panel

Panel Mount LED Lamps & Holders

Answering the need for high-performance solutions to original equipment manufacturers (OEMs) and retrofit panel mount applications, *LEDTRONICS* offers an extensive line of direct incandescent replacement **Panel Mount LED Lamps and Holders** that fit control panels and operating budgets alike.

Panel Mount LED Lamps and Holders come in snap-in, bolt-on, hardware-mounted and relampable versions. With many behind-the-panel depths available, *LEDTRONICS* Relampable Panel Mount LED Lamps and Holders (RPLH) are excellent choices for applications where space is restricted and aesthetics a consideration. LEDs are available in sunlight-visible colors such as red (660nm), orange (610nm), yellow (595nm), green (525nm), blue (470nm) and white (8000k). *LEDTRONICS* Panel LED Lamps and Holders can be employed in utility monitoring boards, industrial control equipment, audio and intercom panels, broadcast equipment, nuclear power status stations, medical instrumentation, etc. . . .

Like the incandescent bulbs commonly used in panel mount applications, *LEDTRONICS*® RPLH Series LED lamps feature T3-1/4 (9mm) single-contact miniature bayonet bases that give installation a familiar twist. RPLH Series LED lamps are rated for 28VDC. They directly replace 28MB, 313, 757 and 1819MB series incandescent bulbs. Light colors available are Red, Orange, Yellow, Green, Blue and White. All colors are sunlight visible!

While intended as integrated assemblies that incorporate a lens, lamp and lamp holder, Panel LED Lamps and Holders may be purchased as separate components. Raised Lexan¨ fresnal lenses resist impact, optimize viewing, maximize light dispersion and come in a variety of colors. Designed for screw-on mounting, lenses are independent of the lamp fixtures enabling lenses and the LED lamps to be easily changed. Lenses and holders are made of a rugged, polycarbonate (UL class UL94Vx) that withstands the rigors of industrial environments. Holders incorporate captive terminal screws with self-lifting, pressure wire clamps that accept up to two 14-gauge wires. Lamp holders are rated for incoming voltages of 5V DC or AC to 240V DC or AC. *LEDTRONICS* Panel Mount LED Lamps and Holders are available for 16mm, 22mm, 30mm, 11/16-inch, bi-pin cartridge, 15/32-inch, 5/16-inch and 1/2-inch panel openings.

LEDs' solid-state design renders them impervious to shock, vibration, frequent switching and environmental extremes, and ideal for rugged industrial applications. With an average life span of 100,000-plus hours (11 years), LED lamps operate more than 30 Ð 50 times longer than the equivalent incandescent lamp! Savings from reduced maintenance costs and downtime quickly return the capital investment expenditure. LED lamps produce almost no heat and require 80% -- 90% less operating power than equivalent incandescents, making them as friendly to the environment as they are to the operating budget.

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Series Number – Page Number

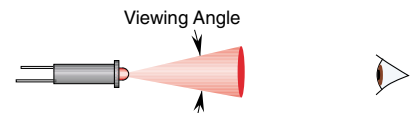|	
Will the Panel LED replace another manufacturers parts?	Dialight, Data Display Products, Industrial Devices Inc., etc... If so, what is the part number?
Mounting Type?	Snap-in, Snap-in with mount clip, Bolt-on, Relampable, etc...
Mounting Diameter & Panel Thickness?	What is the hole diameter into which the lamp assembly must fit? How thick is the wall of the panel?
Operating Voltage and Polarity?	Actual open line voltage? AC or DC? Does it fluctuate? Indicate the Minimum/Maximum values?
Terminal Type?	Are solid wire (0.02 sq.), pigtail flexible wire lead (24AWG), quick disconnect (3/16 rectangular), solder lug, turret, or screw-on type terminals preferred?
Viewing Distance?	How far is the operator / technician when the indicator must be visible? 5 to 10 feet, 20 to 50 feet, 100 to 200 feet, 500 to 1000 feet?
Viewing Angle?	0 to 12 degrees – Narrow Beam 30 to 60 degrees – Medium Beam 100 to 160 degrees – Wide Beam
LED Color?	Ultra Red, Hi-Efficiency Red, Standard Red, Orange, Yellow, Cool white, Ultra Green, Aqua Green, Blue
Lens Type?	Diffused lenses are used in applications where direct viewing or indication is needed. Clear lenses are used in application where illumination is needed. Is the lens fluted?
Ambient Lighting?	Standard office lighting. High ceiling factory lighting. Indirect sunlight. Direct sunlight
Potential Quality and Target Price?	How many pieces are required within a given time frame? How much budgetary funding is allowed for this item or project?

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THE FUTURE OF LIGHT

ISO 9001
REGISTERED

Phone: (310) 534-1505   Fax: (310) 534-1424
Website: http://www.ledtronics.com

Panel LED Questionnaire

®

Date_____

About you

The following information assists LEDtronics in determining the most appropriate FREE LED product SAMPLE. Fax to (310) 534-1424 for fast response.

Name: _____

Company: _____

Address: _____

City: _____ State: _____

Phone: (_____)_____

Fax: (_____)_____

M/S:_____

Zip: _____

About your company

What does your company manufacture _____

Is your company ☐ Govt/Military ☐ Govt Contractor ☐ OEM ☐ Distributor ☐ Utility ☐ MRO

Requirement is for ☐ R&D ☐ Replacement ☐ New Application ☐ Other_____

Total annual quantity _____

Target price _____ Time frame ☐ Immediate ☐ 3 months ☐ 6 months

About your application

Mounting Hole Diameter ☐ 5/32 [4.0mm] ☐ 3/16 [4.8mm] ☐ 1/4 [6.4mm] ☐ Other_____
☐ 9/32 [7.2mm] ☐ 5/16 [8.0mm] ☐ 1/2 [12.7mm]

Panel LED type ☐ Snap In ☐ Hardware Mounted ☐ Relampable ☐ Other_____

Terminal type ☐ Wire-lead _____ ☐ Square/Round ☐ Other_____

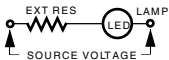Lens Style ☐ Top Hat Cyl. ☐ Flat Cyl. ☐ Dome ☐ Other_____

Lens/LED color ☐ Red ☐ Orange ☐ Amber ☐ Yellow ☐ White ☐ Green ☐ Blue ☐ Other_____

Lens/Filter type ☐ Clear ☐ Diffused Lens size _____

EXT RES LAMP
LED
SOURCE VOLTAGE

Operating voltage (max) ☐ 5V ☐ 12V ☐ 24V ☐ 28V ☐ 120VAC ☐ Other_____

Voltage (type) ☐ AC ☐ DC ☐ Bipolar

Is an external resistor in series with the lamp ☐ Yes ☐ No If yes, Ohms_____ Watts_____

Indoor Outdoor

Ambient lighting conditions ☐ Indirect sunlight ☐ Direct sun ☐ Office ☐ Lowlight ☐ Darkroom

Maximum viewing distance desired ☐ 1 ft ☐ 5 ft ☐ 10 ft ☐ 20 ft ☐ 50 ft ☐ Other_____

ø ?

Maximum viewing angle desired ☐ Straight on ☐ 30º ☐ 60º ☐ 90º ☐ Other_____
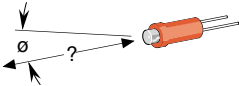
What is the source voltage? (If higher than the operating voltage of the lamp)_____

Would like updated literature ☐ Yes ☐ No More info on: ☐ Based ☐ Panel ☐ PCB ☐ Discrete ☐ Other_____

Applicable statutory and regulatory requirements ☐ Yes ☐ No Doc. No. _____

Additional Notes/Sketches

Features

- Panel Mounting Diameters from 5/32"(4.0mm) to 5/16" (8.0mm)
- Long Life 100,000+ hrs (10 years)
- Solid-State, High Shock/Vibration Resistant
- Maintenance Free, Easy Installation

- Low Power Consumption, High Intensity
- Diffused or Clear Lens
- Choice of High-Efficiency or Sunlight-Visible Super Intensity
- Built-in Current Limiting Resistor

Options

- Special Voltages
- Special Wire Lead Lengths
- Bi-Colors, Tri-Colors, RGB, IR
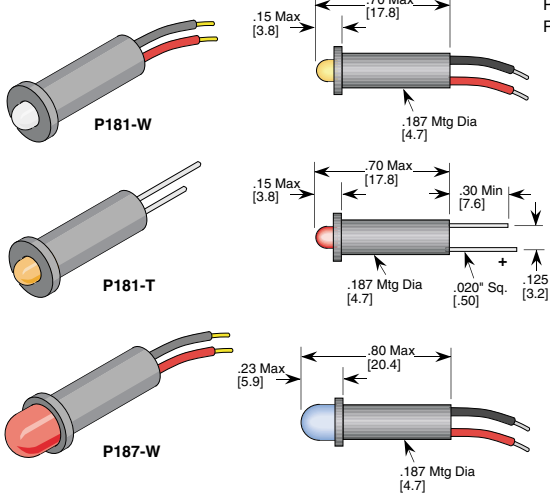- Flashing / Blinking
- High Power Infrareds 850/880/940nm

5/32" (4.0mm) Snap-in Panel Mount LEDs
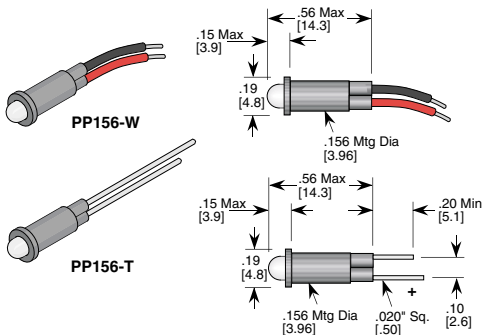
PP156-W

PP156-T

Series PP156 CWR3K — 5V — W6 — **Options**
T = Terminal Type
W6 = 6" Wire Leads

LED/Lens Type & Color

Water Clear Lens (Super Intensity)	Diffused Lens (Std Intensity)
CWR3K = SP Red	TR6 = UL Red
CWO3K = SP Orange	TR4/5 = HE Red
CWY3K = SP Yellow	TO4/5 = Orange
CW900 = C. White	TY4/5 = Yellow
CWG1K = UL. Green	TG4/5 = HE Green
CWAG6K = A. Green	TPG4/5 = P. Green
CWB1K = SP. Blue	TWRG4 = BiColor Red/Green
CIR881 = 880nm IR	TWYG4 = BiColor Yel/Green

Std. Operating Voltage

DC
2Vf
3.5Vf
5/6V
12/14V
24V
28V

3/16" (4.8mm) Panel Mount LEDs with Mtg. Clip

P181-W

P181-T

P187-W

Series
P181 = 3mm
P187 = 5mm

P181 CWR3K — 5V — W6 — **Options**
T = Terminal Type
W6 = 6" Wire Leads

LED/Lens Type & Color

Water Clear Lens (Super Intensity)	Diffused Lens (Std Intensity)
CWR3K = SP Red	TR6 = UL Red
CWO3K = SP Orange	TR4/5 = HE Red
CWY3K = SP Yellow	TO4/5 = Orange
CW1K = C. White	TY4/5 = Yellow
CWG1K = UL. Green	TG4/5 = HE Green
CWAG6K = A. Green	TPG4/5 = P. Green
CWB1K = SP. Blue	TWRG4 = BiColor Red/Green
CIR881 = 880nm IR	TWYG4 = BiColor Yel/Green

Std. Operating Voltage

DC
2Vf
3.5Vf
5/6V
12/14V
24V
28V

Mounting Clip/Washer
Part No. MC187/MW187

MW187 Neoprene Washer

MC187 Steel Mounting Clip

1/4" (6.4mm) Snap-in Panel Mount LEDs
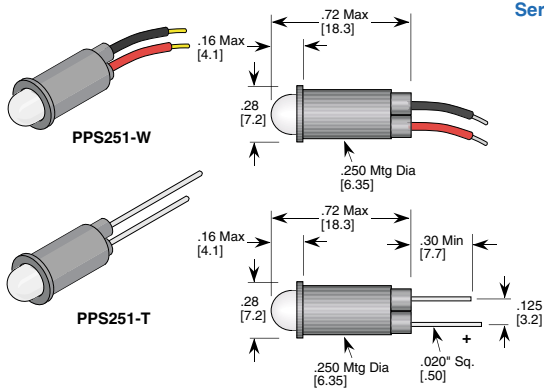
PPS251-W

PPS251-T

Series PPS251 CWR3K — 5V — W6 — **Options**
T = Terminal Type
W6 = 6" Wire Leads

LED/Lens Type & Color

Water Clear Lens (Super Intensity)	Diffused Lens (Std Intensity)
CWR3K = SP Red	TR6 = UL Red
CWO3K = SP Orange	TR4/5 = HE Red
CWY3K = SP Yellow	TO4/5 = Orange
CW1K = C. White	TY4/5 = Yellow
CWG1K = UL.Green	TG4/5 = HE Green
CWAG6K = A. Green	TPG4/5 = P. Green
CWB1K = SP. Blue	TWRG4 = BiColor Red/Green
CIR881 = 880nm IR	TWYG4 = BiColor Yel/Green

