sup></b> | <b>905<sup>[2]</sup></b> -No lens<br><b>91</b> -Cylindrical<br><b>94</b> -Flush<br><b>96</b> -Dome | <b>W</b>   |
| White Housing |                        | <b>961</b> -Wide cylindrical<br><b>964</b> -Wide flush   |            |

## Voltage/Current

| Design<br>Vf/If | Max<br>Vf/If |
|-----------------|--------------|
| V/C Table I     |              |
| 5V/22mA         | 5.5V/28mA    |
| 12V/20mA        | 14V/25mA     |
| 15V/24mA        | 16.5V/28mA   |
| 24V/17mA        | 26V/20mA     |
| 28V/16.5mA      | 30V/18mA     |
| 48V/15mA        | 50V/16mA     |
| 60V/9mA         | 65V/10mA     |
| 120VAC/3.5mA    | 130VAC/4mA   |

3

## Voltage<sup>[6]</sup>

**2**  
**5H**  
**12H**  
**15H**  
**24H**  
**28H**  
**48H**  
**60H**  
**120<sup>[9]</sup>**

4

## Lens Diffusion

**-C**  
Clear  
**-N**  
Diffused

5

## Lens Color

**R**  
Red  
**A**  
Amber  
**Y**  
Yellow  
**G**  
Green  
**B**  
Blue  
**W**  
Water Clear  
**-S**  
Smoke <sup>[10]</sup>

6

## Bezel Color

**0**  
Black  
**9**  
White

[1] For panel lights mounted in the PS90 or PS90T socket (pg. 5). Mounting hardware is included with the socket. Do not select the W option. C and standard pins are not solderable.

[2] Model 905 has no lens. Omit Lens Diffusion and Color (e.g. 905 -BG5H-O).

[3]  $I_v$  = typical luminous intensity @  $I_f = 20mA$  ( $T_a = 25^\circ C$ ).  $I_v$  is measured without lenses. For Low Power LEDs,  $I_f = 2mA$ .

[4] Use with Model 905 only.

[5] See Voltage/Current table for design specifications. Design current for low power LEDs = 2mA.

[6]  $T_a = 25^\circ C$ . Voltage "2" indicates external resistor required. Voltages 5H through 60H are VDC. For AC operation, insert D after Voltage (e.g. 24HD). D indicates built-in rectifier, not required for 5H or 120VAC. DC operation not available for 120V. Bi-Color not available in AC voltages.

[7] Omit H when selecting a voltage (e.g. 91-RLP12-CWO).

[8] Select -CW or -NW Lens only.

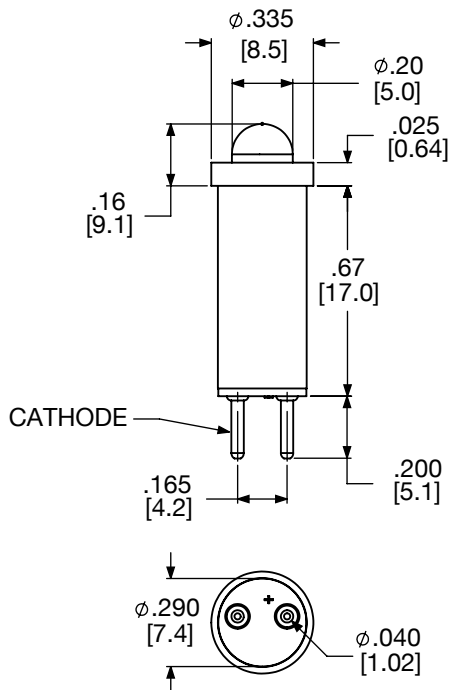
[9] Select high intensity LEDs only.

[10] Omit Lens Diffusion when selecting smoked lens (e.g. 91-NWG24H-S0).

