

# CL IPLITE®

## VISUAL COMMUNICATIONS COMPANY, INC.

7920-F Arjons Dr., San Diego, CA 92126  
In CA (858) 549-6900 (800) 522-5546  
FAX (858) 549-3520 www.vcclite.com

### LITEPIPES FOR SURFACE MOUNT LEDs



U.S. & Foreign Pat. Pend.

### SPECIFICATIONS

**MATERIAL:** Litepipe - Acrylic, optical grade, (Clear).  
Grommet - Polyethylene, (black).  
Spring Clip - Spring Steel (nickel plate).

**MOUNTING:** Panel hole: round .171" Dia.(4.34mm).  
square .180" X .180" (4.57 X 4.57mm).  
rectangular .170" X .250" (4.34 X 6.35mm).  
Litepipes from .200" to .500" use grommet retainer.  
Litepipes from .500" to 2.00" the spring clip is recommended for rigidity.

**LED:** Surface mount, vertical and horizontal LEDs.  
Litepipes for blending multicolor LEDs are available on special request.

### ORDERING CODES

MODEL	LPC	XXX	CTP	COLOR
LPC (Round)				CTP CLEAR
LPS (Square)				
LPR (Rectangular)				
RTN 150 (GROMMET)				
RTN 250 (SPRING CLIP)				
	Equals length in inches			(Min. .020 = .200" / Max. 200 = 2.0")
	020	038	056	074 092 112 135 157 180
	022	040	058	076 094 115 137 160 182
	024	042	060	078 096 117 140 162 185
NOTE: Round - .200" to 2.0"	026	044	062	080 098 120 142 165 187
Square - .300" to 2.0"	028	046	064	082 100 122 145 167 190
Rectangular - .300" to 2.0"	030	048	066	084 102 125 147 170 192
Nonstandard lengths available on request.	032	050	068	086 105 127 150 172 195
	034	052	070	088 107 130 152 175 197
	036	054	072	090 110 132 155 177 200

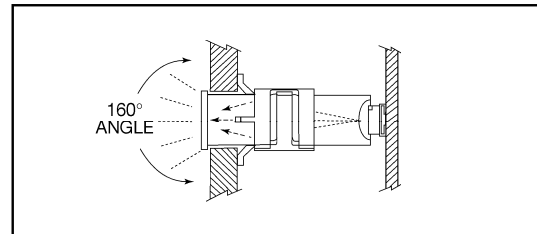
**APPLICATION** — CL IPLITE litepipes provide a method of transmitting the light of a surface mount LED to the display panel. Both vertical and horizontal PCB surface mount LEDs can be displayed in this manner. The litepipe is also capable of blending multicolor LED light into a single color.

**INTENSITY** — CL IPLITE litepipes have a unique near flush design and are still able to provide up to 160 degrees of viewing angle. This light output is achieved by the use of a concave shaped receiving surface which collects the LEDs light, and fresnel rings on the opposite surface that disperse the light.

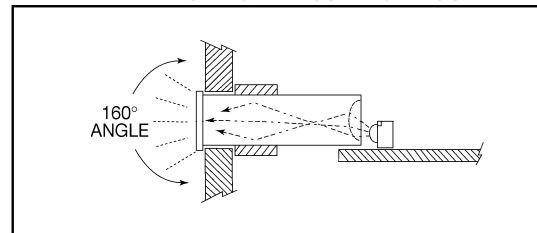
**VERSATILITY** — CL IPLITE litepipes are available in .020" increments from .200" to 2.0". This wide range of lengths simplifies the PCB positioning in relation to the display panel. Litepipes are secured directly to the display panel with no mechanical attachment to the PCB. The installation and removal of the circuit board can thus be accomplished without disturbing the display panel.

**INSTALLATION** — CL IPLITE litepipes are easy to install. Slide the litepipe thru the panel opening and slip the retainer in place. Finish the installation by pressing the retainer up against the display panel.

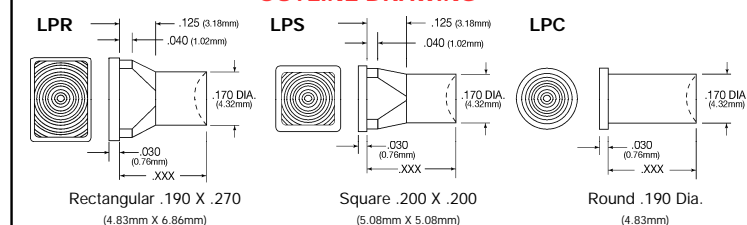
### LITEPIPE WITH VERTICAL SURFACE MOUNT LED



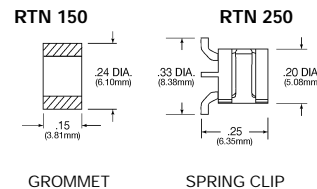
### LITEPIPE WITH HORIZONTAL SURFACE MOUNT LED



### OUTLINE DRAWING



### MOUNTING COMPONENTS

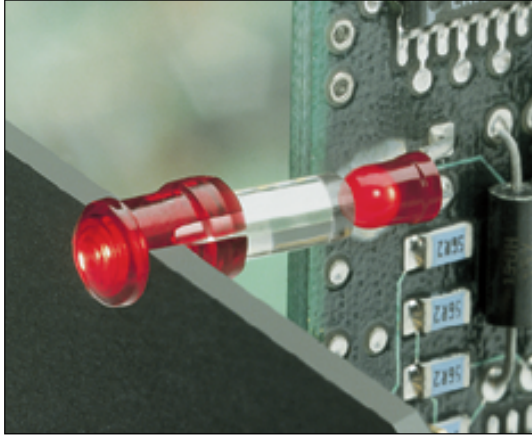


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### LITEPIPES & PANEL LENSES FOR PCB MOUNTED LEDs



U.S. & Foreign Pat. Pend.

#### SPECIFICATIONS

**MATERIAL:** Litepipe - Acrylic (Optical grade)  
Lens - Polycarbonate; Ring - Polypropylene  
(U.L. Listed Material).

**DESIGN:** LITEPIPE (3mm and 5mm) with annular ring and locking tab engages into the annular groove of VCC's low profile lens. Lens mounts the litepipe securely to the display panel and provides 180 degrees of viewing angle.

**MOUNTING:** LITEPIPE 3mm - Mates with VCC's lenses model SMB 200 and SMQ 250. Panel mounting hole .171 (4.3mm) on 1/4" centers. Panel thickness 1/32" to 1/8". Litepipe lengths from .200" to 1.200".

LITEPIPE 5mm - Mates with VCC's lens model CLB 300 and SQB 400. Panel mounting hole .250 (6.35mm) on 3/8" centers. Panel thickness 1/32" to 1/4". Litepipe lengths from .360" to 1.360". For panels less than 3/16" use SPC 125 spacer.

LENS RETAINING RING - available for added security (RNG 190, 3mm & RNG 268, 5mm).

**STANDOFF:** Use VCC's standoff to adjust the height of a standard LED above the PCB and maintain a maximum .050" clearance between litepipe and LED. See VCC's STD Series data sheet.

#### ORDERING CODE: LITEPIPE

MODEL	LSV XXX CTP	COLOR
LSV (3mm), LCV (5mm)		CTP CLEAR
PRODUCT CODE		
LSV - CODE LENGTH (inches)	LCV - CODE LENGTH (inches)	
020 (.200") 040 (.400") 060 (.600")	036 (.360") 056 (.560") 076 (.760")	
080 (.800") 100 (1.00") 120 (1.20")	096 (.960") 116 (1.16") 136 (1.36")	

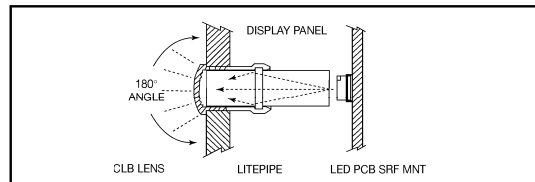
**VERSATILITY** - CLIIPLITE litepipe and lens easily provide a method of transmitting the light from PCB mounted LEDs to the front display panel. Both styles of LEDs, surface mount and standard packages, can be displayed in this manner.

**BRIGHTNESS** - CLIIPLITE litepipe by itself has a limited angle of view. However, when used with VCC's fresnel lens the light is dispersed over the entire lens surface producing 180 degrees of viewing.

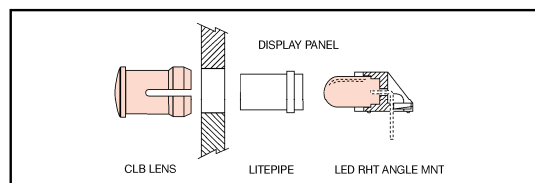
**APPLICATION** - CLIIPLITE litepipes and lenses are available for use with both surface mount and standard packaged LEDs in 3mm and 5mm configurations. Because there is no physical connection between the litepipe and the PCB mounted LED, the circuit board can be installed or removed without disturbing the panel display.

**INSTALLATION** - CLIIPLITE litepipe and lens are easy to install. Insert the lens thru the panel opening and snap the litepipe into the lens. For added security in harsh environments, a retaining ring is available.