Std. Operating Voltage

DC
2Vf
3.5Vf
5/6V
12/14V
24V
28V

Notes: Super Intensity Diffused LEDs Available for Special Applications

Log # 115A Rev 09-2000

Snap-In Panel Mount LED Lamps

5/16" (8.0mm) Snap-In Panel Mount LEDs

Series → PPS312 CWR3K — 14V — W6

Options
T = Terminal Type
W6 = 6" Wire Leads

LED/Lens Type & Color

Std. Operating Voltage

PPS312-W (Low Profile Lens)

1.00 Max [25.4]
.08 Max [2.1]
.38 [9.7]
.312 Mtg Dia [7.9]

PPS312-T (Low Profile Lens)

1.00 Max [25.4]
.08 Max [2.1]
.30 Min [7.7]
.38 [9.7]
.15 [3.9]
.312 Mtg Dia [7.9]
.020" Sq. [.50]

Water Clear Lens (Super Intensity)	Diffused Lens (Std Intensity)
CWR3K = SP Red	TR6 = UL Red
CWO3K = SP Orange	TR4/5 = HE Red
CWY3K = SP Yellow	TO4/5 = Orange
CW1K = C. White	TY4/5 = Yellow
CWG1K = UL. Green	TG4/5 = HE Green
CWAG6K = A. Green	TPG4/5 = P. Green
CWB1K = SP. Blue	TWRG4 = BiColor Red/Green
	TWYG4 = BiColor Yel/Green

DC
2Vf
3.5Vf
5/6V
12/14V
24V
28V

5/16" (8.0mm) Snap-In Panel Mount LEDs

Series → PP312 CWR3K — 14V — W6

Options
T = Terminal Type
W6 = 6" Wire Leads

LED/Lens Type & Color

Std. Operating Voltage

PP312-W (Top Hat Lens)

1.20 Max [30.5]
.28 Max [7.2]
.38 [9.7]
.312 Mtg Dia [7.9]

PP312-T (Top Hat Lens)

1.20 Max [30.5]
.28 Max [7.2]
.30 Min [7.7]
.38 [9.7]
.15 [3.9]
.312 Mtg Dia [7.9]
.020" Sq. [.50]

Water Clear Lens (Super Intensity)	Diffused Lens (Std Intensity)
CWR3K = SP Red	TR6 = UL Red
CWO3K = SP Orange	TR4/5 = HE Red
CWY3K = SP Yellow	TO4/5 = Orange
CW1K = C. White	TY4/5 = Yellow
CWG1K = UL. Green	TG4/5 = HE Green
CWAG6K = A. Green	TPG4/5 = P. Green
CWB1K = SP. Blue	TWRG4 = BiColor Red/Green
	TWYG4 = BiColor Yel/Green

DC
2Vf
3.5Vf
5/6V
12/14V
24V
28V

5/16" (8.0mm) Snap-In Panel Mount LEDs

Series → PPD312 CWR3K — 14V — W6

Options
T = Terminal Type
W6 = 6" Wire Leads

LED/Lens Type & Color

Std. Operating Voltage

PPD312-W (5mm Dome Lens)

1.20 Max [30.5]
.28 Max [7.2]
.38 [9.7]
.312 Mtg Dia [7.9]

PPD312-T (5mm Dome Lens)

1.20 Max [30.5]
.28 Max [7.2]
.30 Min [7.7]
.38 [9.7]
.15 [3.9]
.312 Mtg Dia [7.9]
.020" Sq. [.50]

Water Clear Lens (Super Intensity)	Diffused Lens (Std Intensity)
CWR3K = SP Red	TR6 = UL Red
CWO3K = SP Orange	TR4/5 = HE Red
CWY3K = SP Yellow	TO4/5 = Orange
CW1K = C. White	TY4/5 = Yellow
CWG1K = UL. Green	TG4/5 = HE Green
CWAG6K = A. Green	TPG4/5 = P. Green
CWB1K = SP. Blue	TWRG4 = BiColor Red/Green
CIR881 = 880nm IR	TWYG4 = BiColor Yel/Green

DC
2Vf
3.5Vf
5/6V
12/14V
24V
28V

Notes: Super Intensity Diffused LEDs Available for Special Applications

Mounting Clip
Part No. SN312

Steel Mounting Clip

Bolt-On Panel Mount LED Lamps

Features

- Panel Mounting Diameter 1/4 in. (6.4mm) & 5/16 in. (8.0mm)
- Long Life 100,000+ hrs (10 years)
- Solid-State, High Shock/Vibration Resistant
- Maintenance Free, Easy Installation
- Low Power Consumption, High Intensity
- Major Power Savings
- Major Reduction in Heat Generation
- Built-in Current Limiting Resistor

Options

- Special Voltages
- Sunlight-Visible Super Bright or High-Efficiency LEDs
- Bi-Colors, Tri-Colors, RGB, IR
- Flashing / Blinking

1/4" (6.4mm) Panel LED Lamps with Hardware

Hooded

PT301-W

PT301-T

.61 Max [15.5]
.13 Max [3.3]
.30 Min [7.7]
.32 [8.2]
.10 [2.6]
.250 Mtg Dia [6.35]
.020" Sq. [.50]
+

Conical

PT302-W

PT302-T

.65 Max [16.0]
.15 Max [3.9]
.30 Min [7.7]
.32 [8.2]
.10 [2.6]
.250 Mtg Dia [6.3]
.020" Sq. [.50]
+

Series
PT301 = Hooded
PT302 = Conical

| PT301 | CWR3K | – | 5V | – | T |

LED/Lens Type & Color

Water Clear Lens (Super Intensity)
- CWR3K = SP Red
- CWO3K = SP Orange
- CWY3K = SP Yellow
- CW900 = C. White
- CWG1K = UL. Green
- CWAG6K = A. Green
- CWB1K = SP. Blue
- CIR881 = 880nm IR

Diffused Lens (Std Intensity)
- TR6 = UL Red
- TR4/5 = HE Red
- TO4/5 = Orange
- TY4/5 = Yellow
- TG4/5 = HE Green
- TPG4/5 = P. Green
- TWRG4 = BiColor Red/Green
- TWYG4 = BiColor Yel/Green

Std. Operating Voltage
DC
2Vf
3.5Vf
5/6V
12/14V
24V
28V

Options
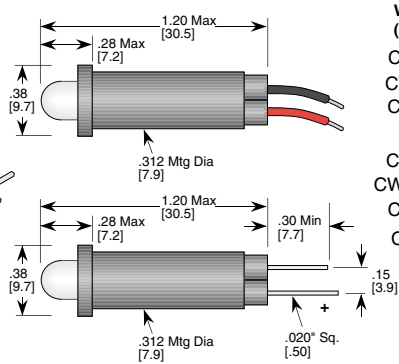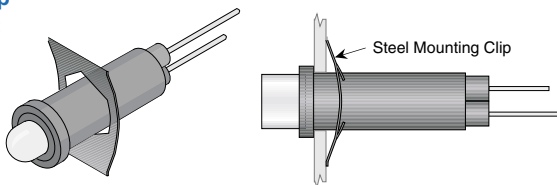W6 = 6" Wire Leads
T = Terminal Type

5/16" (8.0mm) Panel LED Lamps with Hardware

Hooded

PT501-W

PT501-T

.73 Max [18.6]
.16 Max [4.1]
.30 Min [7.7]
.40 [10.2]
.10 [2.6]
.312 Mtg Dia [8.1]
.020" Sq. [.50]
+

Conical

PT502-W

PT502-T

.79 Max [20.1]
.17 Max [4.4]
.30 Min [7.7]
.40 [10.2]
.10 [2.6]
.312 Mtg Dia [7.9]
.020" Sq. [.50]
+

Available in Black Housing

Series
PT501 = Hooded
PT502 = Conical

| PT501 | CWR3K | – | 5V | – | T |

LED/Lens Type & Color

Water Clear Lens (Super Intensity)
- CWR3K = SP Red
- CWO3K = SP Orange
- CWY3K = SP Yellow
- CW1K = C. White
- CWG1K = UL. Green
- CWAG6K = A. Green
- CWB1K = SP. Blue
- CIR881 = 880nm IR

Diffused Lens (Std Intensity)
- TR6 = UL Red
- TR4/5 = HE Red
- TO4/5 = Orange
- TY4/5 = Yellow
- TG4/5 = HE Green
- TPG4/5 = P. Green
- TWRG4 = BiColor Red/Green
- TWYG4 = BiColor Yel/Green

Std. Operating Voltage
DC
2Vf
3.5Vf
5/6V
12/14V
24V
28V

Options
W6 = 6" Wire Leads
T = Terminal Type

Notes: Super Intensity Diffused LEDs Available for Special Applications

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Website: http://www.ledtronics.com

1/2" (12.7mm) Panel LED Lamps

Features

- 1/2" (12.7mm) Panel Mounting Diameter
- Long Life 100,000+ hrs (10+ years)
- Solid-State, High Shock/Vibration Resistant
- Maintenance Free, Easy Installation
- InGaN, InGaAIP New Technology LEDs
- Low Power Consumption, High Intensity
- Major Power Savings
- Major Reduction in Heat Generation
- Built-in Current Limiting Resistor
- Sunlight-Visible Super Bright or High-Efficiency LEDs

Options

- Special Voltages
- Bi-Colors, Tri-Colors, RGB, IR
- Extra Wide Angle Multichip LEDs
- Flashing/Blinking
- Custom Wire Lead Lengths

Low Profile Lens Single Chip LED Lamps

PFS50-W

PFS50-T

1.30 Max [33.1]
.22 Max [5.6]
.62 [15.8]
.50 Mtg Dia [12.7]
3/16" Male Tab

Series PFS50 C R3K − 5V − T

Lens
C = Tinted Clear
CW = Water Clear
TW = Milky White

LED Color
R3K = UL Red
O3K = SP Orange
Y3K = SP Yellow
IW2K = Inc. White
W1K = C. White
G1K = L. Green
AG6K = A. Green
B1K = P. Blue
881 = 880nm IR

Std. Operating Voltage

DC
2Vf (Ext. Res. Rqd.)
3.5Vf (Ext. Res. Rqd.)
5/6V
12/14V
24V
28V
48V
130V

AC
120VAC
240VAC

Options
T = Terminal Type (3/16" Male Tab)
W6 = 6" Wire Leads

Top Hat Lens Single Chip LED Lamps

PF50-W

PF50-T

1.44 Max [36.6]
.36 Max [9.2]
.62 [15.8]
.50 Mtg Dia [12.7]
3/16" Male Tab

Series PF50 C R3K − 5V − T

Lens
C = Tinted Clear
CW = Water Clear
TW = Milky White

LED Color
R3K = UL Red
O3K = SP Orange
Y3K = SP Yellow
IW2K = Inc. White
W1K = C. White
G1K = L. Green
AG6K = A. Green
B1K = P. Blue
881 = 880nm IR

Std. Operating Voltage

DC
2Vf (Ext. Res. Rqd.)
3.5Vf (Ext. Res. Rqd.)
5/6V
12/14V
24V
28V
48V
130V

AC
120VAC
240VAC

Options
T = Terminal Type (3/16" Male Tab)
W6 = 6" Wire Leads

Dome Lens Single Chip LED Lamps

PD50-W

PD50-T

1.62 Max [41.2]
.54 Max [13.7]
.62 [15.8]
.50 Mtg Dia [12.7]
3/16" Male Tab

Series PD50 C R3K − 5V − T

Lens
C = Tinted Clear
CW = Water Clear
TW = Milky White

LED Color
R3K = UL Red
O3K = SP Orange
Y3K = SP Yellow
IW2K = Inc. White
W1K = C. White
G1K = L. Green
AG6K = A. Green
B1K = P. Blue
881 = 880nm IR

Std. Operating Voltage

DC
2Vf (Ext. Res. Rqd.)
3.5Vf (Ext. Res. Rqd.)
5/6V
12/14V
24V
28V
48V
130V

AC
120VAC
240VAC

Options
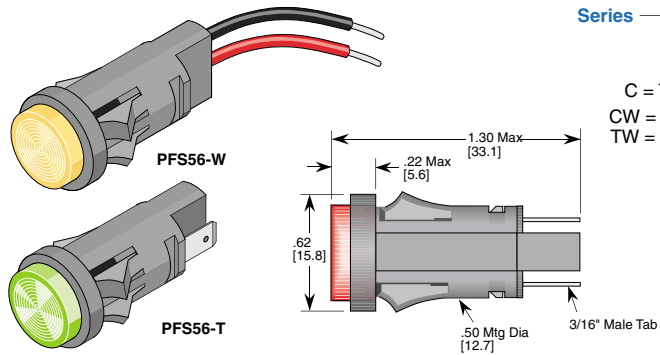T = Terminal Type (3/16" Male Tab)
W6 = 6" Wire Leads

Notes:
1. Contact local representative to determine best style for each application
2. Not all possible combinations of color, voltage and polarity are available

Log # 115C   Rev 09-2000

Low Profile Lens Multichip (160 Illumination)

PFS56-W

PFS56-T

1.30 Max [33.1]

.22 Max [5.6]

.62 [15.8]

.50 Mtg Dia [12.7]