## Product Dimensions

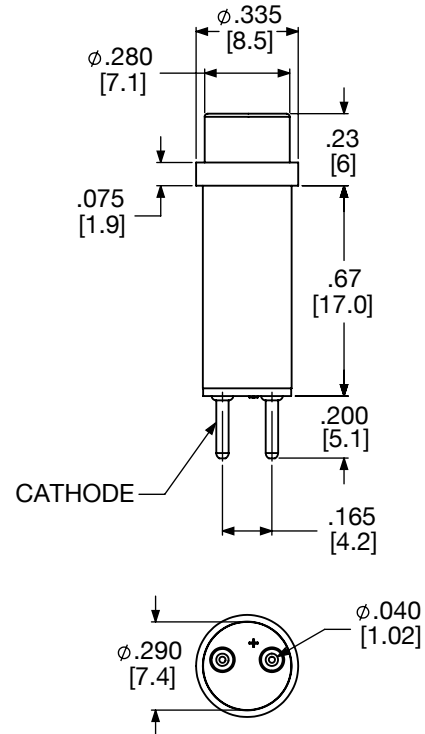
**905<sup>[1]</sup>**

**No Lens - Black Housing**



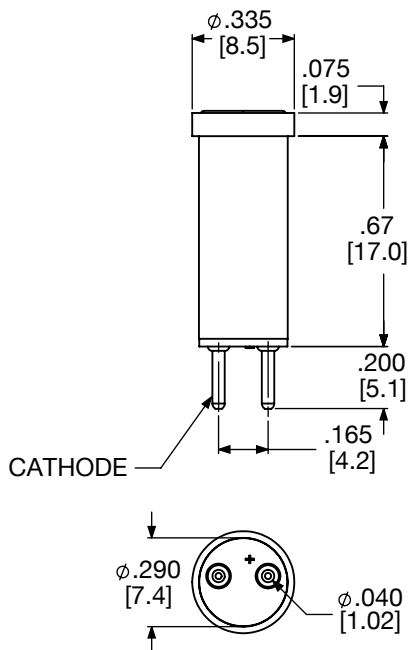
**91<sup>[1]</sup>**

**Cylindrical Fresnel Lens - Black Housing**



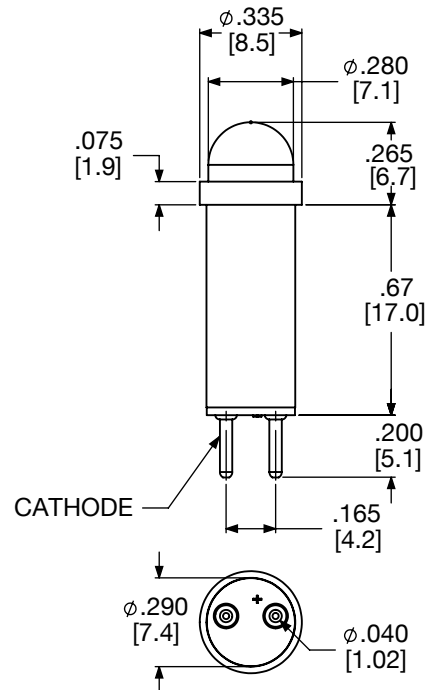
**94<sup>[1]</sup>**

**Flush Fresnel Lens - Black Housing**



**96<sup>[1]</sup>**

**Dome Lens - Black Housing**



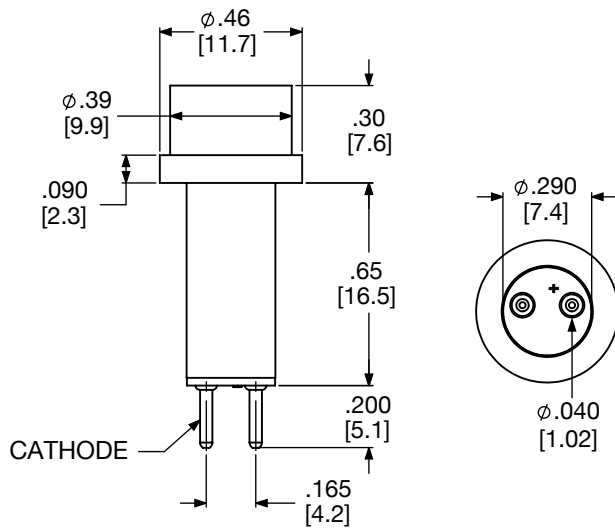
[1] Dimensions for cartridge and bi-pin

Dimensions in inches [mm]