#### LITEPIPE & SURFACE MOUNT LEDs

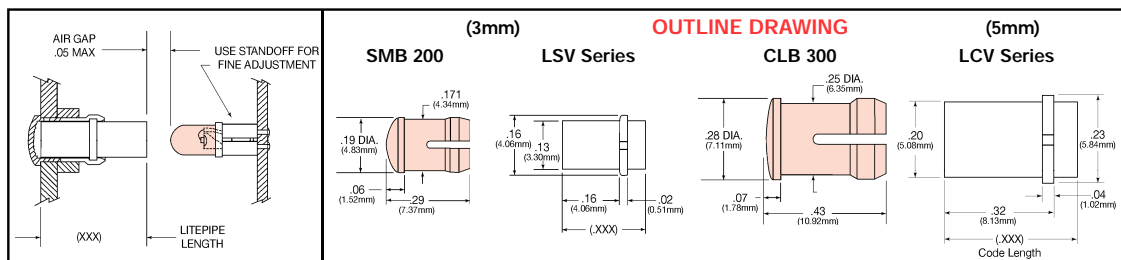


#### LITEPIPE & RIGHT ANGLE LEDs



#### ORDERING CODE: LENS

MODEL	CLB 300	RTP	COLOR
SMB 200 (RND 3mm)		RTP	Red Transparent
SMQ 250 (SQ 3mm)		ATP	Amber Transparent
CLB 300 (RND 5mm)		GTP	Green Transparent
SQB 400 (SQ 5mm)		BTP	Blue Transparent
SPC 125 (Spacer for CLB 300 & SQB 400)		YTP	Yellow Transparent
		CTP	Clear Transparent

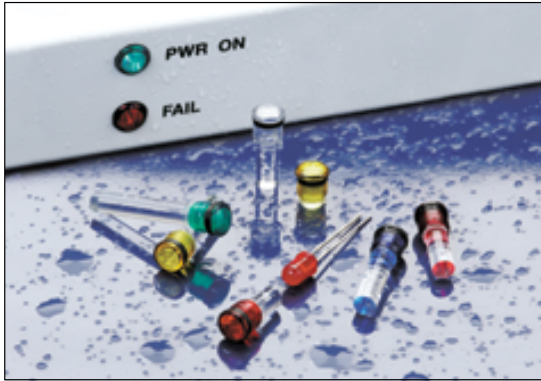


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### MOISTURE SEALED LITEPIPE ASSEMBLY



U.S. & FOREIGN PAT ISSUED & PEND.

### SPECIFICATIONS

**MATERIAL:** Litepipe assembly  
Litepipe - Acrylic (Clear optical grade)  
Lens - Polycarbonate, Seal - J-Von  
Ring - Polypropylene (black)  
(U.L. Listed Materials)

**DESIGN:** Low profile lens assembly with moisture seal and litepipe.

**MOUNTING:** Mounts in .281" (7.2mm) hole on 3/8" centers. Panel thickness 1/32" to 1/8". Compression of the seal is accomplished by pressing the retaining ring into place.

**STANDOFF:** Use standoff to adjust height of standard LED above the PCB in order to maintain a maximum .050" clearance between litepipe and LED. See STD Series data sheet.

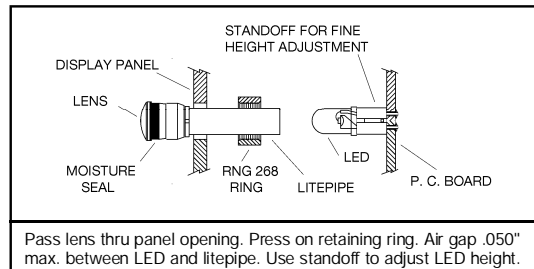
**VERSATILITY** — CLIPLITE litepipe assembly provides a method of transmitting the light from PCB mounted LEDs to the front display panel. Both styles of LEDs, surface mount, 3mm and 5mm standard packages can be displayed in this manner.

**BRIGHTNESS** — CLIPLITE increases the apparent brightness and viewing angle of a PCB mounted LED. Litepipe transmits the light from the source to the lens, which in turn disperses the light up to 180 degrees.

**APPLICATION** — CLIPLITE assembly meets NEMA 3 conditions for moisture and dust. Because there is no physical connection between the litepipe and PCB mounted LED, the circuit board can be installed or removed without disturbing the panel display.

**INSTALLATION** — CLIPLITE litepipe and lens assembly is easily installed. Pass assembly thru panel opening and press on retaining ring to secure unit to the panel. Slide PCB into position aligning LED with the end of the litepipe.

### APPLICATION



### ORDERING CODE

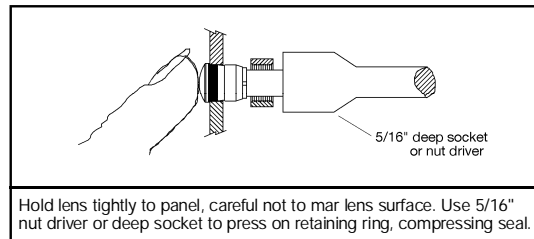
**MODEL** \_\_\_\_\_ **LMS XXX RTP** \_\_\_\_\_ **COLOR** \_\_\_\_\_  
Assembly contains  
Lens & litepipe unit  
RNG 268 retainer

**LITEPIPE LENGTH (INCHES)**

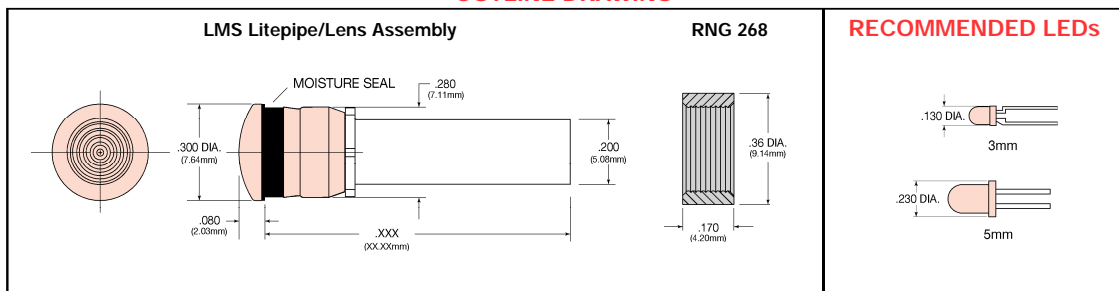
033 (.330")	093 (.930")
053 (.530")	113 (1.13")
073 (.730")	133 (1.33")

RTP Red Transparent  
ATP Amber Transparent  
GTP Green Transparent  
BTP Blue Transparent  
YTP Yellow Transparent  
CTP Clear Transparent

### PANEL ASSEMBLY



### OUTLINE DRAWING



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### LENS MOUNTS FOR 3mm & 5mm LEDs



U.S. & Foreign Pat. Pend.

### SPECIFICATIONS

**MATERIAL:** Lens - Polycarbonate; Spacer - Polypropylene.  
(U.L. Listed Materials).

**DESIGN:** Standard and low profile lenses with fresnel rings and striated lines. CLR 301 Low Profile Lens is available without fresnel rings.

**MOUNTING:** Mounts thru front of panel. Mounting holes should be deburred but not chamfered.  
3mm (SML 190, SMB 200) mounts in a  $.171 \pm .002$  (4.34mm) hole on 1/4" centers. Panel thickness for SML 190, 1/32" to 1/16"; SMB 200, 1/16" to 1/8". 5mm (CLF 280, CLB 300, CLR 301) mounts in a  $.250 \pm .002$  (6.35mm) hole on 3/8" centers. Panel thickness for CLF 280, 1/16" to 1/8"; CLB 300 and CLR 301, 1/32" to 1/4"; for panels less than 3/16", use SPC 125 spacer. Lens retaining ring - available for added security (RNG 190, 3mm & RNG 268, 5mm)

### ORDERING CODES

MODEL	CLF 280	RTP	COLOR
SML 190 (3mm) Std. Hgt.		RTP	Red Transparent
SMB 200 (3mm) L/Profile		ATP	Amber Transparent
CLF 280 (5mm) Std. Hgt.		GTP	Green Transparent
CLB 300 (5mm) L/Profile		BTP	Blue Transparent
CLR 301 (5mm) L/P Plain		YTP	Yellow Transparent
SPC 125 (Spacer for CLB 300 and CLR 301)		CTP	Clear Transparent

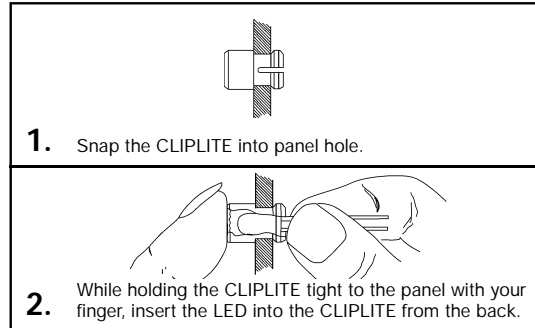
**VISIBILITY** – CLIPLITE produces up to 180 degrees of viewing angle using standard 3mm and 5mm LEDs.

**BRIGHTNESS** – CLIPLITE utilizes striated lines and fresnel rings to increase apparent brightness up to 125% and viewing angle up to 180 degrees with either diffused or nondiffused LEDs. A low profile lens without rings or lines is available for direct sunlight applications.

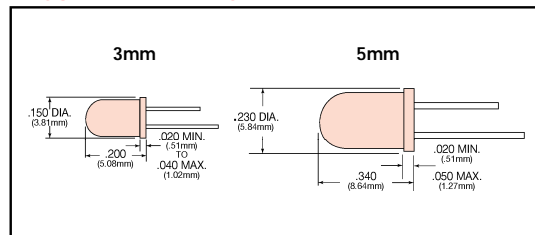
**PROTECTION** – CLIPLITE helps prevent IC failures caused by electrostatic discharge (ESD). Simply walking across a carpet can generate 10,000 volts. Introduction of this ESD thru an exposed panel mounted LED is capable of damaging or destroying a semiconductor. A CLIPLITE mounted LED helps guard components from ESD up to 16 kv while affording the LED physical protection.

**INSTALLATION** – CLIPLITE, standard or low profile, requires no assembly tools; just snap into a panel opening and insert LED. Cost effective operation is complete in only 6 seconds.