3/16" Male Tab

Series PFS56 C R3K — 5V — T

Lens
C = Tinted Clear
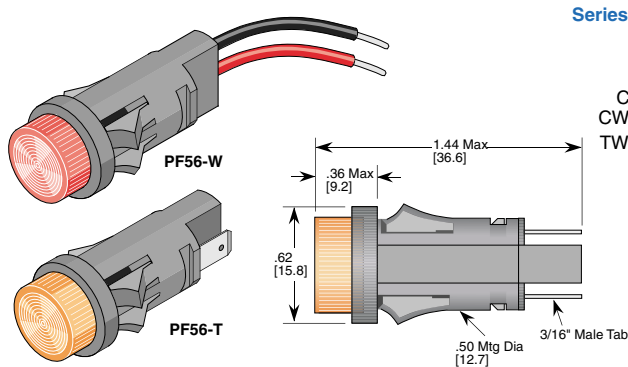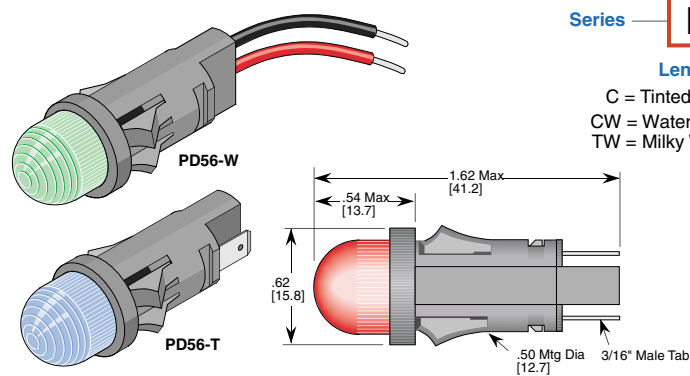CW = Water Clear
TW = Milky White

LED Color

R3K = SP Red	Y6 = Yellow
R7 = UL Red	W6 = P. Yellow
R6 = HE Red	LY6 = L. Yellow
O3K = SP Orange	G6 = HE Green
O6 = Orange	PG6 = P. Green
Y3K = SP Yellow	UB6 = U. Blue

Options
T = 3/16" Male Tab
W6 = 6" Wire Leads

Std. Operating Voltage

DC	AC
5/6V	120VAC
12/14V	240VAC
24V	
28V	
48V	
130V	

Top Hat Lens Multichip (160 Illumination)

PF56-W

PF56-T

1.44 Max [36.6]

.36 Max [9.2]

.62 [15.8]

.50 Mtg Dia [12.7]

3/16" Male Tab

Series PF56 C R3K — 5V — T

Lens
C = Tinted Clear
CW = Water Clear
TW = Milky White

LED Color

R3K = SP Red	Y6 = Yellow
R7 = UL Red	W6 = P. Yellow
R6 = HE Red	LY6 = L. Yellow
O3K = SP Orange	G6 = HE Green
O6 = Orange	PG6 = P. Green
Y3K = SP Yellow	UB6 = U. Blue

Options
T = 3/16" Male Tab
W6 = 6" Wire Leads

Std. Operating Voltage

DC	AC
5/6V	120VAC
12/14V	240VAC
24V	
28V	
48V	
130V	

Dome Lens Multichip (160 Illumination)

PD56-W

PD56-T

1.62 Max [41.2]

.54 Max [13.7]

.62 [15.8]

.50 Mtg Dia [12.7]

3/16" Male Tab

Series PD56 C R3K — 5V — T

Lens
C = Tinted Clear
CW = Water Clear
TW = Milky White

LED Color

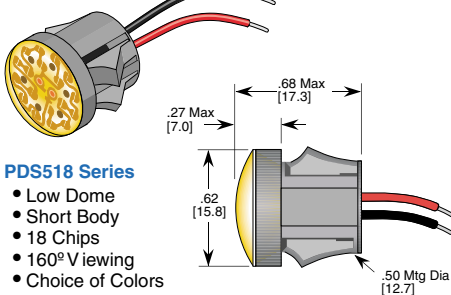| R3K = SP Red | Y6 = Yellow |
R7 = UL Red	W6 = P. Yellow
R6 = HE Red	LY6 = L. Yellow
O3K = SP Orange	G6 = HE Green
O6 = Orange	PG6 = P. Green
Y3K = SP Yellow	UB6 = U. Blue

Options
T = 3/16" Male Tab
W6 = 6" Wire Leads

Std. Operating Voltage

DC	AC
5/6V	120VAC
12/14V	240VAC
24V	
28V	
48V	
130V	

Notes:
1. Contact local representative to determine best style for each application
2. Not all possible combinations of color, voltage and polarity are available

Special Products

Multichip

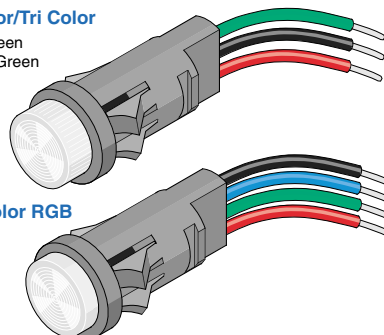.68 Max [17.3]

.27 Max [7.0]

.62 [15.8]
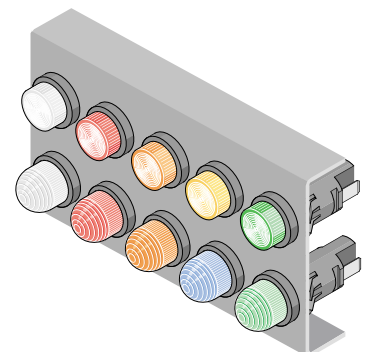
.50 Mtg Dia [12.7]

PDS518 Series
• Low Dome
• Short Body
• 18 Chips
• 160º Viewing
• Choice of Colors

Bi-Color/Tri Color
Red/Green
Yellow/Green

256 Color RGB

Log # 115D Rev 09-2000

LED®

5/16" Relampable Panel LED Lamps

Features

- Panel Mounting Diameter 5/16 in. (8.0mm)
- Long Life 100,000+ hrs (10 years)
- Solid-State, High Shock/Vibration Resistant
- Maintenance Free, Easy Installation
- Low Power, High Intensity
- Major Power Savings
- Major Reduction in Heat Generation
- Built-in Current Limiting Resistor

Options

- Special Voltages
- Sunlight-Visible Super Bright or High-Efficiency LEDs
- Bi-Colors, Tri-Colors, RGB, IR
- Flashing / Blinking

5/16" (8mm) Mtg. Dia. Front & Rear Mount with T1 Sub-Midget Flange LED
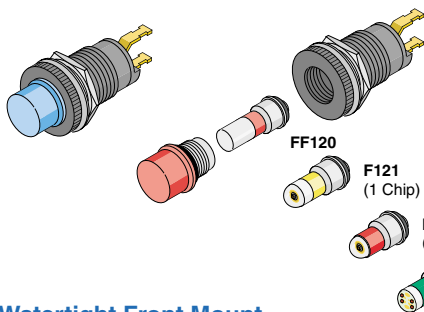
Series
HLC310 = Front Mount
HLD310 = Rear Mount
HLD312 = 2 Chip
HLD314 = 4 Chip

Lens
C = Tinted Clear
CW = Water Clear
TW = Milky White

| HLC310 | C | R3K | – | 5V | – | P |

LED Color

Options
P = Center Pos (Black Bezel)

1 Chip (Super Intensity)
R3K = SP Red
O3K = SP Orange
Y3K = SP Yellow
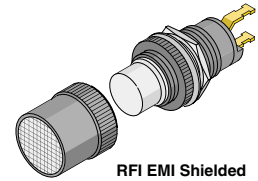W900 = C. White
G1K = UL. Green
AG6K = A. Green
B1K = SP. Blue

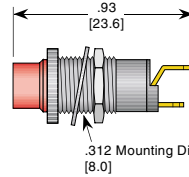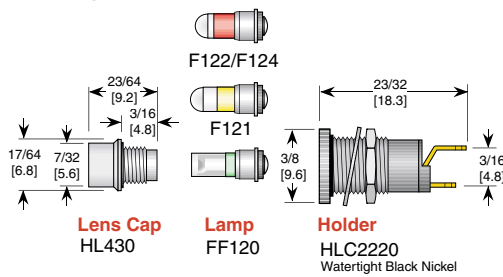**2/4 Chip (Std Intensity)**
R6 = UL Red
R5 = HE Red
O5 = Orange
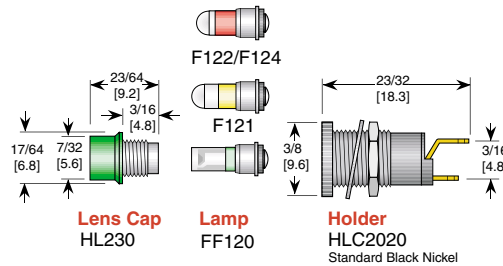Y5 = Yellow
LY5 = L. Yellow
G5 = HE Green
PG5 = P. Green

Std. Operating Voltage
DC
2Vf (Ext. Res. Rqd.)
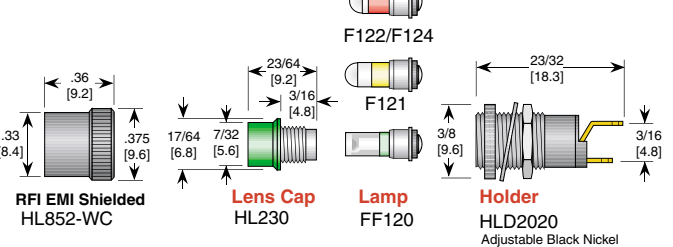3.5Vf (Ext. Res. Rqd.)
3.6V
5/6V
12/14V
24V
28V

FF120

F121 (1 Chip)

F122 (2 Chip)

F124 (4 Chip)

Watertight Front Mount

F122/F124

F121

23/64 [9.2]
3/16 [4.8]
17/64 [6.8]
7/32 [5.6]

23/32 [18.3]
3/8 [9.6]
3/16 [4.8]

Lens Cap HL430
Lamp FF120
Holder HLC2220 Watertight Black Nickel

.93 [23.6]

.312 Mounting Dia [8.0]

RFI EMI Shielded

Standard Front Mount

F122/F124

F121

23/64 [9.2]
3/16 [4.8]
17/64 [6.8]
7/32 [5.6]

23/32 [18.3]
3/8 [9.6]
3/16 [4.8]

Lens Cap HL230
Lamp FF120
Holder HLC2020 Standard Black Nickel

Standard Rear Mount

F122/F124

F121

.36 [9.2]
.33 [8.4]
.375 [9.6]

23/64 [9.2]
3/16 [4.8]
17/64 [6.8]
7/32 [5.6]

23/32 [18.3]
3/8 [9.6]
3/16 [4.8]

RFI EMI Shielded HL852-WC
Lens Cap HL230
Lamp FF120
Holder HLD2020 Adjustable Black Nickel

T1 LED Lamps

Series
FF120 = 1 Chip
F121 = 1 Chip
F122 = 2 Chip
F124 = 4 Chip

Lens
C = Clear

| FF120 | C | R3K | – | 5V | – | P |

LED Color

Options
P = Positive Center
N = Negative Center

1 Chip (Super Intensity)
R3K = SP Red
O3K = SP Orange
Y3K = SP Yellow
W900 = C. White
G1K = UL. Green
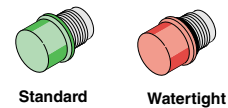AG6K = A. Green
B1K = SP. Blue

2/4 Chip (Std Intensity)
R6 = UL Red
R5 = HE Red
O5 = Orange
Y5 = Yellow
LY5 = L. Yellow
G5 = HE Green
PG5 = P. Green

Std. Operating Voltage
DC
2Vf (Ext. Res. Rqd.)
3.5Vf (Ext. Res. Rqd.)
3.6V
5/6V
12/14V
24V
28V

FF120

F121

F122

F124

Super Intensity 2 & 4 Chip LEDs Available in This Package for Special Applications

Lens Cap

Standard

Watertight

Lens Cap Part Number		Lens Type/Color
HL230-RT	HL430-RT	Diff Red
HL230-AT	HL430-AT	Diff Orange
HL230-GT	HL430-GT	Diff Green
HL230-BT	HL430-BT	Diff Blue
HL230-WT	HL430-WT	Diff. White
HL230-WC	HL430-WC	Water Clear

15/32" (11.7mm) Mtg. Dia. Front Mount with T1-3/4" Midget Flange LED

(Meets MIL Spec MIL-L-3661B)
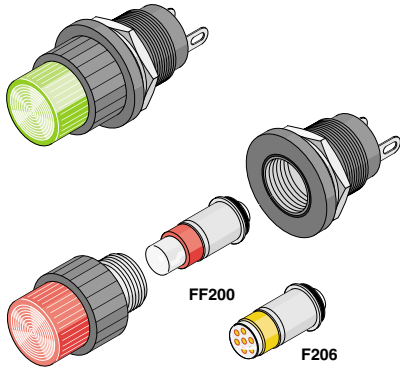
Series
MFS470 = 1 Chip
MFS473 = 3 Chip
MFS476 = 6 Chip

`MFS470` `C` `R3K` — `28V` — `BP`

Lens
C = Tinted Clear
CW = Water Clear
TW = Milky White

LED Color

Options
BP = Bi-Polar (AC/DC)
(Black Bezel)