## Product Dimensions

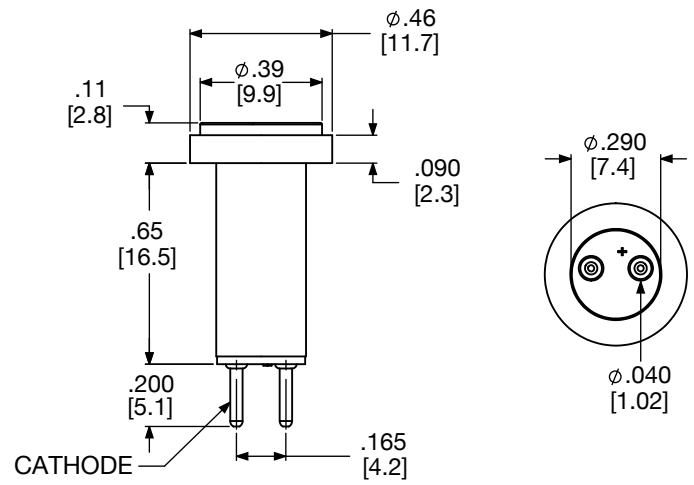
**961<sup>[1]</sup>**

### Wide Cylindrical Fresnel Lens - White Housing



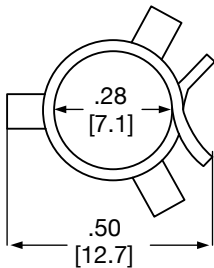
**964<sup>[1]</sup>**

### Wide Flush Fresnel Lens - White Housing

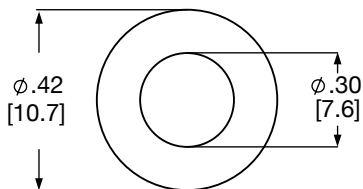


## Mounting Hardware (included)

### TC9-R- Spring Retainer Clip



### NW5 Mounting Washer



Hardness: 60 Shore A

[1] Dimensions for cartridge and bi-pin

Dimensions in inches [mm]

## Accessory Options (order separately)

### Lens, Retaining Collar, Wiring Plug for 90 Series

TO ORDER, FOLLOW THE EXAMPLE

Part Number: **L92-CR**

- Mounting Hole Diameter: Ø.375" - Ø.385"

- Panel Thickness: Max: 0.80"

Select one **BOLD** component from each numbered category in the tables below.

| 1 | Model      | 2 | Lens Diffusion | 3 | Lens Color |
|---|------------|---|----------------|---|------------|
|   | <b>L92</b> |   | <b>-C</b>      |   | <b>R</b>   |

#### 90 Series Sockets & Hardware

| 1 | Model                      | Description                                   | Mating Components  |
|---|----------------------------|---|--|
|   | <b>L92</b>                 | 90 Series Lens                                | C905   |
|   | <b>PS90<sup>[1]</sup></b>  | 90 Series Socket, Solder Terminals            | C905, C91, C94, C96, C961, C964                            |
|   | <b>PS90T<sup>[1]</sup></b> | 90 Series Socket, Turret Terminals            | C905, C91, C94, C96, C961, C964                            |
|   | <b>RC90-R-</b>             | Retaining Collar                              | PS90, PS90T  |
|   | <b>RC90-B-R-</b>           | Retaining Collar (Black)                      | PS90, PS90T  |
|   | <b>SH90</b>                | Wiring Plug                                   | Wiring Plug  |
|   | <b>CSH90</b>               | Wiring Plug with collar                       | 905, 91, 94, 96, 961, 964, C905, C91, C94, C96, C961, C964 |
|   | <b>TC9-R-</b>              | 90 Series Spring Retainer Clip <sup>[3]</sup> | 905, 91, 94, 96, 961, 964, C905, C91, C94, C96, C961, C964 |
|   | <b>NW5</b>                 | Mounting Washer (neoprene) <sup>[3]</sup>     | 905, 91, 94, 96, 961, 964, C905, C91, C94, C96, C961, C964 |

#### 90 Series Lens

(For use with PS90 or PS90T Socket with Model C905 Panel Light)

| 1 | Model      | 4 | Lens Diffusion        | 5 | Lens Color                        |
|---|------------|---|-----------------------|---|-----------------------------------|
|   | <b>L92</b> |   | <b>-C</b><br>Clear    |   | <b>R</b><br>Red                   |
|   |            |   | <b>-N</b><br>Diffused |   | <b>A</b><br>Amber                 |
|   |            |   |                       |   | <b>Y</b><br>Yellow                |
|   |            |   |                       |   | <b>G</b><br>Green                 |
|   |            |   |                       |   | <b>B</b><br>Blue                  |
|   |            |   |                       |   | <b>W</b><br>Water Clear           |
|   |            |   |                       |   | <b>-S</b><br>Smoke <sup>[2]</sup> |



RC90-R-



SH90



L92

[1] Hardware Assembled, for watertight option see page 6

[2] Omit Lens Diffusion Code (e.g. L92-S).