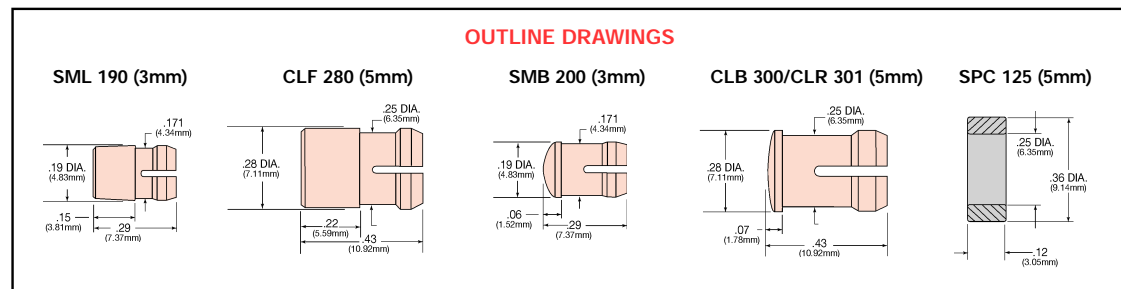
### SIMPLE TWO-STEP INSTALLATION



### RECOMMENDED LEDs



### OUTLINE DRAWINGS

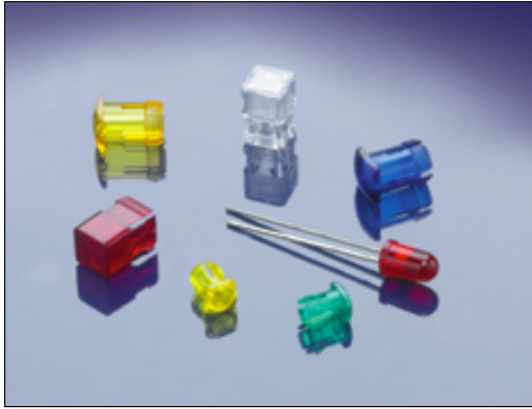


# CUBELITE®

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### SQUARE LENS/MOUNTS FOR 3mm & 5mm LEDs



U.S. & Foreign Pat. Pend.

### SPECIFICATIONS

**MATERIAL:** LENS - Polycarbonate; Spacer - Polypropylene (U.L. Listed).

**MOUNTING:** Mounts thru front of panel. Mounting holes should be deburred but not chamfered.

3mm (SMQ 250) mounts in  $.171 \pm .002$  (4.34mm) round hole on 1/4" centers. Panel thickness from 1/16" to 1/8".

5mm (SQL 360) mounts in  $.250 \pm .002$  (6.35mm) square punched hole on 3/8" centers.

Panel thickness from 1/16" to 1/8".

5mm (SQB 400) mounts in  $.250 \pm .002$  (6.35mm) round hole on 3/8" centers. Panel thickness from 1/32" to 1/4"; for panels less than 3/16", use SPC 125 spacer.

Standard metal or plastic washers can also be used to increase panel thickness if necessary.

**PUNCH SOURCES:** Porter Precision, Cincinnati, OH Strippet, Houdaille Ind., Akron, NY Unipunch Products, Buffalo, NY Wiederman Co., King of Prussia, PA.

### ORDERING CODES

#### SQL 360 RTP

#### MODEL

SMQ 250 (3mm) Low Profile  
SQB 400 (5mm) Low Profile  
SQL 360 (5mm) Std. Hgt.  
SPC 125 (Spacer for SQB 400)

#### COLOR

RTP Red Transparent  
ATP Amber Transparent  
GTP Green Transparent  
BTP Blue Transparent  
YTP Yellow Transparent  
CTP Clear Transparent

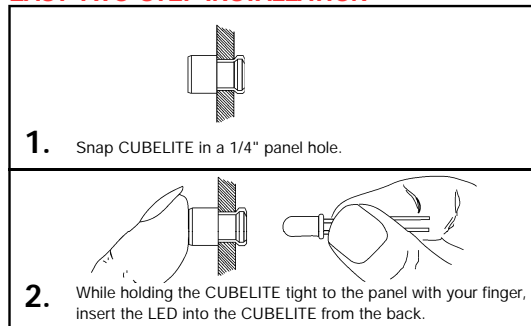
**VISIBILITY** — CUBELITE standard square lens offers 20% more viewing area over a round indicator light. CUBELITE'S unique patented features include striated lines and fresnel rings permitting up to 180 degrees viewing angle with any stock 3mm or 5mm LED.

**DESIGN** — CUBELITE standard lens mounts in a square hole. Its uniform lens thickness produces an even light pattern with no dark corners. CUBELITE low profile square lens mounts in a round hole. This lens has a .070 inch max panel height and still produces 180 degree viewing angle. CUBELITE'S design permits use of either diffused or nondiffused LEDs.

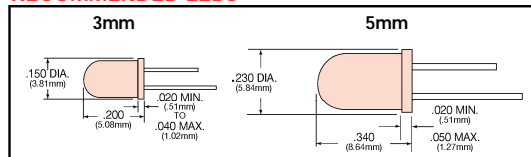
**PROTECTION** — CUBELITE helps prevent IC failures caused by electrostatic discharge (ESD). Simply walking across a carpet can generate 10,000 volts. Introduction of this ESD thru an exposed panel mounted LED is capable of damaging or destroying a semiconductor. A CUBELITE mounted LED helps guard components from ESD up to 16,000 volts as well as affording the LED physical protection.

**INSTALLATION** — CUBELITE, standard or low profile, requires no assembly tools; just snap into a panel opening and insert LED. Cost effective operation is complete in only 6 seconds.

### EASY TWO-STEP INSTALLATION

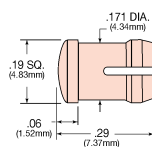


### RECOMMENDED LEDs

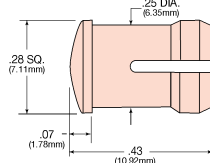


### OUTLINE DRAWINGS

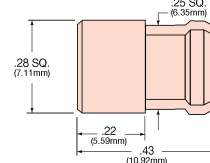
#### SMQ 250 (3mm)



#### SQB 400 (5mm)



#### SQL 360 (5mm)





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### LOW PROFILE PANEL LENSES FOR PCB MOUNTED LEDs



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#### SPECIFICATIONS

**MATERIAL:** Lens - Polycarbonate; Ring - Polypropylene, (U.L. Listed Materials).

**DESIGN:** Low profile lenses CMC 313 plain diffused, CMC 321, CML 325 & SMC 170 with fresnel rings. CMC 323 & CML 327 plain end lens

**MOUNTING:** Mounts thru front of panel, retaining ring secures the lens in place. 5mm CMC & CML series mount in a .281" (7.2mm) hole on 3/8" centers, Panel thickness 1/32 to 1/4".

3mm (SMC 170) mounts in a .171" (4.4mm) hole on 1/4" centers. Panel thickness 1/32" to 3/32".

5mm CMC & CML series mount in a .281" (7.2mm) hole on 3/8" centers. Panel thickness 1/32" to 1/4".

#### ORDERING CODES

MODEL	CMC 321 RTP	COLOR
SMC 170 (3mm) Fresnel L/Profile Lens	RTP Red Transparent	
CMC 313 (5mm) Plain Diffused Lens	ATP Amber Transparent	
CMC 321 (5mm) Fresnel L/Profile Lens	GTP Green Transparent	
* CMC 323 (5mm) Plain End Lens	YTP Yellow Transparent	
* CML 325 (5mm) Fresnel L/Profile Lens	BTP Blue Transparent	
* CML 327 (5mm) Plain End Lens	CTP Clear Transparent	
RNG 132 (3mm) Retaining Ring	*Denotes Clear only	
RNG 268 (5mm) Retaining Ring		

#### Lens Styles



Plain End



Plain Diffused



Fresnel Rings

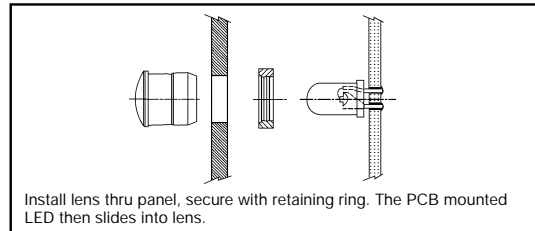
**VERSATILITY** — CLIPLITE, installed in display panel, is used with PCB mounted LEDs. Lenses remain attached to the display or panel door while the LEDs are fixed to the PCB. The lenses are ideal for use together with the CONXRITE connector assembly.

**BRIGHTNESS** — CLIPLITE utilizes fresnel rings to increase apparent brightness and viewing angle up to 180 degrees with either diffused or nondiffused LEDs.

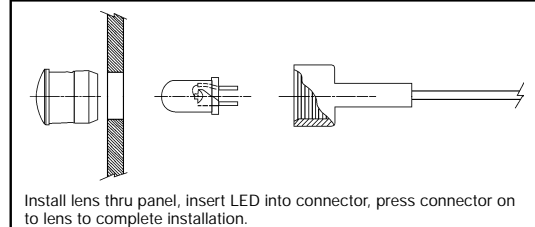
**PROTECTION** — CLIPLITE helps prevent IC failures caused by electrostatic discharge (ESD). Introduction of ESD thru an exposed panel mounted LED is capable of damaging or destroying a semiconductor. A CLIPLITE mounted LED helps guard components from ESD up to 16 kv while affording the LED physical protection.

**INSTALLATION** — CLIPLITE is inserted thru panel opening, retaining ring pressed into place. PCB mounted LEDs slide into lenses when the panel cover is closed or the PCB card is inserted into the case.