1 Chip (Super Intensity)
R3K = SP Red
O3K = SP Orange
Y3K = SP Yellow
IW2K = Inc White
W600 = C. White
G1K = UL. Green
AG6K = A. Green
B1K = SP. Blue

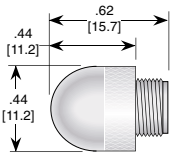**3/6 Chip (Std Intensity)**
R7 = UL Red
R6 = HE Red
O6 = Orange
Y6 = Yellow
W6 = P. Yellow
LY6 = L. Yellow
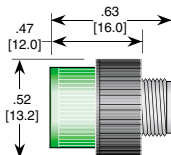G6 = HE Green
PG6 = P. Green

Std. Operating Voltage

DC
2Vf (Ext. Res. Rqd.)
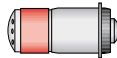3.5Vf (Ext. Res. Rqd.)
3.6V
5/6V
12/14V
24V
28V

AC
120VAC

FF200

F206

1.20 [30.5]
.44 [11.2]
15/32 Mounting Dia [11.7]

Standard

.62 [15.7]
.44 [11.2]
.44 [11.2]

Lens Cap
LCD470-CX (Mil# LC12)
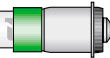RM820-CX (RFI/EMI Shielded)

.63 [16.0]
.47 [12.0]
.52 [13.2]

Lens Cap
LCF470

Lamp
F203/F206
(3-Chip/6-Chip)

or

Lamp
FF200

.72 [18.3]
.55 [13.9]
.30 [7.6]
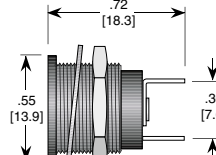
Holder
MFS470B (Mil# LH73/1)
RMM64Y0 (RFI/EMI Shielded)

Watertight

.677 [17.1]
.45 [11.4]
.568 [14.4]
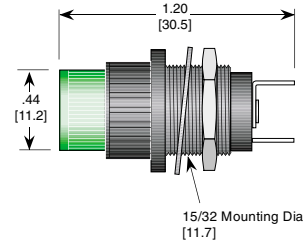
Lens Cap
LCD470W-CX (Mil# LC35)

.722 [18.3]
.47 [12.0]
.52 [13.2]
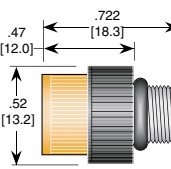
Lens Cap
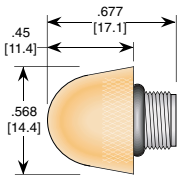LCF470W

Lamp
F203/F206
(3-Chip/6-Chip)

or

Lamp
FF200

.76 [19.3]
.64 [16.3]
.30 [7.6]
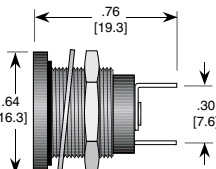
Holder
MFS470B-WP (Watertight)
(Mil# LH89/1)

T1-3/4 LED Lamps

Series
FF200 = 1 Chip
F203 = 3 Chip
F206 = 6 Chip

`FF200` `CR3K` — `28V` — `BP`

LED Color

Options
BP = Bipolar (AC/DC)
AC = AC Only

1 Chip (Super Intensity)
R3K = SP Red
O3K = SP Orange
Y3K = SP Yellow
IW2K = Inc White
W600 = C. White
G1K = UL. Green
AG6K = A. Green
B1K = SP. Blue

3/6 Chip (Std Intensity)
R7 = UL Red
R6 = HE Red
O6 = Orange
Y6 = Yellow
W6 = P. Yellow
LY6 = L. Yellow
G6 = HE Green
PG6 = P. Green

Std. Operating Voltage

DC
2Vf (Ext. Res. Rqd.)
3.5Vf (Ext. Res. Rqd.)
3.6V
5/6V
12/14V
24V
28V

AC
120VAC

Lens Cap

Standard   Watertight

Lens Cap Part Number		Lens Type/Color
LCD470-CR	LCD470W-CR	Clear Red
LCD470-CA	LCD470W-CA	Clear Orange
LCD470-CY	LCD470W-CY	Clear Yellow
LCD470-CG	LCD470W-CG	Clear Green
LCD470-CW	LCD470W-CW	Water Clear
LCD470-DW	LCD470W-DW	Diff. White

Standard   Watertight
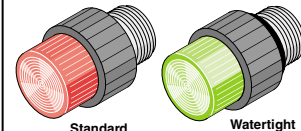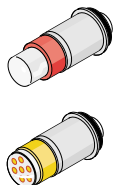
Lens Cap Part Number		Lens Type/Color
LCF470-CRF	LCF470W-CRF	Clear Red
LCF470-CAF	LCF470W-CAF	Clear Orange
LCF470-CYF	LCF470W-CYF	Clear Yellow
LCF470-CGF	LCF470W-CGF	Clear Green
LCF470-CWF	LCF470W-CWF	Water Clear
LCF470-TWF	LCF470W-TWF	Diff. White

Log # 119B   Rev 07-2000

3/8" Relampable Panel LED Lamps

Features

- 3/8" (9.5mm) Panel Mtg Diameter
- Industry Standard Bi-Pin Cartridge and Socket
- Long Life 100,000+ hrs (10 years)
- Solid-State, High Shock/Vibration Resistant
- Maintenance Free, Easy Installation
- Meets MIL-L-3661B. Conforms to MS18235,6,7,8
- Low Power Consumption, High Intensity
- Major Power Savings
- Major Reduction in Heat Generation
- Built-in Current Limiting Resistor

Options

- Special Voltages
- Sunlight-Visible Super Bright or High-Efficiency LEDs
- Bi-Colors, Tri-Colors, RGB, IR
- RFI/EMI, Splashproof
- Flashing/Blinking

3/8" (9.5mm) Top Hat/Cylindrical Lens
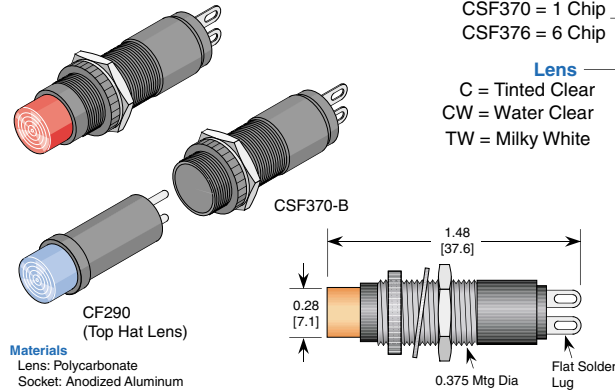
Series
CSF370 = 1 Chip
CSF376 = 6 Chip

`CSF370` `C` `R3K` — `5V` — `B`

Lens
C = Tinted Clear
CW = Water Clear
TW = Milky White

LED Color

1 Chip (Super Intensity)	6 Chip (Std Intensity)
R3K = SP Red	R7 = UL Red
O3K = SP Orange	R6 = HE Red
Y3K = SP Yellow	O6 = Orange
IW2K = Inc White	Y6 = Yellow
W6K = C. White	W6 = P. Yellow
G1K = UL Green	LY6 = L. Yellow
AG6K = A. Green	G6 = HE Green
B1K = SP Blue	PG6 = P. Green

Std. Operating Voltage

DC	AC
2Vf	120VAC
3.5Vf	
3.6V	
5/6V	
12/14V	
24V	
28V	

Options
B = Black Bezel
BP = Bi-Polar (AC/DC) Black Bezel

CSF370-B

CF290 (Top Hat Lens)

Materials
Lens: Polycarbonate
Socket: Anodized Aluminum

1.48 [37.6]
0.28 [7.1]
0.375 Mtg Dia
Flat Solder Lug

3/8" (9.5mm) Dome/Stove Pipe Lens
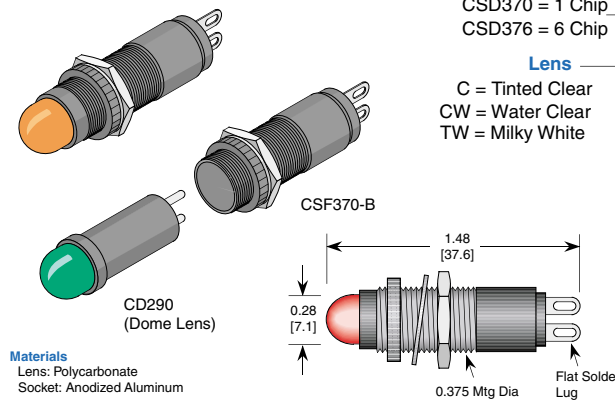
Series
CSD370 = 1 Chip
CSD376 = 6 Chip

`CSD370` `C` `O3K` — `5V` — `B`

Lens
C = Tinted Clear
CW = Water Clear
TW = Milky White

LED Color

1 Chip (Super Intensity)	6 Chip (Std Intensity)
R3K = SP Red	R7 = UL Red
O3K = SP Orange	R6 = HE Red
Y3K = SP Yellow	O6 = Orange
IW2K = Inc White	Y6 = Yellow
W6K = C. White	W6 = P. Yellow
G1K = UL Green	LY6 = L. Yellow
AG6K = A. Green	G6 = HE Green
B1K = SP Blue	PG6 = P. Green

Std. Operating Voltage

DC	AC
2Vf	120VAC
3.5Vf	
3.6V	
5/6V	
12/14V	
24V	
28V	

Options
B = Black Bezel
BP = Bi-Polar (AC/DC) Black Bezel

CSF370-B

CD290 (Dome Lens)

Materials
Lens: Polycarbonate
Socket: Anodized Aluminum

1.48 [37.6]
0.28 [7.1]
0.375 Mtg Dia
Flat Solder Lug

3/8" (9.5mm) Low Profile Flat Lens
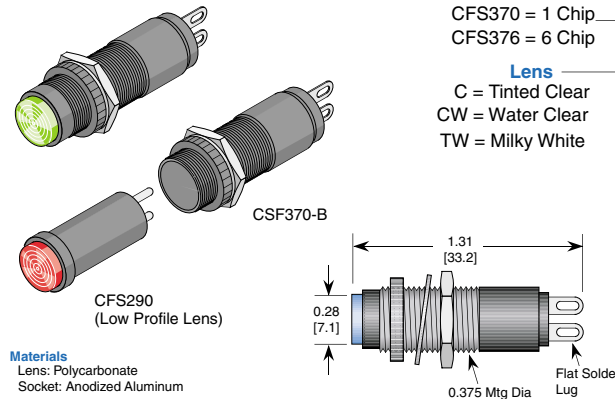
Series
CFS370 = 1 Chip
CFS376 = 6 Chip

`CFS370` `C` `AG6K` — `5V` — `B`

Lens
C = Tinted Clear
CW = Water Clear
TW = Milky White

LED Color

1 Chip (Super Intensity)	6 Chip (Std Intensity)
R3K = SP Red	R7 = UL Red
O3K = SP Orange	R6 = HE Red
Y3K = SP Yellow	O6 = Orange
IW2K = Inc White	Y6 = Yellow
W6K = C. White	W6 = P. Yellow
G1K = UL Green	LY6 = L. Yellow
AG6K = A. Green	G6 = HE Green
B1K = SP Blue	PG6 = P. Green

Std. Operating Voltage

DC	AC
2Vf	120VAC
3.5Vf	
3.6V	
5/6V	
12/14V	
24V	
28V	

Options
B = Black Bezel
BP = Bi-Polar (AC/DC) Black Bezel

CSF370-B

CFS290 (Low Profile Lens)

Materials
Lens: Polycarbonate
Socket: Anodized Aluminum

1.31 [33.2]
0.28 [7.1]
0.375 Mtg Dia
Flat Solder Lug

LEDTRONICS, INC.®
THE FUTURE OF LIGHT

ISO 9001 REGISTERED

Phone: (310) 534-1505   Fax: (310) 534-1424
Website: http://www.ledtronics.com

® LLED

Series
CF290 = 1 Chip
CF296 = 6 Chip
CD290 = 1 Chip
CD296 = 6 Chip
CFS290 = 1 Chip
CFS296 = 6 Chip

Lens
C = Tinted Clear
CW = Water Clear
TW = Milky White

Materials
Lens: Polycarbonate
Socket: Anodized Aluminum
Cartridge Hsg: Anodized Aluminum or Nylon (C290)
Cartridge Pins: Steel or Hard Brass (Non Solderable)
Anodized Aluminum (CM/CL/CX290)

| CF290 | C | R3K | — | 5V | — | B |

LED Color

1 Chip (Super Intensity)
R3K = SP Red
O3K = SP Orange
Y3K = SP Yellow
IW2K = Inc White
W6K = C. White
G1K = UL Green
AG6K = A. Green
B1K = SP Blue

6 Chip (Std Intensity)
R7 = UL Red
R6 = HE Red
O6 = Orange
Y6 = Yellow
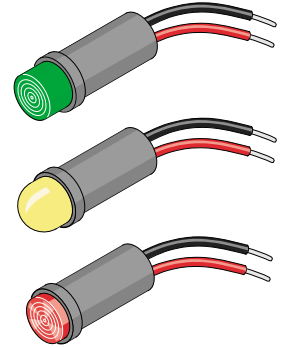W6 = P. Yellow
LY6 = L. Yellow
G6 = HE Green
PG6 = P. Green