[3] Mounting hardware included

## Watertight Accessory Options (order separately)

### Watertight Sockets for model C905 or 905

TO ORDER, FOLLOW THE EXAMPLE

Part Number: **PS90T-L92-CY-WT**

Select one **BOLD** component from each numbered category in the tables below.

- For Splash Down Environments (not submersible)
- Mounting Hole Diameter: Ø.375" - Ø.385"
- Panel Thickness: Max: 0.80"

| 1 | Socket Model | 2 | Lens Model  | 3 | Lens Diffusion | 4 | Lens Color | 5 | Water Tight |
|---|--------------|---|-------------|---|----------------|---|------------|---|-------------|
|   | <b>PS90</b>  |   | <b>-L92</b> |   | <b>-C</b>      |   | <b>Y</b>   |   | <b>-WT</b>  |

| 1 | Socket Model                | 2 | Lens Model  | 3 | Lens Diffusion                              | 4 | Lens Color   | 5 | Water Tight |
|---|-----------------------------|---|-------------|---|---|---|--|---|-------------|
|   | <b>PS90</b><br><b>PS90T</b> |   | <b>-L92</b> |   | <b>-C</b><br>Clear<br><b>-N</b><br>Diffused |   | <b>R</b><br>Red<br><b>A</b><br>Amber<br><b>Y</b><br>Yellow<br><b>G</b><br>Green<br><b>B</b><br>Blue<br><b>W</b><br>Water Clear<br><b>-S</b><br>Smoke [1] |   | <b>-WT</b>  |



PS90-L92-S-WT



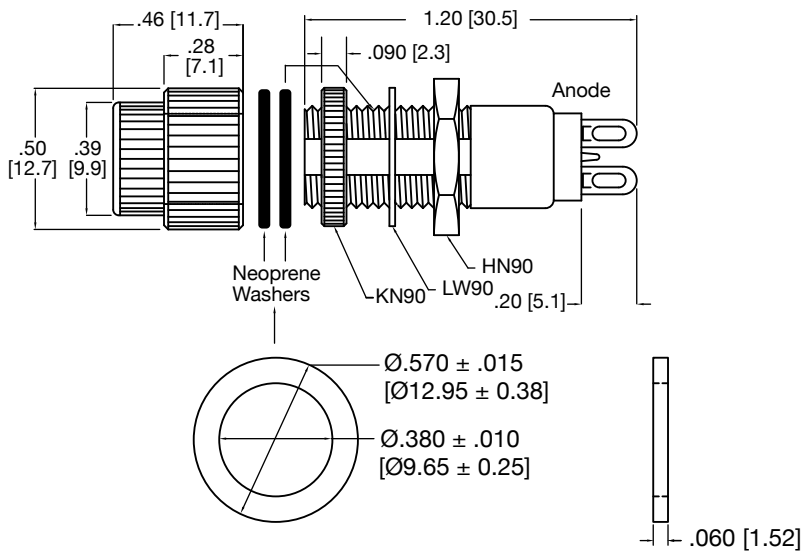
PS90T-L92-NG-WT

[1] Omit Lens Diffusion Code (e.g. PS90T-L92-S-WT).