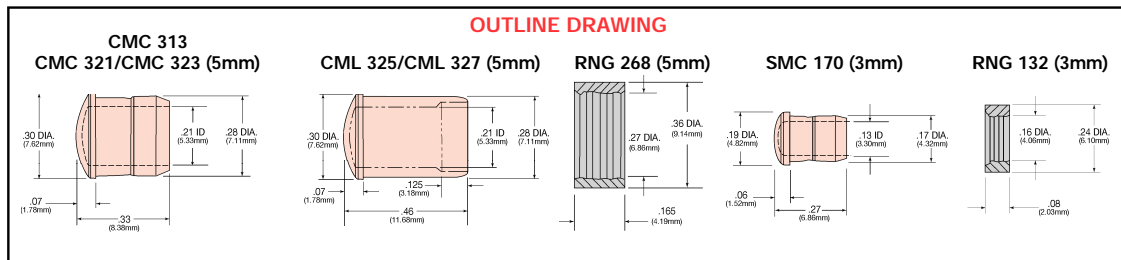
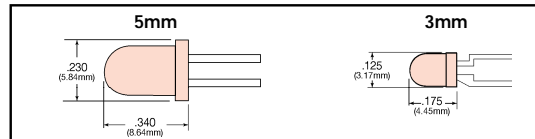
#### PANEL MOUNTED LENS WITH PCB MOUNTED LED



#### PANEL MOUNTED LENS WITH CONXRITE CONNECTOR



#### RECOMMENDED LEDs



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### MOISTURE SEALED LOW PROFILE LENSES FOR LEDs



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#### SPECIFICATIONS

**MATERIAL:** Lens - Polycarbonate; Ring - Polypropylene ,  
Seal - J-Von (U.L. Listed Materials).

**DESIGN:** Low profile lenses with moisture seal.

**TESTING:** Environmental testing performed by Consolidated Labs, Inc. for moisture sealing, shock, vibration and standard operating temperatures. Meets Nema 3 standards.

**MOUNTING:** Mounts thru front of panel, compression of the seal is accomplished by pressing the retaining ring or CONXRITE connector in place.

5mm (CMS 322), mounts in a 9/32" (7.2mm) hole on 3/8" centers. Panel thickness 1/32" to 1/8". Hole should be deburred but not chamfered.

See specs. page 11 for use with CNX connectors.

#### ORDERING CODES

MODEL CMS 322 RTP COLOR

CMS 322 (5mm) L/Profile Lens  
with moisture seal  
RNG 268 (5mm) Retaining Ring

RTP Red Transparent  
ATP Amber Transparent  
GTP Green Transparent  
BTP Blue Transparent  
YTP Yellow Transparent  
CTP Clear Transparent

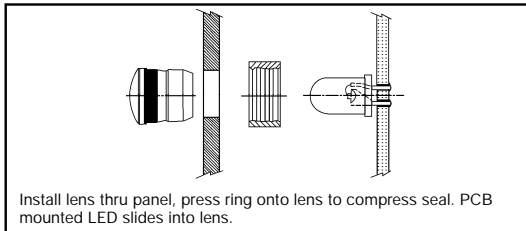
**VERSATILITY** — CLIPLITE, installed in display panel, provides a moisture seal effective against splash and drip conditions. The lens can be used with either circuit board mounted or panel mounted LEDs. For PCB mounting applications the lens remains attached to the display or panel door while the LEDs are fixed to the PCB. The lens is ideal when used with the CONXRITE connector for mounting the LED directly to the display panel.

**BRIGHTNESS** — CLIPLITE utilizes fresnel rings to increase apparent brightness and viewing angle up to 180 degrees with either diffused or nondiffused LEDs.

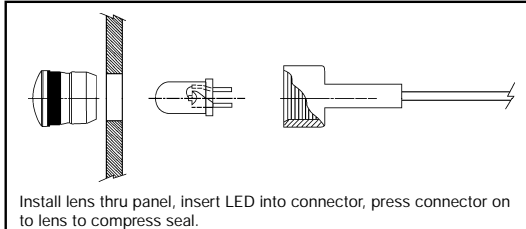
**PROTECTION** — CLIPLITE tests show it is an effective moisture seal in splash and drip conditions. In addition, the lens helps prevent IC failures caused by electrostatic discharge (ESD). A CLIPLITE mounted LED guards components from ESD up to 16 kV while affording the LED physical protection.

**INSTALLATION** — CLIPLITE is inserted thru panel opening, retaining ring is then pressed into place compressing the seal. PCB mounted LEDs slide easily into lens allowing simple insertion or removal of the PCB. Panel mounting of the LED is accomplished with the CONXRITE connector which also serves to compress the moisture sealing ring.

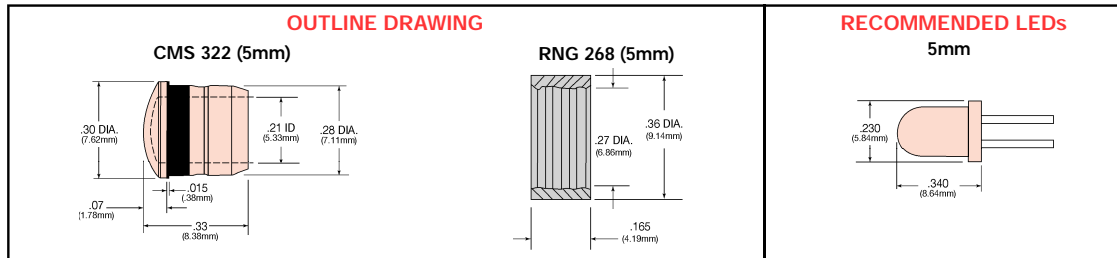
#### PANEL MOUNTED LENS WITH PCB MOUNTED LED



#### PANEL MOUNTED LENS WITH CONXRITE CONNECTOR



#### OUTLINE DRAWING



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### 10mm PANEL LENS for PCB MOUNTED LEDs



U.S. & Foreign Pat. Pend.

#### SPECIFICATIONS

**MATERIAL:** Lens - Polycarbonate, UL 94 V0 Rated  
Lock washer - FH Steel, Nickel plate  
Retaining ring - Polymer UL 94 V0 Rated  
Seal - EPDM

**DESIGN:** 16mm low profile lens with fresnel rings.

**MOUNTING:** Mounts thru front of panel. Retaining ring secures the assembly to panel.  
HMC 461 & HMS 462 mounts thru a 9/16" (14.3mm) hole on 3/4" centers.  
Panel thickness 1/32" to 3/16".

**TEST DATA:** Assembly tested for: Temperature cycle -40°C to +105°C, Water, Ice, Shock/vibration up to 6g at 2000hz, Solar & UV. Tests conducted by Consolidated Laboratories.

#### ORDERING CODE

**MODEL** HMC 461 RTP **COLOR**  
HMC 461 (Standard)

#### ASSEMBLY CONTAINS

HMC 461 Lens  
HLW 461 Lock washer  
RNG 461 Retaining ring

HMS 462 (Water Tight)

RTP Red Transparent  
ATP Amber Transparent  
GTP Green Transparent  
BTP Blue Transparent  
YTP Yellow Transparent  
CTP Clear Transparent

#### ASSEMBLY CONTAINS

HMS 462 Lens w/ Seal (exceeds NEMA 4)  
HLW 461 Lock washer  
RNG 461 Retaining ring

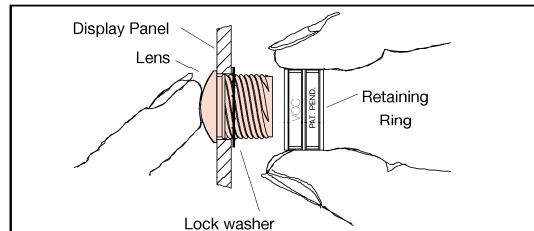
**VERSATILITY** — CLIPLITE provides a method of viewing PCB mounted LEDs on a display panel. Designed to accommodate either Hi-flux or 10mm LEDs. Permits LED viewing angles of up to 180 degrees. Lenses are available in six colors.

**BRIGHTNESS** — CLIPLITE enhances the direct viewing of PCB mounted LEDs. Mono, multi-color, infrared, and photo detection devices can be displayed in this manner. LED brightness levels can range from 20 to 40,000mcd.

**APPLICATION** — CLIPLITE permits panel display of PCB mounted LED without its physical attachment to front panel. Properly installed, assembly exceeds NEMA 4 for water, ice and dust conditions. Additionally tested for U.V., solar, temperature cycling, shock and vibration. Also provides circuit protection from ESD.

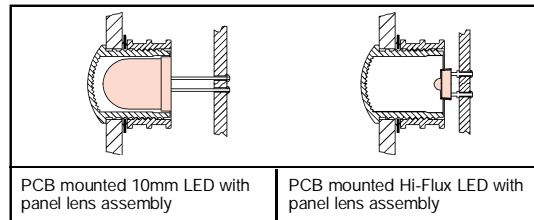
**INSTALLATION** — CLIPLITE is easily installed. Simply slip lens thru a 9/16" panel opening, slide lock washer onto lens barrel and twist on retaining ring. PCB mounted LED can then slide in and out of lens without physical attachment to display panel. If overtightened, retaining ring is designed to slip back into previous thread. Secure by retightening ring.

#### EASY THREE STEP PANEL ASSEMBLY



Slide lens thru 9/16" hole. Slip the locking ring onto lens barrel. While holding lens, twist retaining ring one revolution until secure.