Std. Operating Voltage

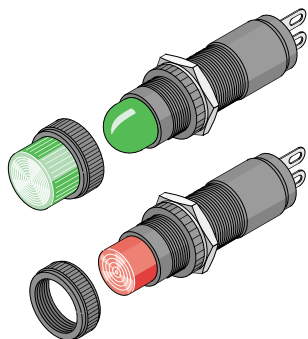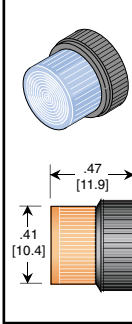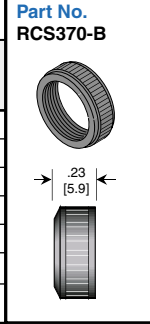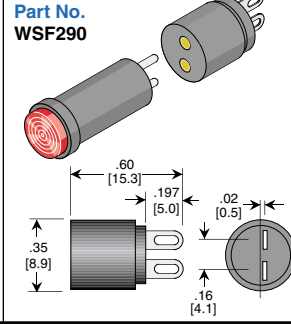| DC	AC
2Vf	120VAC
3.5Vf	
3.6V	
5/6V	
12/14V	
24V	
28V	

Options
B = Black Bezel
BP = Bi-Polar (AC/DC) Black Bezel
B/W6 = 6" Wire Leads

Optional Wire Leads

CF290 Series
Standard Flat Cylindrical
1.14 [28.95]
.265 [6.73]
.203 [5.15]

CMF290 Series
Medium Flat Cylindrical
1.265 [32.13]
.265 [6.73]
.203 [5.15]

CLF290 Series
Long Flat Cylindrical
1.328 [33.73]
.265 [6.73]
.203 [5.15]

CXF290 Series
Extra Long Flat Cylindrical
1.636 [41.55]
.265 [6.73]
.203 [5.15]

.284 [7.21]
.020 [.508]
.160 [4.06]
Pin Dia .040 [1.02]

CD290 Series
Standard Stovepipe
1.14 [28.95]
.265 [6.73]
.203 [5.15]

CMD290 Series
Medium Stovepipe
1.265 [32.13]
.265 [6.73]
.203 [5.15]

CLD290 Series
Long Stovepipe
1.328 [33.73]
.265 [6.73]
.203 [5.15]

CXD290 Series
Extra Long Stovepipe
1.636 [41.55]
.265 [6.73]
.203 [5.15]

.284 [7.21]
.020 [.508]
.160 [4.06]
Pin Dia .040 [1.02]

CFS290 Series
Standard Low Profile
0.968 [24.5]
.093 [2.36]
.203 [5.15]

CMS290 Series
Medium Low Profile
1.093 [27.7]
.093 [2.36]
.203 [5.15]

CLS290 Series
Long Low Profile
1.156 [29.36]
.093 [2.36]
.203 [5.15]

CXS290 Series
Extra Long Low Profile
1.464 [37.18]
.093 [2.36]
.203 [5.15]

.284 [7.21]
.020 [.508]
.160 [4.06]
Pin Dia .040 [1.02]

Holders

Part No. CSF370-B
Standard Body
1.20 [30.5]
.197 [5.0]
0.375 Mtg Dia

Part No. CMF370-B
Medium Body
1.28 [32.5]
.197 [5.0]
0.375 Mtg Dia

Part No. CLF370-B
Long Body
1.42 [36.1]
.197 [5.0]
0.375 Mtg Dia

Part No. CXF370-B
Extra Long Body
1.70 [43.2]
.197 [5.0]
0.375 Mtg Dia

.02 [0.5]
.16 [4.1]

Mounting Accessories

Retainer Lens Cap

Lens Cap Part Number	Lens Type/Color	
LC370-CRF	Clear Red	
LC370-CAF	Clear Orange	
LC370-CYF	Clear Yellow	
LC370-CGF	Clear Green	
LC370-CBF	Clear Blue	
LC370-CWF	Water Clear	

.47 [11.9]
.41 [10.4]

Retainer Ring
Part No. RCS370-B
.23 [5.9]

Wiring Plug
Part No. WSF290
.60 [15.3]
.197 [5.0]
.35 [8.9]
.02 [0.5]
.16 [4.1]

Mounting Clip/Washer
Part No. MC290/MW290
Washer
Mounting Clip

Log # 119F Rev 07-2000

3/8" & 1/2" Relampable Panel LED Lamps

1/2" (12.7mm) Mtg. Dia. Front Mount with T1 3/4 Midget Flange LED

FL206

FFL200

Series
MSC380 = 1 Chip
MSC386 = 6 Chip

| MSC380 | C | R3K | — | 28V | — | BP |

Lens
C = Tinted Clear
CW = Water Clear

LED Color

**1 Chip (Super Intensity)**
R3K = SP Red
O3K = SP Orange
Y3K = SP Yellow
IW2K = Inc White
W600 = C. White
G1K = UL. Green
AG6K = A. Green
B1K = SP. Blue

6 Chip (Std Intensity)
R7 = UL Red
R6 = HE Red
O6 = Orange
Y6 = Yellow
W6 = P. Yellow
LY6 = L. Yellow
G6 = HE Green
PG6 = P. Green

Std. Operating Voltage

DC
2Vf (Ext. Res. Rqd.)
3.5Vf (Ext. Res. Rqd.)
3.6V
5/6V
12/14V
24V
28V

AC
120VAC

Options
BP = Bi-Polar (AC/DC) Black Bezel
WP = Watertight

1.45 [36.8]

.88 [22.4] .33 [8.4] .45 [11.4]
Lens Cap LCF380F / LCF380WF (Watertight)

.88 [22.4] .33 [8.4] .33 [8.4]
Lens Cap LCF380

Lamp FL206 *or* **Lamp** FFL200

1.08 [27.4] .55 [14.0] .30 [7.6]
Holder MSC380B / MSC380B-WP (Watertight)

3/8" (9.5mm) Mtg. Dia. Rear Mount with T1 3/4 Midget Flange LED

FL206

FFL200

Series
MSA380 = 1 Chip
MSA386 = 6 Chip

| MSA380 | C | R3K | — | 28V | — | BP |

Lens
C = Tinted Clear
CW = Water Clear

LED Color

1 Chip (Super Intensity)
R3K = SP Red
O3K = SP Orange
Y3K = SP Yellow
IW2K = Inc White
W600 = C. White
G1K = UL. Green
AG6K = A. Green
B1K = SP. Blue

6 Chip (Std Intensity)
R7 = UL Red
R6 = HE Red
O6 = Orange
Y6 = Yellow
W6 = P. Yellow
LY6 = L. Yellow
G6 = HE Green
PG6 = P. Green

Std. Operating Voltage

DC
2Vf (Ext. Res. Rqd.)
3.5Vf (Ext. Res. Rqd.)
3.6V
5/6V
12/14V
24V
28V

AC
120VAC

Options
BP = Bi-Polar (AC/DC) Black Bezel
WP = Watertight

1.45 [36.8]

.88 [22.4] .33 [8.4] .45 [11.4]
Lens Cap LCF380F / LCF380WF (Watertight)

.88 [22.4] .33 [8.4] .33 [8.4]
Lens Cap LCF380

Lamp FL206 *or* **Lamp** FFL200

1.09 [27.7] .28 [7.1] .44 [11.2] .30 [7.6]
Holder MSA380B / MSA380B-WP (Watertight)

T1-3/4 LED Lamps

Series
MSA380 = 1 Chip
MSA386 = 6 Chip

| FFL200 | CR3K | — | 28V | — | BP |

LED Color

1 Chip (Super Intensity)
R3K = SP Red
O3K = SP Orange
Y3K = SP Yellow
IW2K = Inc White
W600 = C. White
G1K = UL. Green
AG6K = A. Green
B1K = SP. Blue

6 Chip (Std Intensity)
R7 = UL Red
R6 = HE Red
O6 = Orange
Y6 = Yellow
W6 = P. Yellow
LY6 = L. Yellow
G6 = HE Green
PG6 = P. Green

Std. Operating Voltage

DC
2Vf (Ext. Res. Rqd.)
3.5Vf (Ext. Res. Rqd.)
3.6V
5/6V
12/14V
24V
28V

AC
120VAC

Options
BP = Bipolar (AC/DC)
AC = AC Only

Lens Cap

LCF380   **LCF380F**   **LCF380WF**

Lens Cap Part Number			Lens Type/Color
LCF380-CRF	LCF380F-CRF	LCF380WF-CRF	Clear Red
LCF380-CAF	LCF380F-CAF	LCF380WF-CAF	Clear Orange
LCF380-CGF	LCF380F-CGF	LCF380WF-CGF	Clear Green
LCF380-CWF	LCF380F-CWF	LCF380WF-CWF	Water Clear

Log # 119C Rev 07-2000

0.78" (19.8mm) Relampable Panel LED Lamps
(Meets MIL Spec MIL-L-3661B)

Flat Lens

BF321

BF3127

Dome Lens

Series
BSD780 = 1 Chip
BSD787 = 7 Cluster

BSD780 | **C** | **R3K** — **28V** — **BP/S**

Lens
C = Tinted Clear
CW = Water Clear
TW = Milky White

LED Color

1 Chip (Super Intensity)	7 Cluster (Super Intensity)
R3K = SP Red	R3K = SP Red
O3K = SP Orange	O3K = SP Orange
Y3K = SP Yellow	Y3K = SP Yellow
IW2K = Inc White	W600 = C. White
W600 = C. White	G1K = UL. Green
G1K = UL. Green	AG6K = A. Green
AG6K = A. Green	B1K = SP. Blue
B1K = SP. Blue	

Std. Operating Voltage

DC
2Vf (Ext. Res. Rqd.)
3.5Vf (Ext. Res. Rqd.)
3.6V
5/6V
12/14V
24V
28V
48V
60V
130V

AC
120VAC
240VAC

Options
BP = Bi-Polar (AC/DC)
S = Chrome Finish
B = Black Finish
WP = Watertight

2.11 [53.6]   **BSF780**

2.11 [53.6]   **BSD780**

.63 [16.0]   .44 [11.2]   .63 [16.0]
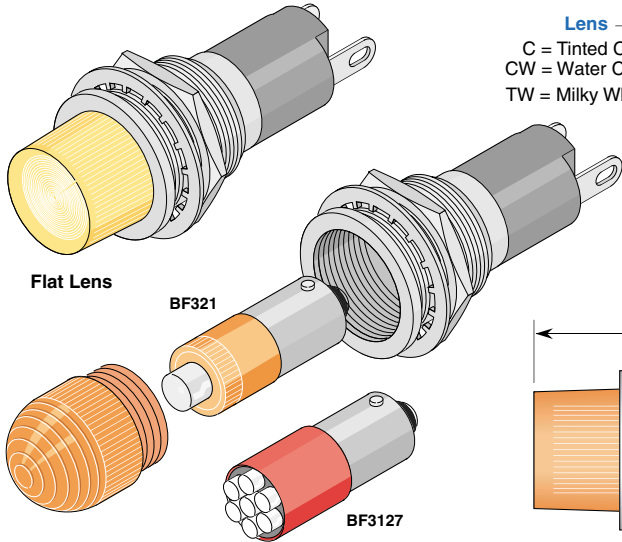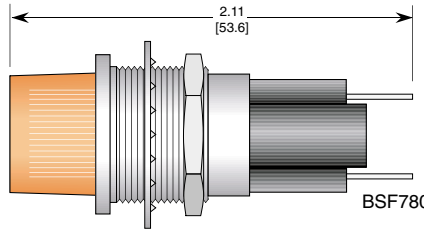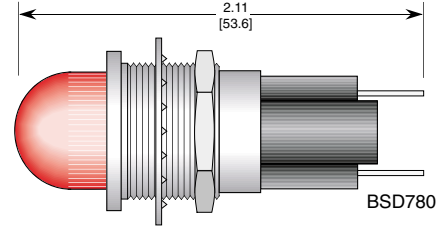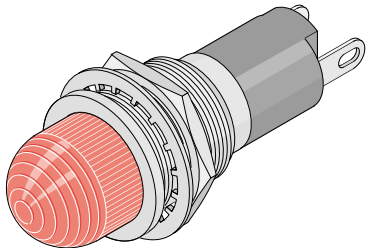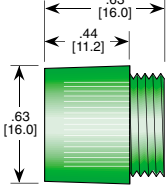
Lens Cap
LCF780
LCF780W (Watertight)

.63 [16.0]   .44 [11.2]   .63 [16.0]
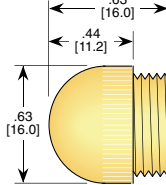
Lens Cap
LCD780
LCD780W (Watertight)

BF3127

Lamp
BF321

1.67 [42.4]   .35 [8.9]   .81 [20.6]
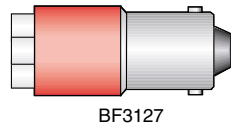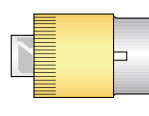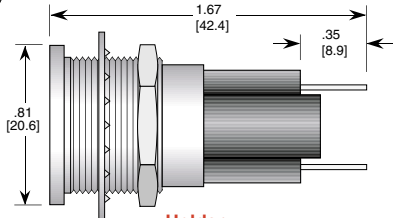
Holder
BS780 (Mil# 76/1)