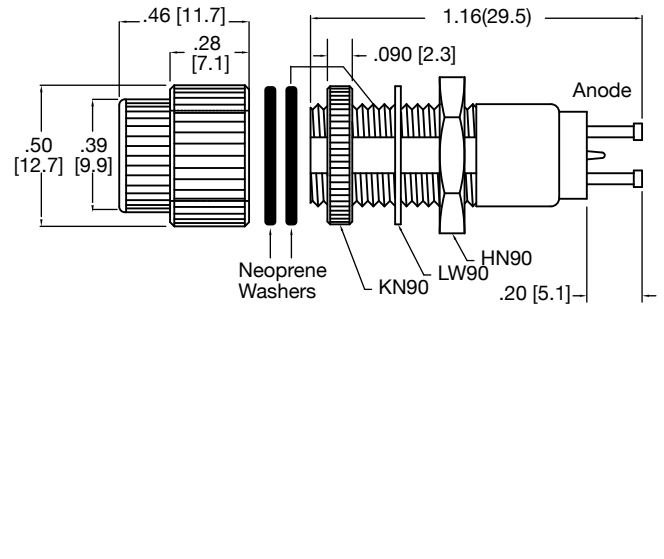
Dimensions in inches [mm]

## Accessory Product Dimensions

### PS90, Watertight

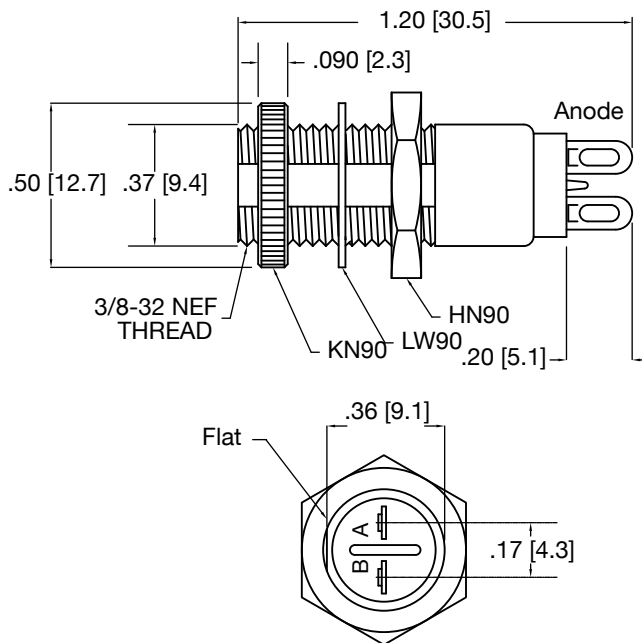


### PS90T, Watertight



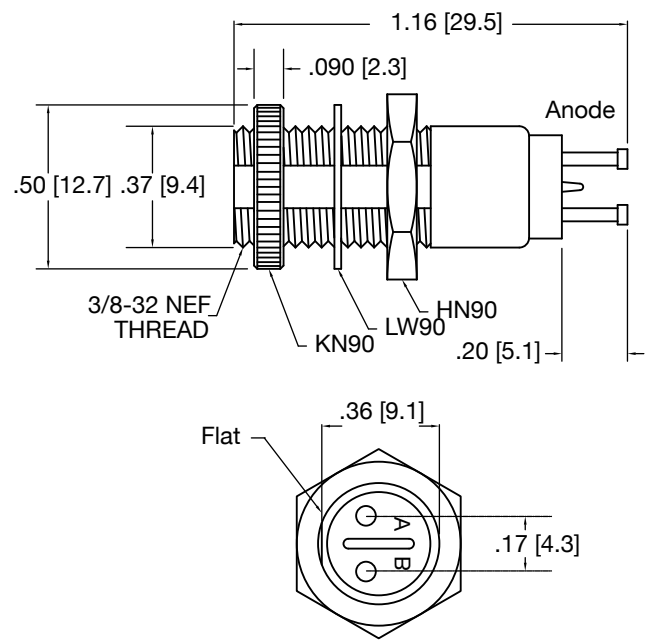
### PS90

#### 90 Series Socket, Solder Terminals



### PS90T

#### 90 Series Socket, Turret Terminals



#### Mounting Hole Diameter

$\text{Ø} 0.375"/0.385"$  [ $\text{Ø} 9.525/9.779$ ]

#### Maximum Panel Thickness

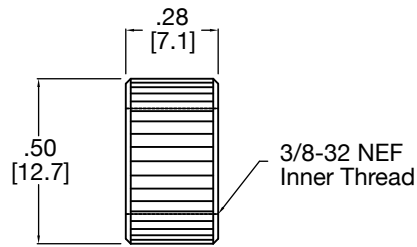
Max: 0.80" [20.32]

Dimensions in inches [mm]