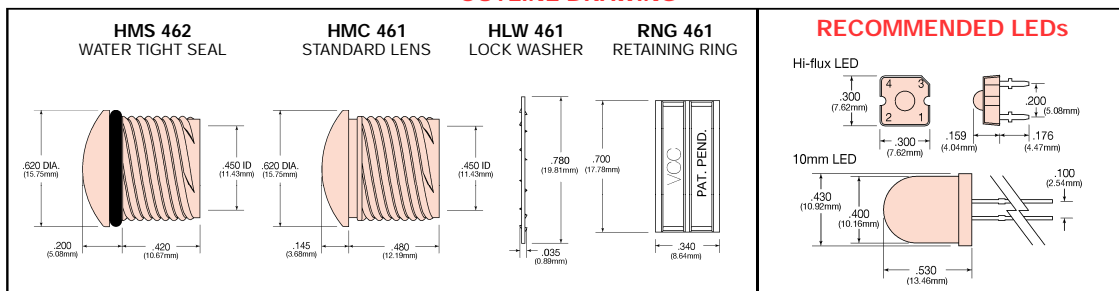
#### LENS ASSEMBLY WITH PCB MOUNTED LEDs



PCB mounted 10mm LED with panel lens assembly

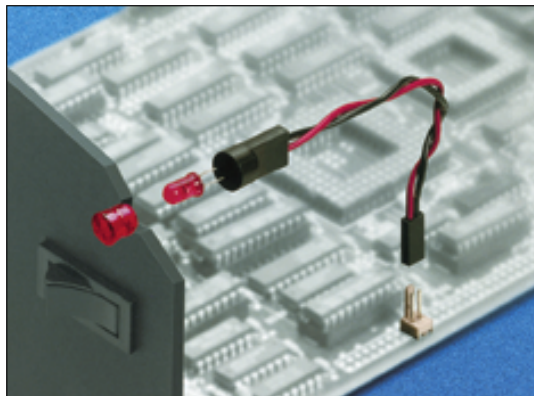
PCB mounted Hi-Flux LED with panel lens assembly

#### OUTLINE DRAWING





## PRE-WIRED SOLDERLESS LED INTERCONNECT



U.S. & Foreign Pat. Pend.

### SPECIFICATIONS

**MATERIAL:** Panel Connector Socket & Ring - Thermoplastic.  
Header Connector - Thermoplastic (UL listed materials)  
Terminals - Phosphor bronze, tin plated.  
Wire - 22 AWG, 7 strand copper, insulated.

**ELECTRICAL:** Terminal - 3 amp continuous service.  
Unique three-finger design mates to round, square or rectangular leads .017" to .025".

**MOUNTING:** Panel Connector 3mm - Mates with SMC 130 & 170.  
Panel Connector 5mm - Mates with CMC 285, 313, 321, 323, CMS 322, CML 325 and 327. See data sheets pages 4, 5 & 6.  
Panel Thickness: - See page 11  
All holes deburred but not chamfered.  
LED lead trimming - See page 11.  
Hole Size - SMC series 11/64" (4.37mm).  
CMC, CMS & CML series 9/32" (7.14mm).  
Header Connector - Mates with VCC positive locking header 450 series. Also mates with standard and friction header .025" pins on .100" centers.

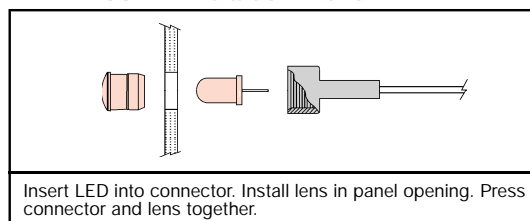
**CONXRITE** - This modular cabling assembly is designed for use in the electrical connection of panel mounted LEDs to printed circuit boards. This plug-in system eliminates many of the problems associated with wiring display panel mounted LEDs.

**APPLICATIONS** - Designed to make quick and easy plug-in connections between panel mounted LEDs and the PCB. The modular concept of panel and header housings along with different wire lengths offer a cost reducing solution to cabling problems.

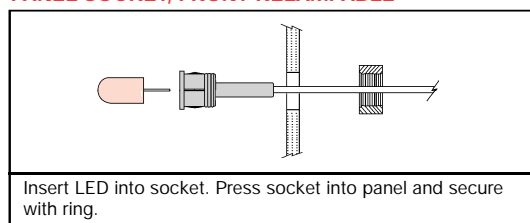
**VERSATILITY** - Multiple panel mounted LED devices can be connected to PCB mounted headers. A uniquely designed three finger box terminal mates with leads .017" in diameter to .025" square. Cables are available in four, six, eight, twelve, eighteen and twenty four inch lengths.

**INSTALLATION** - Modular cabling systems simplify the electrical connection from panel to PCB and eliminate the need for assembly tools. Cost savings from the discontinuing of soldering and terminal crimping operations are substantial. When properly installed the assembly is able to withstand up to 6g's at 2000hz.

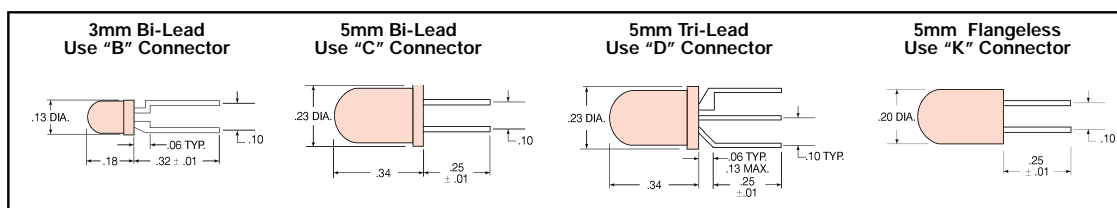
### PANEL MOUNT LENS & CONNECTOR



### PANEL SOCKET, FRONT RELAMPABLE

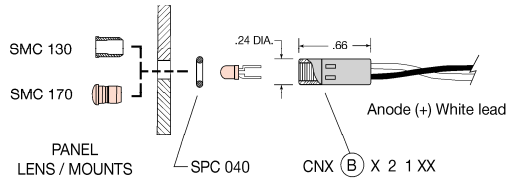


### RECOMMENDED LEDs



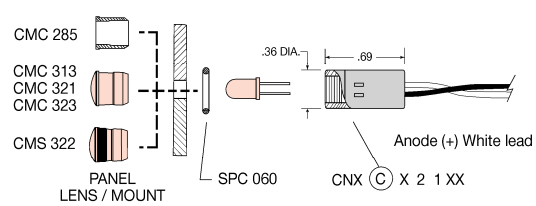
## STANDARD INTERCONNECTS FOR 3mm & 5mm LEDs

### 450 120 3mm Bi-LEAD ("B" CONNECTOR)



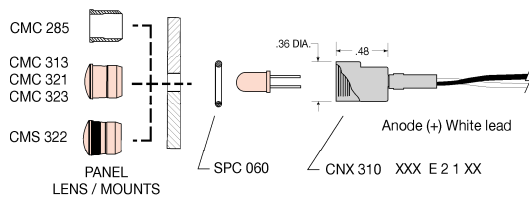
LED lead length: SMC 130 = .380" \* SMC 170 = .320"  
Panel thickness: .030" - .050" use 1ea. SPC 040 spacer  
.055" - .075" SPC 040 not required

### 450 220 5mm Bi-LEAD ("C" CONNECTOR)



LED lead length: CMC 285 = .350" ± .01 \* CMC 313, CMC 321, CMC 323,  
CMS 322 = .250" ± .01  
Panel thickness: .030" - .045" use 2ea. SPC 060 spacers, .050" - .100" use  
1ea. SPC 060 spacer, .105" - .125" SPC 060 not required

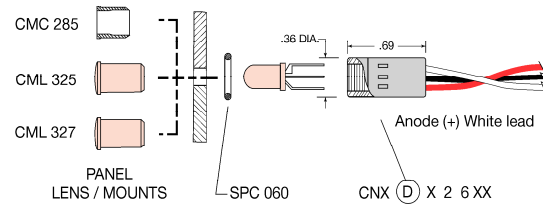
### CNX 310 SERIES 5mm BI-LEAD (W/RESISTOR)



SEE PAGE 14 FOR AVAILABLE RESISTOR VALUES

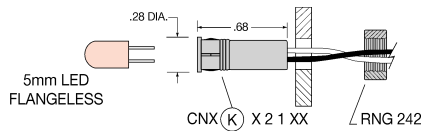
LED lead length: CMC 285 = .320" ± .01 \* CMC 313, CMC 321, CMC 323,  
CMS 322 = .220" ± .01  
Panel thickness: .030" - .045" use 2ea. SPC 060 spacers, .050" - .100" use  
1ea. SPC 060 spacer, .105" - .125" SPC 060 not required

### 450 230 5mm TRI-LEAD ("D" CONNECTOR)



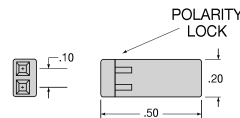
LED lead length: CMC 285 = .350" ± .01  
CML 325, CML 327 = .275" ± .01  
Panel thickness: CMC 285, CML 325 = .045" use 2ea. SPC 060, .050" - .100" use  
1ea. SPC 060, .105" - .125" SPC not required.  
CML 325, CML 327 = .060" - .100" use 2ea. SPC 060 spacers,  
.105" - .175" use 1ea. SPC 060, .150" - .220" SPC not required.

### 450 470 5mm FLANGELESS ("K" CONNECTOR)



LED lead length: 5mm flangeless LED .250"  
Panel thickness: .030" - .250"  
Use RNG 242 retaining ring when additional security is  
required.

### 450 XXX SERIES PLAIN & LOCKING HEADER



P/N	DESCRIPTION
G CONNECTOR	2 POSITION PLAIN HEADER
E CONNECTOR	2 POSITION LOCKING HEADER
F CONNECTOR	3 POSITION LOCKING HEADER

Note: For additional header connector specifications refer to page 18.