Holders

1.67 [42.4]   .35 [8.9]   .81 [20.6]
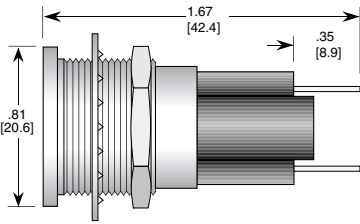
BS780 Silver Body
BS780B Black Body

1.67 [42.4]
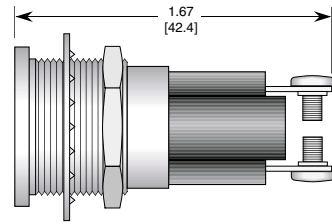
BS780S Silver Body Screw Terminals
**BS780BS** Black Body Screw Terminals

1.67 [42.4]
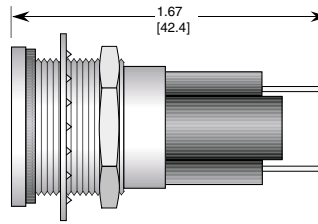
BS780-WP Silver Body Watertight

1.67 [42.4]
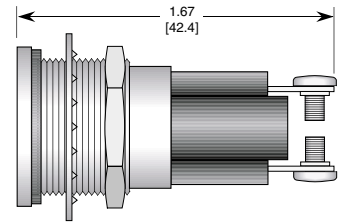
BS780S-WP Silver Body Watertight Screw Terminals
BS780BS-WP Black Body Watertight Screw Terminals

T3-1/4 LED Lamps

BF321 | **CR3K** — **24V** — **BP**

Series
BF321 = 1 Chip
BF3127 = 7 Cluster

LED Color

1 Chip (Super Intensity)	7 Cluster (Super Intensity)
R3K = SP Red	R3K = SP Red
O3K = SP Orange	O3K = SP Orange
Y3K = SP Yellow	Y3K = SP Yellow
IW2K = Inc White	W6K = C. White
W6K = C. White	G1K = UL. Green
G1K = UL. Green	AG6K = A. Green
AG6K = A. Green	B1K = SP. Blue
B1K = SP. Blue	

Std. Operating Voltage

DC
2Vf (Ext. Res. Rqd.)
3.5Vf (Ext. Res. Rqd.)
3.6V
5/6V
12/14V
24V
28V
48V
60V
130V

AC
120VAC
240VAC

Options
BP = Bipolar (AC/DC)
AC = AC Only
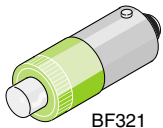
BF321
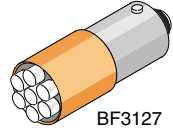
BF3127

Lens Cap
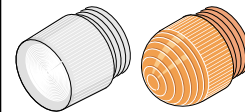
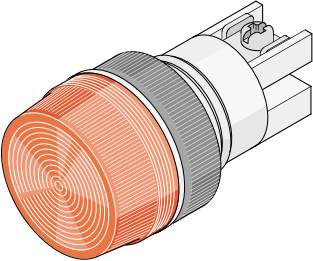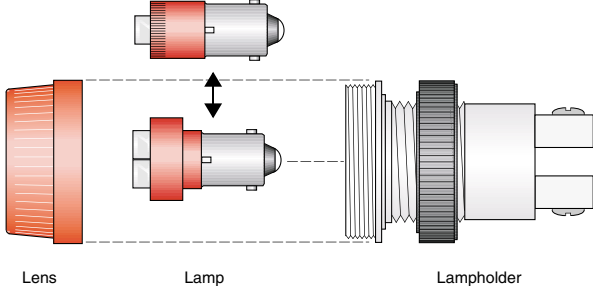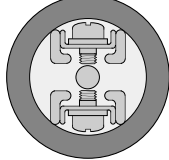| Lens Cap Part Number		Lens Type/Color
LCF780-CRF	LCD780-CRF	Clear Red
LCF780-CAF	LCD780-CAF	Clear Orange
LCF780-CYF	LCD780-CYF	Clear Yellow
LCF780-CGF	LCD780-CGF	Clear Green
LCF780-CWF	LCD780-CWF	Water Clear
LCF780-TWF	LCD780-TWF	Diff. White

Log # 119D   Rev 07-2000

Features

- Panel Mounting Diameter 22mm (7/8 in.)
- Low-Cost Replacement to Industry Standard 22mm Pilot Lights
- Long Life 100,000+ hrs (10 years)
- Solid-State, High Shock/Vibration Resistant
- Maintenance Free, Easy Installation
- Combination Terminals
- Low Power Consumption, High Intensity
- Major Power Savings
- Major Reduction in Heat Generation
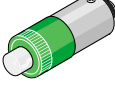- Built-in Current Limiting Resistor

Options

- Special Voltages/Cluster
- Sunlight-Visible Super Bright or High-Efficiency LEDs
- Bi-Colors, Tri-Colors, RGB, IR
- Splash Proof - Moisture Proof
- Non-Relampable Models Available
- Flashing / Blinking
- Diffuser (For Use with Legend Inserts)

Complete Lamp Assembly

Part Number Includes: Lens, Lamp & Holder

BS851CXF-XXV-XX (BF321 LED Lamp)
BS854CXF-XXV-XX (BF304 LED Lamp)

Assembly Diagram

Lens Lamp Lampholder

Combination Terminals

Can Accept:
- 0.25" female quick connect
- Wire clamp for bare wire (up to 12 AWG)
- Fork lug quick connect

End View

1 LED / Lamp Assembly (Recommended for Low, Ambient Light Conditions)

Part Number Example

Physical Characteristics

Electrical Characteristics

Polarity

BS851 | CRF — 28V — BP

Series / No. of LEDs
BS851 = 1 LED
(BF321 LED Lamp)

Flat Top LED for Wide Angle

Lens Color
CRF = Clear Red
CAF = Clear Amber
CYF = Clear Yellow
CGF = Clear Green
CBF = Clear Blue
CWF = Water Clear

Std. Operating Voltage

DC	AC
5/6V	120V
12/14V	240V
24/28V	
48V	
130V	

Options

BP = Bipolar (For DC Use Only)

P = Center Contact Positive

N = Center Contact Negative

AC = AC Only

4 LEDs / Lamp Assembly (Recommended for Sunlight-Visible Light Conditions)

Part Number Example

Physical Characteristics

Electrical Characteristics

Polarity

BS854 | CRF — 28V — BP

Series / No. of LEDs
BS854 = 4 LEDs
(BF304 LED Lamp)

Flat Top LED for Wide Angle

Lens Color
CRF = Clear Red
CAF = Clear Amber
CYF = Clear Yellow
CGF = Clear Green
CBF = Clear Blue
CWF = Water Clear

Std. Operating Voltage

DC	AC
5/6V	120V
12/14V	240V
24/28V	
48V	
130V	

Options

BP = Bipolar (For DC Use Only)

P = Center Contact Positive

N = Center Contact Negative

AC = AC Only

Notes:
1. Contact local representative to determine best style for each application
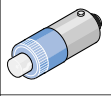2. Not all possible combinations of color, voltage and polarity are available

Log # 091A Rev 12-99

LEDTRONICS, INC.®
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Phone: (310) 534-1505   Fax: (310) 534-1424
Website: http://www.ledtronics.com

LED Lamp Replacement

Part Number Example — **Physical Characteristics** — **Electrical Characteristics** — **Polarity**

B F 3 2 1 | C | R 3 K — 28V — BP

Series / No. of LEDs
BF321 = 1 LED
BF304 = 4 LED Cluster

LED Lens Type
Clear

* (See Note No. 2)

LED/Chip Brightness Code
R3K	= UL Red (660nm) 🔴
E3K	= HE Red (626nm) 🔴
O3K	= SP Orange (610nm) 🟠
Y3K	= SP Yel (595nm) 🟡
AG6K	= SP Green (525nm) 🟢
B1K	= SP Blue (470nm) 🔵
CW4K	= Cool White ⚪
IW2K	= Incand White ⚪

Std. Operating Voltage
DC	AC
5/6V	120V
12/14V	240V
24/28V	
48V	
130V	

Options
BP = Bipolar (For DC Use Only)
P = Center Contact Positive
N = Center Contact Negative
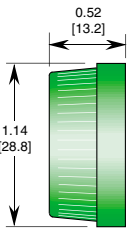AC = AC Only
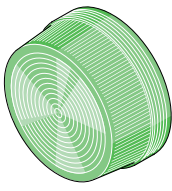
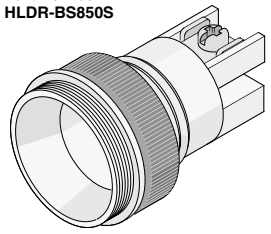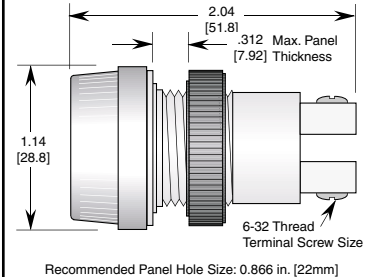| BF321	BF304	Flat Top LED for Wide Angle

Notes:
1. Contact local representative to determine best style for each application
2. LED brightness code determined by factory based on application*
3. Not all possible combinations of color, voltage and polarity are available
4. For best results, match LED lamp color with lens cap color
5. Water clear lens (-CWF) will work with any color LED

Lens Cap Replacement

Part Number
LENS-LCF850-CXF
(X = choose color)

0.52 [13.2]
1.14 [28.8]

Lens Cap Part Number	Lens Type/Color
LENS-LCF850-CRF	Clear Red 🔴
LENS-LCF850-CAF	Clear Amber 🟠
LENS-LCF850-CYF	Clear Yellow 🟡
LENS-LCF850-CGF	Clear Green 🟢
LENS-LCF850-CBF	Clear Blue 🔵
LENS-LCF850-CWF	Water Clear ⚪

All dimensions in inches [millimeters]

Lamp Holder Replacement

Part Number
HLDR-BS850S

2.04 [51.8]
.312 [7.92] Max. Panel Thickness
1.14 [28.8]
6-32 Thread Terminal Screw Size
Recommended Panel Hole Size: 0.866 in. [22mm]

Application
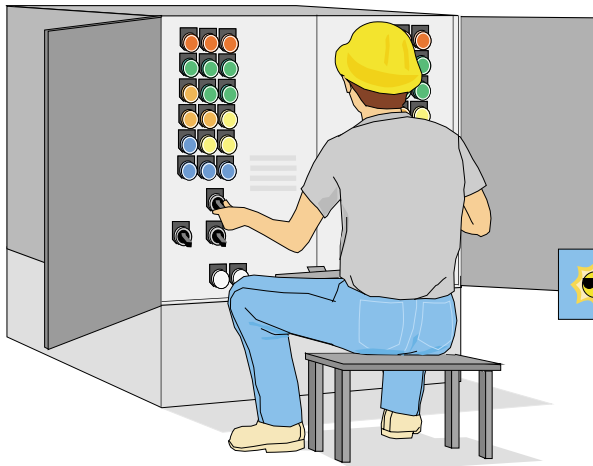
Application Notes: 1 LED lamp assembly recommended for low, ambient light conditions.
4 LED lamp assembly recommended for sunlight-visible light conditions.

Sunlight-Visible

Log # 091B Rev 12-99

LED®

Series RPLH16

Series RPLH22

Series RPLH30

Simply the Best

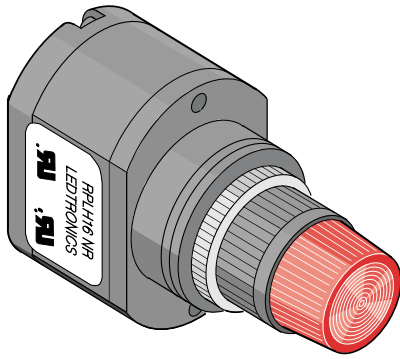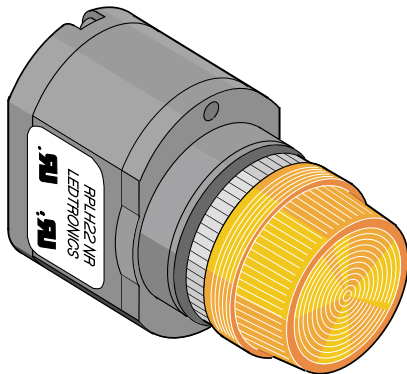LEDTRONICS products are engineered to be the best in quality and performance. Working with years of field-learned knowledge, each product is designed for the environment in which it is to operate. Designed for screw-on mounting, lenses are independent of the lamp fixtures enabling lenses and the LED lamps to be easily changed. Lenses and holders are made of a rugged, polycarbonate (UL class UL94Vx) that withstands the rigors of industrial environments.
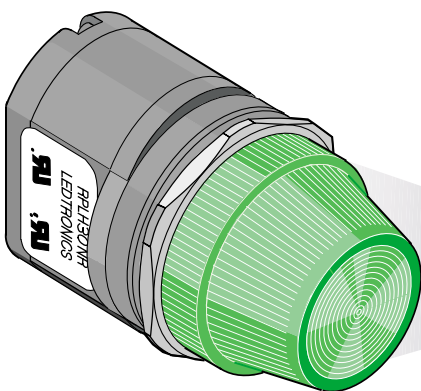
The RPLH series PilotLED Panel Mount Line is a fully integrated modular system that offers a variety of sizes, lens colors and voltages. LEDs are available in sunlight-visible colors such as red (660nm), orange (610nm), yellow (595nm), green (525nm), blue (470nm) and white (8000k). Holders incorporate captive terminal screws with self-lifting, pressure wire clamps that accept up to two 14-gauge wires.