## Accessory Product Dimensions

### RC90-R- (aluminum) RC90-B-R- (black anodized aluminum)

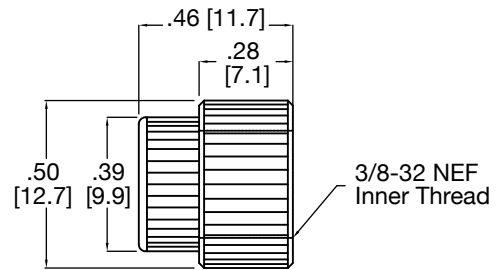
Retaining Collar for PS90 and PS90T



Only for use with PS90, PS90T

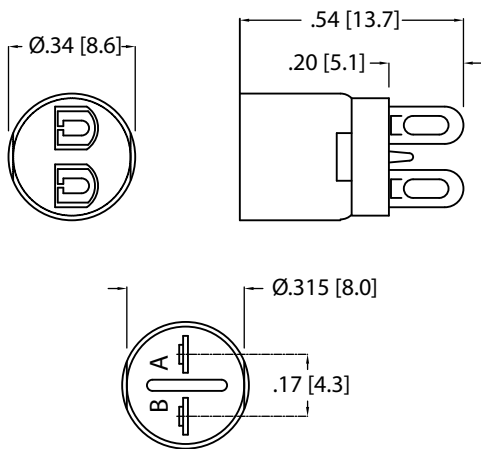
### L92

90 Series Lens for PS90, PS90T socket  
and C905, 905



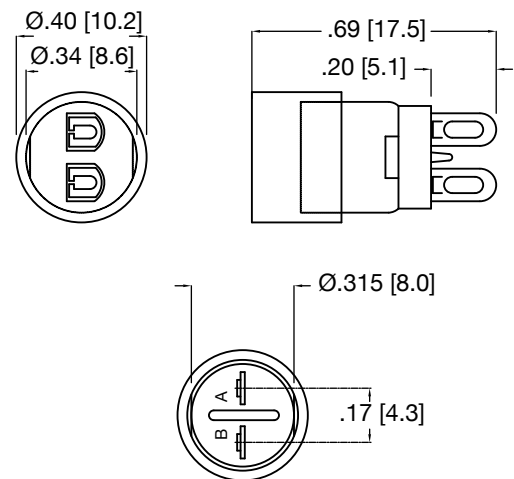
### SH90

Wiring Plug



### CSH90

Wiring Plug with Collar



Dimensions in inches [mm]



## Product Specifications

| Materials  |   |
|------------|---|
| Housing    | Black nylon, except 961 & 964 which are white nylon |
| Lens       | Lexan   |
| Pin        | Brass   |
| Wire Leads | Tinned copper conductor<br>TPB insulation           |
| TC9-R-     | High carbon spring steel zinc<br>plate finish       |
| NW5        | Black neoprene                                      |
| RC90-R-    | Aluminum  |
| RC90-B-R-  | Black Anodized Aluminum                             |

| Temperature Specifications |                |
|----------------------------|----------------|
| Operating Temperature      | -30°C to 60°C  |
| Storage Temperature        | -40°C to 100°C |

| Installation Specifications |   |
|-----------------------------|---|
| Mounting Hole               | 0.290" to 0.291" [7.37 to 7.39]   |
| Panel Thickness             | 0.25" max   |
| Wire Leads                  | 24 AWG - 300V<br>lead color: red and black 6.0" long min<br>stripped 0.5" nom<br>red anode/black cathode, 24 AWG TPB<br>UL1061 insulation. Contact sales for<br>other lengths, gauges and colors. |

Dimensions in inches [mm]

## Compliances and Approvals



# Mouser Electronics

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[C905-NWR12H-O](#) [C905-NWR24H-O](#) [C905-NWR5H-O](#) [C905-NWW120-O](#) [C905-NKR120-O](#) [C905-NWA12H-O](#)  
[C905-NWA24H-O](#) [C905-NWG12H-O](#) [C905-NWG24H-O](#) [C905-NWG28H-O](#) [C905-BCG2-O](#) [C905-BCG48H-O](#) [C905-](#)  
[BCR24H-O](#) [C905-GLP28H-O](#) [C905-LRG2-O](#) [C905-NKG120-O](#) [C905-BA24H-O](#) [C905-GLP28H-O](#) [C905-NWG120-O](#)