## ORDERING CODE

**CNX C E 4 1 04**

TERMINATION		WIRE SIZE	WIRE COLOR	WIRE LENGTH
PANEL (LED) SIDE	P C BOARD SIDE	STANDARD 24 AWG	1 - WHT - BLK 2 - RED - BLK 6 - WHT - RED - BLK	04 4 INCHES 06 6 INCHES 08 8 INCHES 10 10 INCHES 12 12 INCHES 18 18 INCHES 24 24 INCHES
B 3mm Panel Connector 2 Lead C 5mm Panel Connector 2 Lead D 5mm Panel Connector 3 Lead K Panel Socket 2 Lead	E Locking Hdr Connector 2 Lead F Locking Hdr Connector 3 Lead G Plain Hdr Connector 3 Lead X Wire Leads - Stripped Ends	OPTIONAL 22 AWG		
CALL FACTORY FOR ADDITIONAL OPTIONS				

# CONXRITE®

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7920-F Arjons Dr., San Diego, CA 92126  
In CA (858) 549-6900 (800) 522-5546  
FAX (858) 549-3520 www.vccite.com

### CABLE ASSEMBLIES FOR 5mm & 10mm LED LIGHTS



U.S. & Foreign Pat. Pend.

#### SPECIFICATIONS

**MATERIAL:** Lens - Polycarbonate, UL 94 V0  
Connector - Polymer (white), UL 94 V0  
Moisture seal - EPDM  
Lock washer - Steel, nickel plate  
Terminals - Phosphor bronze, tin plate  
Wire - U.L.1007/1569, 22-24 awg stranded

**ELECTRICAL:** Terminal - 3 amp continuous service. Mates with round, square, rectangular leads .017" to .030"

**MOUNTING:** CMC / HMC series lens for standard dry applications. CMS / HMS series lens for dust and wet conditions. CMC 441 / CMS 442 lens mount thru a 5/16" (8mm) opening on 1/2" centers. Panel thickness 1/32" to 1/8". HMC 461 and HMS 462 lens mount thru 9/16" (14mm) opening on 3/4" centers. Panel thickness 1/32" to 3/16".

Wire termination - VCC 450 series single or dual row positive locking header connectors, stripped leads. Contact factory for other termination options.

**TEST DATA:** Assembly tested for Shock /vibration - 6g's at 2000hz, Temperature -40° to + 105°C, Solar and UV. Meets NEMA 4, for water, ice and dust. Test conducted by Consolidated Laboratories Inc.

**LEDs:** 5mm LEDs bi-lead, trim leads to .250" ±.010 (6.35mm)  
10mm LEDs bi-lead, trim leads to .300" ±.010 (7.62mm)  
Hi-flux LEDs 4 leads trimming not required.

Contact factory for additional wire and LED options. Tri-lead and six lead devices.

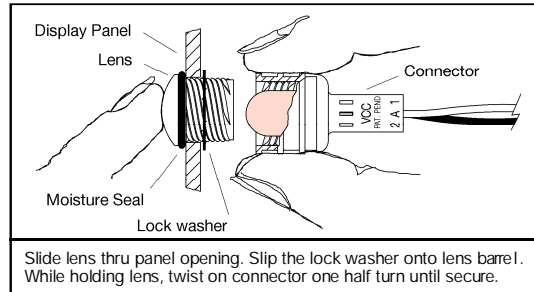
**VERSATILITY** – CONXRITE cabling system simplifies display panel to power source interface. Options include: LED - 5mm, 10mm Hi-Flux. Color - mono, bi-color, tri-color, RGB. Wire - size, color, length. Wire termination - header / connector, positive locking, single, dual row. Terminals - ring or spade style.

**BRIGHTNESS** – CONXRITE enhances LED apparent brightness as well as the viewing angle to 180°. Visible, infrared, and photo detection devices can be displayed in this manner. Illumination can range from 20 to 20,000mcd.

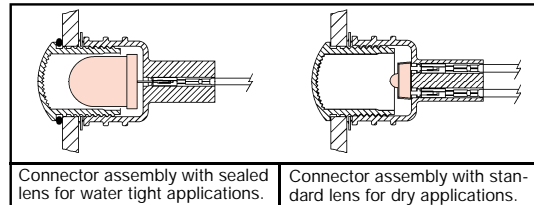
**APPLICATION** – CONXRITE LED cable assemblies are used in consumer products, communications, industrial, automotive, heavy equipment, security systems, interior and exterior projects. Tested for temperature cycling, UV, solar, shock, vibration. Sealed version exceeds NEMA 4 for dust, water and ice. Also provides ESD circuit protection.

**INSTALLATION** – CONXRITE assemblies "plug and play" approach simplifies cable installation. Slip lens thru panel opening, slide lock washer over lens barrel, connector secures to lens with a half turn.

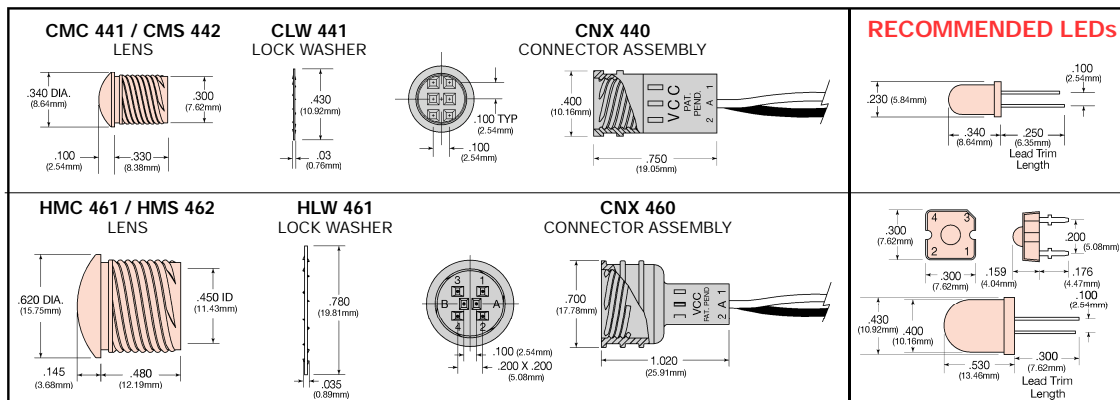
#### EASY THREE STEP PANEL ASSEMBLY



#### LENS AND CONNECTOR ASSEMBLIES

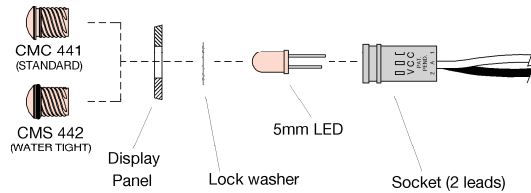


#### OUTLINE DRAWING



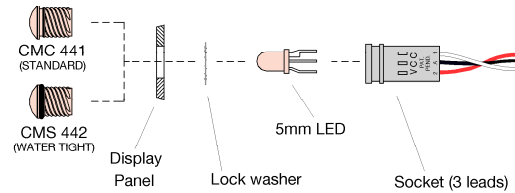
## CABLE ASSEMBLY FOR 5mm & 10mm LED LIGHTS

### CNX 440 STANDARD ASSEMBLIES



LED 5mm bi-lead - trim lead length .250" ±.01 (5.58mm)  
Panel Thickness - .032" to .125", Panel Hole: .312" (8.0mm)  
Recommended LEDs - 5mm bi-lead, 5mm tri-lead (tri-color)  
and 5mm six-lead (RGB)

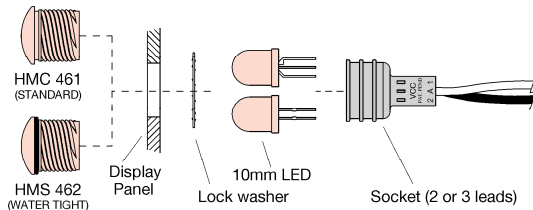
### DRAWINGS NOT TO SCALE



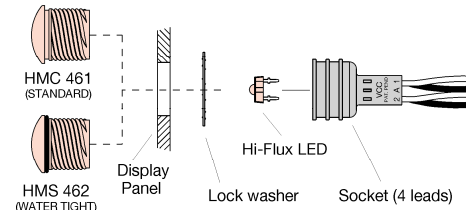
LED 5mm tri-lead - leads custom formed by VCC  
Panel Thickness - .032" to .125" Panel Hole: .312" (8.0mm)

## CABLE ASSEMBLY FOR 10mm AND HI-FLUX LED LIGHTS

### CNX 460 STANDARD ASSEMBLIES

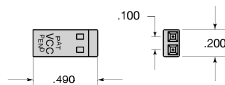


LED 10mm bi-lead - trim lead length .300" ±.01 (8.13mm)  
Panel Thickness - .032" to .187", Panel Hole: .562" (14.0mm)  
Recommended LEDs - 10mm bi-lead, 10mm tri-lead (tri-color),  
10mm six lead (RGB) and Hi-Flux four-lead ultra bright.



LED Hi-Flux lead length: Install as is  
Panel thickness - .032" to .187" Panel Hole: .562 (14.0mm)

### HEADER CONNECTORS AND HEADERS



E 02 CONNECTOR

Single Row on .100" centers



LOCKING HEADER



D 04 CONNECTOR

Dual Row on .100" x .100" centers



LOCKING HEADER

### ORDERING CODE

CNX 461 RTP E02 4 1 12					
LENS STYLE	COLOR	TERMINATION	WIRE SIZE	WIRE COLOR	WIRE LENGTH
STANDARD 441 - 5mm 461 - 10mm	RTP RED GTP GREEN ATP AMBER BTP BLUE YTP YELLOW CTP CLEAR	X = STRIPPED END E = SINGLE ROW D = DUAL ROW	STANDARD 4 24 AWG  OPTIONAL 2 22 AWG	1 WHT - BLK 2 RED - BLK 6 WHT - RED - BLK	04 4 INCHES 06 6 INCHES 08 8 INCHES 10 10 INCHES 12 12 INCHES 18 18 INCHES 24 24 INCHES
SEALED 442 - 5mm 462 - 10mm		02 = 2 Wires 03 = 3 Wires 04 = 4 Wires			
CALL FACTORY FOR ADDITIONAL OPTIONS					

# CONXRITE®

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7920-F Arjons Dr., San Diego, CA 92126  
In CA (858) 549-6900 (800) 522-5546  
FAX (858) 549-3520 www.vcclite.com

### PANEL INTERCONNECT PRE-WIRED WITH RESISTOR



U.S. & Foreign Pat. Pend.