Features

• Maintenance Free
• Long life / 100,000+ hours
• Solid state, high shock / vibration resistant
• Easy installation; easily modified
• Lamp holders meet UL industrial control E110070
• 1-year warranty
• Major cost savings
• Six colors available
• Reduces power consumption up to 80%

Applications

With many behind-the-panel depths available, LEDtronics Relampable Panel Mount LED Lamps and Holders (RPLH) are excellent choices for applications where space is restricted and aesthetics a consideration. LEDtronics Panel LED Lamps and Holders can be employed in utility monitoring boards, industrial control equipment, audio and intercom panels, broadcast equipment, nuclear power status stations, medical instrumentation, etc. . . .

The lampholders are made of high quality Rynite moldings UL class UL94VO

Lens for the pilot lights are completely independent of the mount of the pilot light holder. They can be added or replaced at any time.

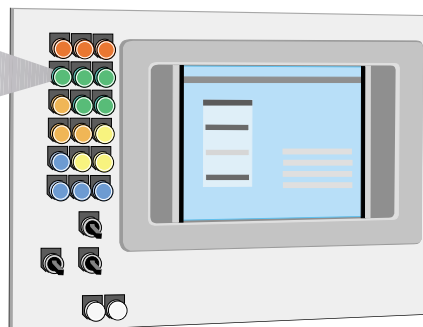Lens - Fresnel design - Polycarbonate (Lexan) Material

Color - Amber, Blue, Clear, Green, Red, White, Yellow

Lampholders are UL listed industrial control E110075

Choice of Lens Colors

Red
Amber
Yellow
Green
Blue
White
Clear

Log # 013A Rev 6-99

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Phone: (310) 534-1505   Fax: (310) 534-1424
Website: http://www.ledtronics.com

PilotLED® RPLH Panel Mount Lamp Assemblies

Environmental

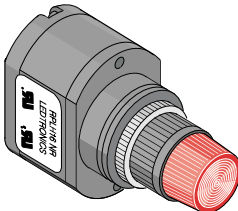|	
Operating temperature	–25º C to +50º C
Storage temperature	–40º C to +70º C
Relative humidity	Rated for operation in non-condensing relative humidities between 5% and 95%

Selection Guide

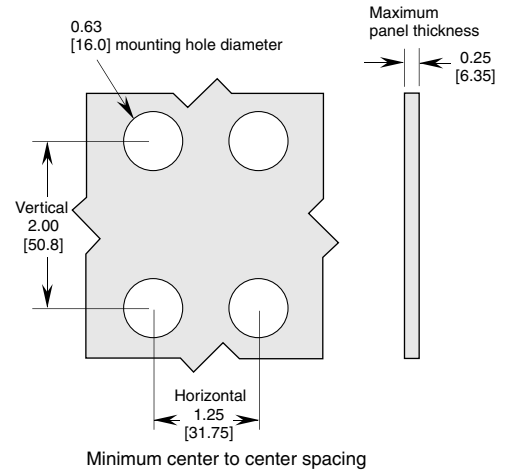Part numbers are for complete assemblies – lens, lamp and lampholder

PilotLED Assembly Part Number

RPLH16-01*-01-02

- Series
- Incoming Voltage
- Lens Color
- LED Lamp Selection

16mm PilotLED

Series RPLH16
UL File No. E110075

Assembly Part Number	Color		Volts*	Lens	Lamp
RPLH16-01-01-02	RED	●	48VDC**	RPLL16-CRF	RPLB-0201-28V
RPLH16-01-02-02	AMBER	●	48VDC**	RPLL16-CAF	RPLB-0203-28V
RPLH16-01-03-02	YELLOW	●	48VDC**	RPLL16-CYF	RPLB-0204-28V
RPLH16-01-04-02	GREEN	●	48VDC**	RPLL16-CGF	RPLB-0206-28V
RPLH16-01-05-02	BLUE	●	48VDC**	RPLL16-CBF	RPLB-0208-28V
RPLH16-01-06-02	WHITE	○	48VDC**	RPLL16-TWF	RPLB-0209-28V
RPLH16-01-07-02	CLEAR	○	48VDC**	RPLL16-CWF	RPLB-0210-28V
RPLH16-02-01-02	RED	●	130VDC**	RPLL16-CRF	RPLB-0201-28V
RPLH16-02-02-02	AMBER	●	130VDC**	RPLL16-CAF	RPLB-0203-28V
RPLH16-02-03-02	YELLOW	●	130VDC**	RPLL16-CYF	RPLB-0204-28V
RPLH16-02-04-02	GREEN	●	130VDC**	RPLL16-CGF	RPLB-0206-28V
RPLH16-02-05-02	BLUE	●	130VDC**	RPLL16-CBF	RPLB-0208-28V
RPLH16-02-06-02	WHITE	○	130VDC**	RPLL16-TWF	RPLB-0209-28V
RPLH16-02-07-02	CLEAR	○	130VDC**	RPLL16-CWF	RPLB-0210-28V

Replacement Lenses

Part Number	Color	
RPLL16-CRF	RED	●
RPLL16-CAF	AMBER	●
RPLL16-CYF	YELLOW	●
RPLL16-CGF	GREEN	●
RPLL16-CBF	BLUE	●
RPLL16-TWF	WHITE	○
RPLL16-CWF	CLEAR	○

Replacement Lamps
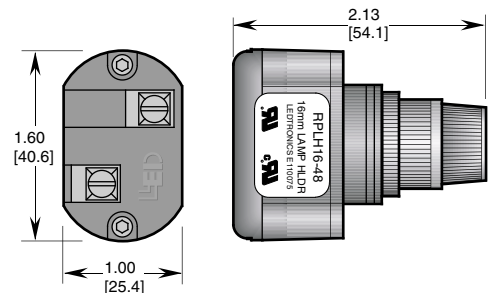
Part Number	Color	
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RPLB-0203-28V	AMBER	●
RPLB-0204-28V	YELLOW	●
RPLB-0206-28V	GREEN	●
RPLB-0208-28V	BLUE	●
RPLB-0209-28V	WHITE	○
RPLB-0210-28V	CLEAR	○

* Volts = full voltage. Customer defines incoming voltage, lamp in holder is made to that voltage. This holder contains no current limiting resistor. (Example RPLH16-24-01-02 [24 volt incoming source])

** 48 & 130VDC use an internal series resistor to drop the voltage across the LED bulb to 28 volts.

2.13 [54.1]

1.60 [40.6]

1.00 [25.4]

RPLH16-48 16mm LAMP HLDR LEDTRONICS E110075

0.63 [16.0] mounting hole diameter

Maximum panel thickness
0.25 [6.35]

Vertical 2.00 [50.8]

Horizontal 1.25 [31.75]

Minimum center to center spacing

1.68 [42.67]

RPLH16-01-01-02 48V DA

0.74 [18.8]

Lampholder

(Neoprene) Gasket

Nut

Lamp

0.72 [18.28]

0.77 [19.6]

Lens

Illumination Pattern

Dimensions are approximate

PilotLED® RPLH Panel Mount Lamp Assemblies

Selection Guide

Part numbers are for complete assemblies – lens, lamp and lampholder

PilotLED Assembly Part Number

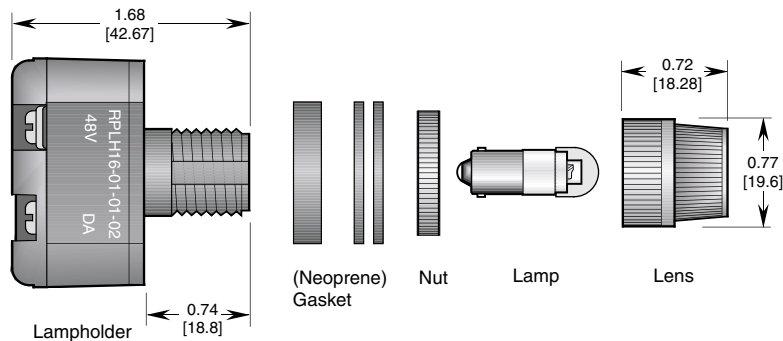## RPLH22-01*-01-02

| Series | Incoming Voltage | Lens Color | LED Lamp Selection |

22mm PilotLED

Series RPLH22
UL File No. E110075

Assembly Part Number	Color	Volts*	Lens	Indoor Lamp	Outdoor Lamp
RPLH22-01-01-02	RED	48VDC**	RPLL22-CRF	RPLB-0201-28V	
RPLH22-01-02-02	AMBER	48VDC**	RPLL22-CAF	RPLB-0203-28V	
RPLH22-01-03-02	YELLOW	48VDC**	RPLL22-CYF	RPLB-0204-28V	
RPLH22-01-03-03	YELLOW	48VDC**	RPLL22-CYF		RPLB-0304-28V
RPLH22-01-04-02	GREEN	48VDC**	RPLL22CGF	RPLB-0206-28V	
RPLH22-01-05-02	BLUE	48VDC**	RPLL22-CBF	RPLB-0208-28V	
RPLH22-01-06-02	WHITE	48VDC**	RPLL22-TWF	RPLB-0209-28V	
RPLH22-01-07-02	CLEAR	48VDC**	RPLL22-CWF	RPLB-0210-28V	
RPLH22-02-01-02	RED	130VDC**	RPLL22-CRF	RPLB-0201-28V	
RPLH22-02-02-02	AMBER	130VDC**	RPLL22-CAF	RPLB-0203-28V	
RPLH22-02-03-02	YELLOW	130VDC**	RPLL22-CYF	RPLB-0204-28V	
RPLH22-02-03-03	YELLOW	130VDC**	RPLL22-CYF		RPLB-0304-28V
RPLH22-02-04-02	GREEN	130VDC**	RPLL22-CGF	RPLB-0206-28V	
RPLH22-02-05-02	BLUE	130VDC**	RPLL22-CBF	RPLB-0208-28V	
RPLH22-02-06-02	WHITE	130VDC**	RPLL22-TWF	RPLB-0209-28V	
RPLH22-02-07-02	CLEAR	130VDC**	RPLL22-CWF	RPLB-0210-28V	

Replacement Lenses

Part Number	Color
RPLL22-CRF	RED
RPLL22-CAF	AMBER
RPLL22-CYF	YELLOW
RPLL22-CGF	GREEN
RPLL22-CBF	BLUE
RPLL22-TWF	WHITE
RPLL22-CWF	CLEAR

Replacement Lamps

Part Number		Color
RPLB-0201-28V		RED
RPLB-0203-28V		AMBER
RPLB-0204-28V	RPLB-0304-28V	YELLOW
RPLB-0206-28V		GREEN
RPLB-0208-28V		BLUE
RPLB-0209-28V		WHITE
RPLB-0210-28V		CLEAR

RPLB-020X

RPLB-030X

Optional Replacement Lamps

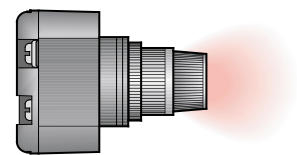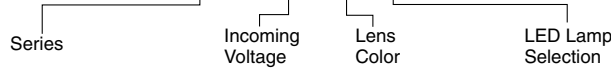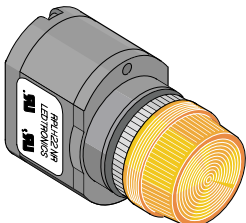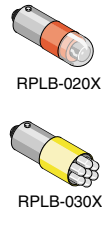| Part Number	Color
RPLB-0601-28V	RED
RPLB-0603-28V	AMBER
RPLB-0604-28V	YELLOW
RPLB-0606-28V	GREEN
RPLB-0608-28V	BLUE
RPLB-0609-28V	WHITE
RPLB-0610-28V	CLEAR

* Volts = full voltage. Customer defines incoming voltage, lamp in holder is made to that voltage.
This holder contains no current limiting resistor. (Example RPLH22-24-01-02 [24 volt incoming source])

** 48 & 130VDC use an internal series resistor to drop the voltage across the LED bulb to 28 volts.

1.82 [46.2]

RPLH22-01-01-02 48V DA

0.78 [19.8]

Lampholder

(Neoprene) Gasket

Nut

Lamp

Lens

0.53 [13.46]

1.14 [28.96]

0.87 [22.1] mounting hole diameter

Vertical 2.00 [50.8]

Horizontal 1.50 [38.1]

Minimum center to center spacing

Maximum panel thickness

0.25 [6.35]

Package Dimensions

1.60 [40.6]

1.09 [27.7]

1.93 [49.0]