#### SPECIFICATIONS

**MATERIAL:** Panel connector, Ring and Header connector - Thermoplastic (U.L. Listed Material)  
Terminals - Phosphor bronze, tin plated  
Wire - 22 AWG 7 strand copper, insulated

**MOUNTING:** Mating Panel Mounts - Plain diffused lens CMC 313, Fresnel lens, CMC 321, Plain end lens CMC 323, Open end mount CMC 285 and Moisture Seal lens CMS 322. See data sheets specs pages 4, 5 and 6.

Panel Thickness - .30" to .045" use 2ea SPC 060 spacers, .50" - .100" use 1ea. SPC 060 spacer, .105" .125" SPC 060 not required.

Hole Size - .281" for all lenses and mounts mentioned above.

LED Lead Length - CMC 285 trim leads to .350"  $\pm$  .010". CMC 313, CMC 321, CMC 323 and CMS 322 trim leads to .250"  $\pm$  .010".

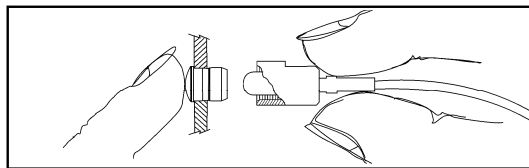
**APPLICATION** - CONXRITE makes quick and easy plug-in connections between panel mounted LEDs with lenses and a power source. Utilizing various cable lengths and cable terminations, CONXRITE offers a cost reducing solution to interconnection problems.

**VERSATILITY** - CONXRITE with ballast resistor can be used on circuits from 3 to 28 volts. Panel thickness can vary from 1/32 to 1/4 inch. Makes positive panel connections for either wet or dry applications with CMS lens. See data sheet for CLIPLITE AND CUBELITE lens mounts.

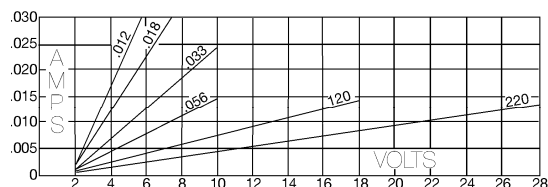
**DESIGN** - CONXRITE has a molded plastic body with self-contained 1/2 watt resistor. Pre-attached wires are provided with terminals, header connector or with stripped leads.

**INSTALLATION** - Modular cabling system's plug-in feature simplifies the electrical connection from panel mounted LEDs to PCB, eliminating the need for assembly tools. Cost and time savings from the elimination of soldering and terminal crimping operations are substantial.

#### EASY INSTALLATION



#### RESISTOR SELECTOR



#### ORDERING CODES

**MODEL** \_\_\_\_\_  
Connector plus resistor only  
Connector plus resistor & wire

RESISTOR		RESISTOR	
CODE	OHM	CODE	OHM
000	NO RESISTOR	056	560
012	120	120	1200
018	180	220	2200
033	330		

#### WIRE TERMINATIONS

CODE	DESCRIPTION
G	PLAIN END HEADER CONNECTOR
E	LOCKING HEADER CONNECTOR
X	WIRE LEAD ENDS STRIPPED

Use Model and Resistor code to order connector separately.

#### WIRE LENGTH

CODE	LENGTH
04	4 INCHES
06	6 INCHES
08	8 INCHES
12	12 INCHES
18	18 INCHES
24	24 INCHES

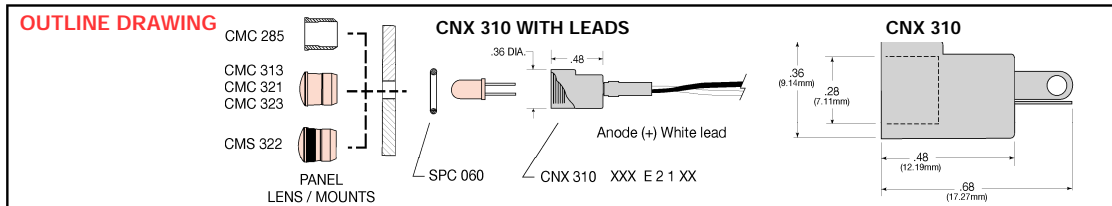
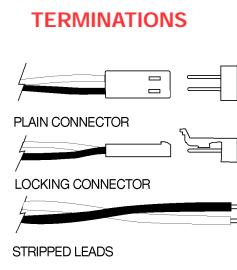
#### WIRE COLOR

CODE	DESCRIPTION
1	BLK - WHT

#### WIRE GAUGE

CODE	DESCRIPTION
2	22 AWG

#### TERMINATIONS





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FAX (858) 549-3520 www.vccite.com

### 5mm LED PANEL INTERCONNECT w/resistor



U.S. & Foreign Pat. Pend.

#### SPECIFICATIONS

**MATERIAL:** Lens - Polycarbonate, UL 94 V0  
Connector - Polymer, UL 94 V0  
Moisture seal - EPDM  
Lock washer - Steel, nickel plate  
Terminals - Phosphor bronze, tin plate  
Wire - U.L. 1007/1569, 22, 24 awg stranded

**ELECTRICAL:** Terminal - 3 amp continuous service. Mates to round, square, rectangular leads .017" to .030"

**MOUNTING:** CMC 441 series lens - for dry applications  
CMS 442 series lens - for dust / wet conditions  
CMC 441 / CMS 442 lens - mounts thru a 5/16" diameter panel opening on 1/2" centers. Panel thickness up to 1/8".  
Wire termination - stripped leads, VCC 450 series single or dual row locking header connectors.  
Contact factory for other termination options.

**TEST DATA:** Assembly meets NEMA 4 for water, ice and dust. Additional tests, temperature cycle -40° to +85°C, shock to 6g's, vibration to 2000hz, solar & UV. Tests conducted by Consolidated Laboratories.

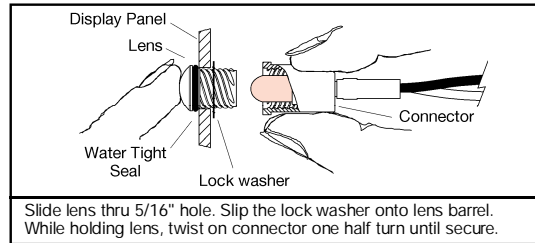
**VERSATILITY** - CONXRITE with internal resistor makes LED plug-in connections between panel and power source easy. Options include broad selection of LEDs, choices of wire size, length and color, variety of wire terminations.

**BRIGHTNESS** - CONXRITE enhances LED viewing, 180°. Also for use with infrared and photo detection devices. With selected LEDs, brightness can range from 20 to 20,000mcd.

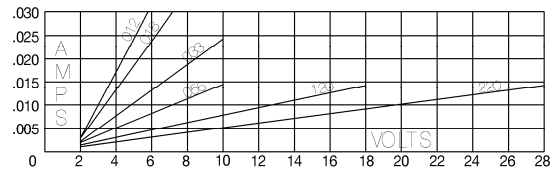
**APPLICATION** - CONXRITE assembly has been tested for UV, solar, shock, vibration and temperature cycling. Sealed version exceeds NEMA 4 for dust, water and ice. Assembly uses include office environments or harsh exterior conditions. Provides ESD circuit protection.

**INSTALLATION** - CONXRITE is easy to install. Slip lens thru panel opening, slide lock washer over lens barrel, secure connector to lens by hand with a half turn.

#### EASY INSTALLATION



#### RESISTOR SELECTOR

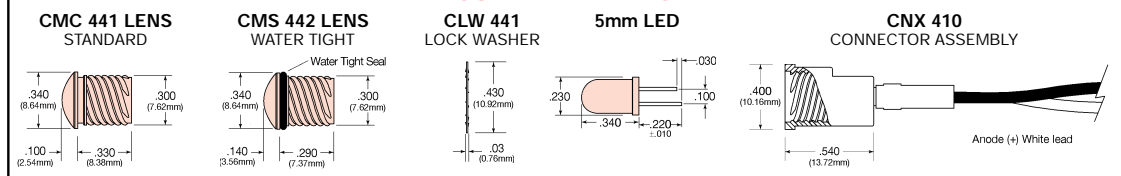


#### ORDERING CODE

CNX 441 RTP 056 E02 2 1 12						
LENS STYLE	COLOR	RESISTOR	TERMINATION	WIRE SIZE	WIRE COLOR	WIRE LENGTH
STANDARD 441 - 5mm	RTP RED	012 - 120 OHM	X STRIPPED END	2 22 AWG	1 WHT - BLK	04 4 INCHES
	GTP GREEN	018 - 180 OHM	SINGLE ROW	4 24 AWG	2 RED - BLK	06 6 INCHES
WATER TIGHT 442 - 5mm	ATP AMBER	033 - 330 OHM	E 02 2 POS			08 8 INCHES
	BTP BLUE	056 - 560 OHM	E 03 3 POS			10 10 INCHES
	YTP YELLOW	120 - 1200 OHM				12 12 INCHES
	CTP CLEAR	220 - 2200 OHM				18 18 INCHES
						24 24 INCHES

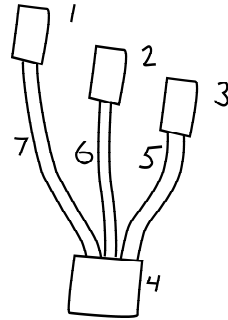
CALL FACTORY DIRECT FOR ADDITIONAL OPTIONS