RPLH22-48 22mm LAMP HLDR LEDTRONICS E110075
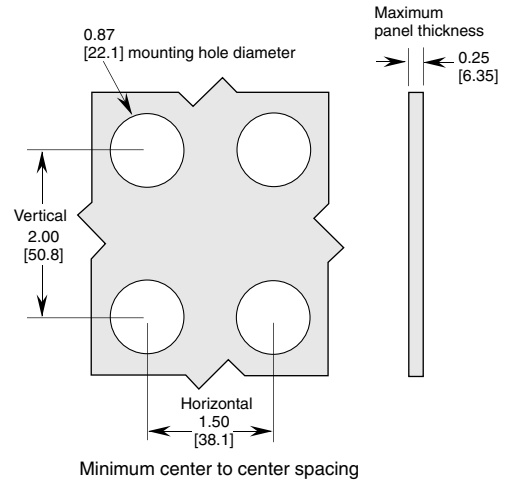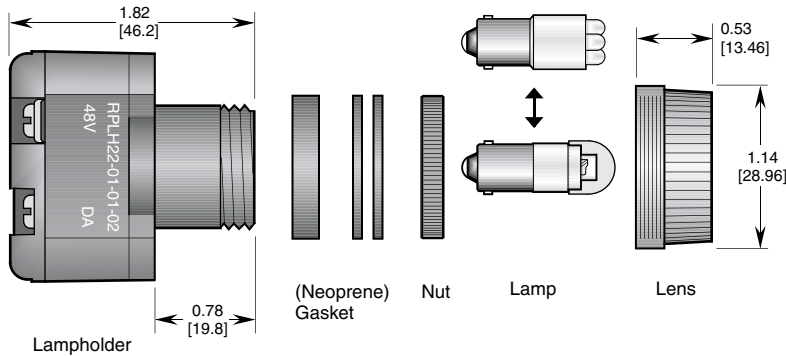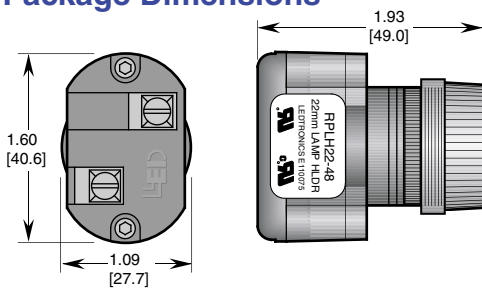
Illumination Pattern

Dimensions are approximate
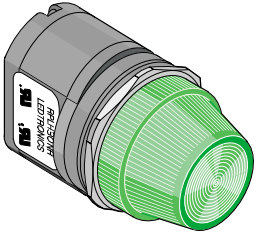
Selection Guide

Part numbers are for complete assemblies – lens, lamp and lampholder

PilotLED Assembly Part Number

RPLH30-01*-01-05

- Series
- Incoming Voltage
- Lens Color
- LED Lamp Selection

30mm PilotLED

Series RPLH30
UL File No. E110075

Assembly Part Number	Color		Volts*	Lens	Lamp
RPLH30-01-01-05	RED	●	48VDC**	RPLL30-CRF	RPLB-0501-28V
RPLH30-01-02-05	AMBER	●	48VDC**	RPLL30-CAF	RPLB-0503-28V
RPLH30-01-03-05	YELLOW	●	48VDC**	RPLL30-CYF	RPLB-0504-28V
RPLH30-01-04-05	GREEN	●	48VDC**	RPLL30CGF	RPLB-0506-28V
RPLH30-01-05-05	BLUE	●	48VDC**	RPLL30-CBF	RPLB-0508-28V
RPLH30-01-06-05	WHITE	○	48VDC**	RPLL30-TWF	RPLB-0509-28V
RPLH30-01-07-05	CLEAR	○	48VDC**	RPLL30-CWF	RPLB-0510-28V
RPLH30-02-01-05	RED	●	130VDC**	RPLL30-CRF	RPLB-0501-28V
RPLH30-02-02-05	AMBER	●	130VDC**	RPLL30-CAF	RPLB-0503-28V
RPLH30-02-03-05	YELLOW	●	130VDC**	RPLL30-CYF	RPLB-0504-28V
RPLH30-02-04-05	GREEN	●	130VDC**	RPLL30-CGF	RPLB-0506-28V
RPLH30-02-05-05	BLUE	●	130VDC**	RPLL30-CBF	RPLB-0508-28V
RPLH30-02-06-05	WHITE	○	130VDC**	RPLL30-TWF	RPLB-0509-28V
RPLH30-02-07-05	CLEAR	○	130VDC**	RPLL30-CWF	RPLB-0510-28V

Replacement Lenses

Part Number	Color	
RPLL30-CRF	RED	●
RPLL30-CAF	AMBER	●
RPLL30-CYF	YELLOW	●
RPLL30-CGF	GREEN	●
RPLL30-CBF	BLUE	●
RPLL30-TWF	WHITE	○
RPLL30-CWF	CLEAR	○

Replacement Lamps

Part Number	Color	
RPLB-0501-28V	RED	●
RPLB-0503-28V	AMBER	●
RPLB-0504-28V	YELLOW	●
RPLB-0506-28V	GREEN	●
RPLB-0508-28V	BLUE	●
RPLB-0509-28V	WHITE	○
RPLB-0510-28V	CLEAR	○

Optional Replacement Lamps

Part Number	Color	
RPLB-0601-28V	RED	●
RPLB-0603-28V	AMBER	●
RPLB-0604-28V	YELLOW	●
RPLB-0606-28V	GREEN	●
RPLB-0608-28V	BLUE	●
RPLB-0609-28V	WHITE	○
RPLB-0610-28V	CLEAR	○

* Volts = full voltage. Customer defines incoming voltage, lamp in holder is made to that voltage.
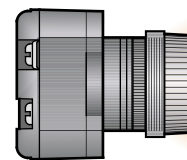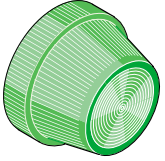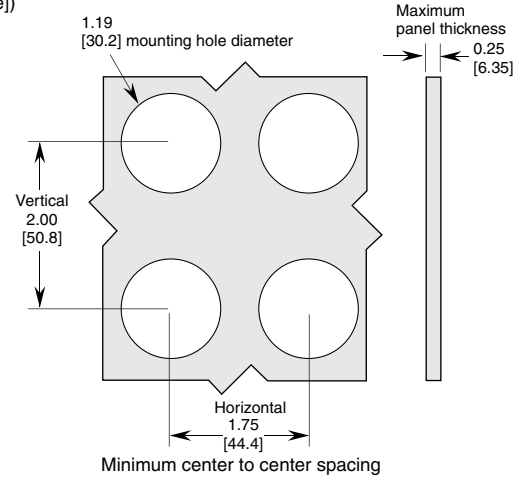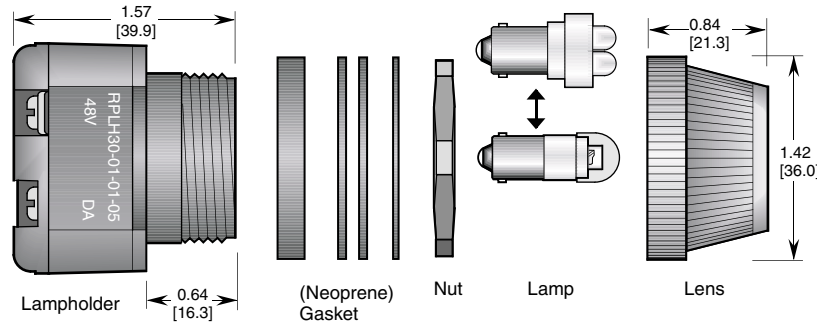This holder contains no current limiting resistor (Example RPLH30-24-01-05 [24 volt incoming source])

** 48 & 130VDC use an internal series resistor to drop the voltage across the LED bulb to 28 volts.

- 1.57 [39.9]
- Lampholder
- 0.64 [16.3]
- (Neoprene) Gasket
- Nut
- Lamp
- 0.84 [21.3]
- Lens
- 1.42 [36.0]

1.19 [30.2] mounting hole diameter

Maximum panel thickness 0.25 [6.35]

Vertical 2.00 [50.8]

Horizontal 1.75 [44.4]

Minimum center to center spacing

Package Dimensions

- 1.60 [40.6]
- 1.42 [36.0]
- 2.27 [57.66]

RPLH30-44
30mm LAMP HLDR
LEDTRONICS E110075
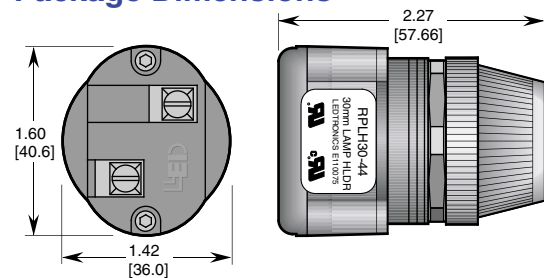
Illumination Pattern
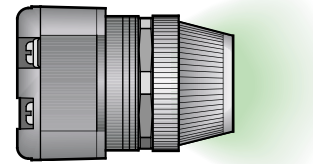
Dimensions are approximate

Log # 013D Rev 6-99

LED Color Chart

LEDtronics Code		LED Chip Code	Wavelength nm	Color Name	Fwd Voltage V_f @ 20mA	Intensity 5mm LEDs	Viewing Angle	LED Dye Material
941	●	IR941	940	Infrared	1.5	16mW @ 50mA	15º	GaAlAs/GaAs - Gallium Aluminum Arsenide/ Gallium Arsenide
881	●	IR881	880	Infrared	1.7	18mW @ 50mA	15º	GaAlAs/GaAs - Gallium Aluminum Arsenide/ Gallium Arsenide
851	●	IR851	850	Infrared	1.7	26mW @ 50mA	15º	GaAlAs/GaAlAs - Gallium Aluminum Arsenide/ Gallium Aluminum Arsenide
0UR	●	R3KF	660	Ultra Red	1.8	2000mcd @ 20mA	15º	GaAlAs/GaAlAs - Gallium Aluminum Arsenide/ Gallium Aluminum Arsenide
00R	●	R3/R4/R5	635	High Eff. Red	2.0	200mcd @ 20mA	15º	GaAsP/GaP - Gallium Arsenic Phosphide /Gallium Phosphide
0ER	●	E3K	633	Super Red	2.2	3500mcd @ 20mA	15º	InGaAlP - Indium Gallium Aluminum Phosphide
0UO	●	O3K/O6K	620	Super Orange	2.2	4500mcd @ 20mA	15º	InGaAlP - Indium Gallium Aluminum Phosphide
0UO	●	O3KF	612	Super Orange	2.2	6500mcd @ 20mA	15º	InGaAlP - Indium Gallium Aluminum Phosphide
00O	●	O4/O5	605	Orange	2.1	160mcd @ 20mA	15º	GaAsp/GaP - Gallium Arsenic Phosphide /Gallium Phosphide
0UY	●	Y3KF	595	Super Yellow	2.2	5500mcd @ 20mA	15º	InGaAlP - Indium Gallium Aluminum Phosphide
0PY	●	Y3KH	592	Super Pure Yellow	2.1	7000mcd @ 20mA	15º	InGaAlP - Indium Gallium Aluminum Phosphide
00Y	●	Y3/Y4/Y5	585	Yellow	2.1	100mcd @ 20mA	15º	GaAsp/GaP - Gallium Arsenic Phosphide /Gallium Phosphide
0IW	○	IW2K	4500K	Incand White	3.6	2000mcd @ 20mA	20º	SiC/GaN - Silicon Carbide/Gallium Nitride
0PW	○	PW4K	6500K	Pale White	3.6	4000mcd @ 20mA	20º	SiC/GaN - Silicon Carbide/Gallium Nitride
0CW	○	CW6K	8000K	Cool White	3.6	6000mcd @ 20mA	20º	SiC/GaN - Silicon Carbide/Gallium Nitride
0LY	●	LY1K	574	Super Lime Yellow	2.4	1000mcd @ 20mA	15º	InGaAlP - Indium Gallium Aluminum Phosphide
0UG	●	G1K	570	Super Lime Green	2.0	1000mcd @ 20mA	15º	InGaAlP - Indium Gallium Aluminum Phosphide
00G	●	G3/G4/G5	565	High Eff. Green	2.1	200mcd @ 20mA	15º	GaP/GaP - Gallium Phosphide/Gallium Phosphide
UPG	●	PG350	560	Super Pure Green	2.1	350mcd @ 20mA	15º	InGaAlP - Indium Gallium Aluminum Phosphide
0PG	●	PG5	555	Pure Green	2.1	80mcd @ 20mA	15º	GaP/GaP - Gallium Phosphide/Gallium Phosphide
0AG	●	AG10K	525	Aqua Green	3.5	10,000mcd @ 20mA	15º	SiC/GaN - Silicon Carbide/Gallium Nitride
0BG	●	BG2K	505	Blue Green	3.5	2000mcd @ 20mA	45º	SiC/GaN - Silicon Carbide/Gallium Nitride
0PB	●	PB3K	470	Super Blue	3.6	3000mcd @ 20mA	15º	SiC/GaN - Silicon Carbide/Gallium Nitride
00B	●	UB500	430	Ultra Blue	3.8	100mcd @ 20mA	15º	SiC/GaN - Silicon Carbide/Gallium Nitride