#### OUTLINE DRAWING



## CUSTOM CABLES CONCEPT TO COMPLETION

### CUSTOMERS CONCEPT SKETCH

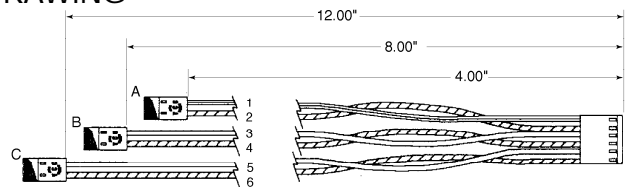


EXAMPLE OF SKETCH

### BILL OF MATERIALS

1 2 & 3 450220 Connector  
4 450306 Connector  
5 4 inch Wire  
6 8 inch Wire  
7 12 inch Wire

### ENGINEERING DRAWING



Customer Name: \_\_\_\_\_

Address: \_\_\_\_\_

Customer Part Number: \_\_\_\_\_

Customer approval: \_\_\_\_\_

Date of approval: \_\_\_\_\_

#### NOTES:

- 1) Material: U.S. Rating - Thermoplastic material used on a secondary circuit
- 2) Wire: 22 AWG (1159 C) color Red/Black/White
- 3) Mounting: CMC 321 or CMS 322 lense - panel hole size .281"

#### BILL OF MATERIALS

ITEM	P/N	DESCRIPTION	COLOR	LENGTH
A	450220	VCC - 5MM CONNECTOR		
B	450220	VCC - 5MM CONNECTOR		
C	450220	VCC - 5MM CONNECTOR		
D	450306	VCC - 6 POSITION LOCKING HEADER CONNECTOR		
1	WIRE	22 AWG	RED	4.00"
2	WIRE	22 AWG	BLACK	4.00"
3	WIRE	22 AWG	WHITE	8.00"
4	WIRE	22 AWG	BLACK	8.00"
5	WIRE	22 AWG	WHITE	12.00"
6	WIRE	22 AWG	BLACK	12.00"

U.S. / FOREIGN PART ISSUED & PENDING

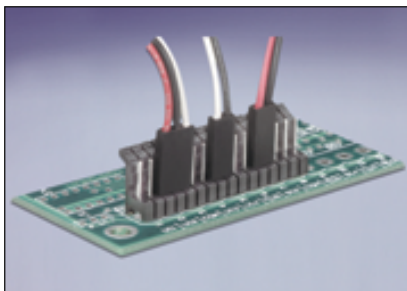
TOLERANCES	REVISIONS	VCC P/N: CNX 400020		
DECIMAL	1	ISSUED BY	DATE	REV
INCHES	2			
DRAWN BY	3	JMS	SCALE	N/A
CHECKED	4	DATE	03/04/99	DRAWING NO.
APPROVED	5	TMSD	APP'D	

VISUAL COMMUNICATIONS COMPANY INC.

7920-F ARJONS DRIVE SAN DIEGO, CA 92126 U.S.A.

### COMPLETED ASSEMBLY





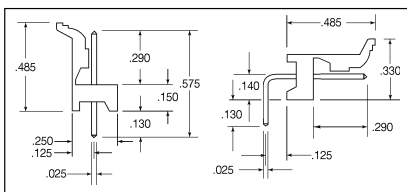
U.S. & Foreign Pat. Pend.

## POSITIVE LOCKING POLARITY HEADER

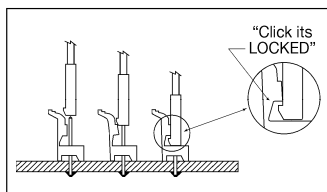
### FEATURES

- Locking lever provides polarity integrity by restricting insertion of locking header in reverse.
- Lever clicks and locks preventing header connector from being retracted inadvertently.
- Locking header available in 2 to 28 pin positions, vertical or horizontal configuration.
- Designed for both vertical and horizontal mounting on the printed circuit board.
- Pins are .025" square brass, tin plated, located on .100" centers.
- Locking header mates with VCC locking header connectors P/N 450 30X or equal.

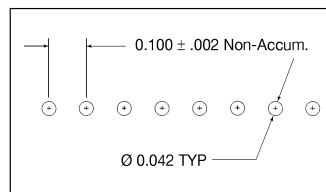
### OUTLINE DRAWINGS



### HEADER LOCKING FEATURE



### PCB HOLE LAYOUT



### SPECIFICATIONS

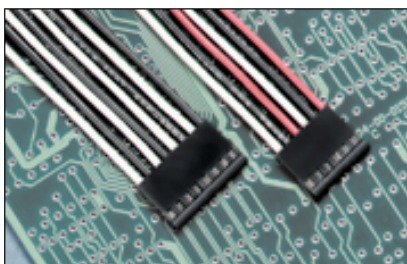
**MATERIAL** Body - Thermoplastic (black) U.L. 94 V2  
Pins - Brass .025" square tin plate

Spacing - Pins on .100" centers  
Header - Mates with VCC locking header connector, 450 30X series or equal.

### ORDERING CODES

MODEL **CNX** **V06** **NTP** **PLATING**

PIN CONFIGURATION - 02 TO 28 CIRCUITS  
V = VERTICAL / # CIRCUITS  
H = HORIZONTAL / # CIRCUITS



U.S. & Foreign Pat. Pend.

## HEADER CONNECTOR / TRI-FINGER TERMINAL

### FEATURES

- Header connector mates with VCC locking header CNX xxx, Molex 6373, 7478 friction header or equal.
- Header connectors 2, 3, 4, 6 and 8 position are end-to-end stackable.
- Header connectors with or without locking tab, rated U.L. 94 V0.
- Terminal's unique tri-finger design mates with pins from .017" round to .025" square.
- Terminals for use specifically with VCC header connectors.
- Terminals designed for use with wire rating 22 or 24 AWG 300V, 105°C.

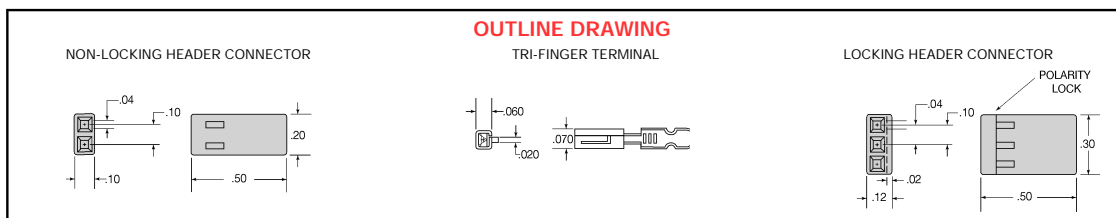
### ORDERING CODES

MODEL **450** **302** **NUMBER OF POSITIONS**

301	1	LOCKING
302	2	LOCKING
303	3	LOCKING
304	4	LOCKING
306	6	LOCKING
308	8	LOCKING
401	1	NON-LOCKING
402	2	NON-LOCKING

NOT SOLD SEPARATELY

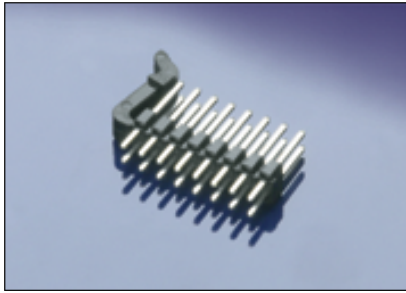
Note: Connector width equals .100" X the number positions i.e. 3 x .100" = .300" width.



# CONXRITE®

## VISUAL COMMUNICATIONS COMPANY, INC.

7920-F Arjons Dr., San Diego, CA 92126  
In CA (858) 549-6900 (800) 522-5546  
FAX (858) 549-3520 www.vccite.com



U.S. & Foreign Pat. Pend.

### DUAL ROW "SLIM LINE" POSITIVE LOCKING HEADER

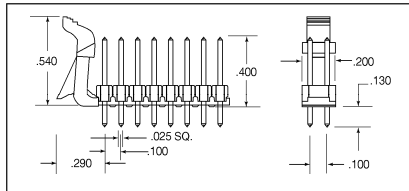
#### FEATURES

- "Click it's locked" prevents inadvertent retraction of the connector.
- Lever detent prevents reverse insertion of the connector for polarity integrity.
- Vertical locking headers are available in four to sixteen pin circuits.
- Header contact pins are .025" square on .100" x .100" centers.
- Locking header mates with VCC header connector 450 xxx Series.
- Standoff ribs provide a .010" board clearance for easy flux cleansing.

#### P C BOARD LAYOUT

	Dim. A. .100" 2 X 2 .200" 2 X 3 .300" 2 X 4 .400" 2 X 5	Dim. A. .500" 2 X 6 .600" 2 X 7 .700" 2 X 8
--	---------------------------------------------------------------------	------------------------------------------------------

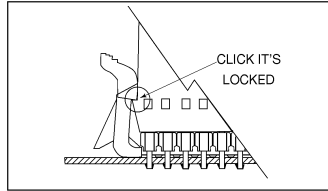
#### OUTLINE DRAWING



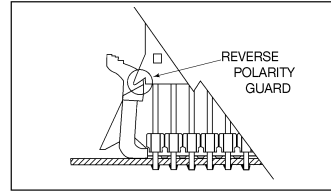
#### SPECIFICATIONS

**MATERIAL** Body - Thermoplastic (black) U. L. 94 V0  
Lever - thermoplastic Nylon 6-6 for flexibility U.L. 94 V2  
Pins - Brass .025" square, bright tin plate  
Spacing - Dual row, 4 to 16 circuits on .100 X .100 centers  
Header - Mates with VCC, 450 xxx series, female locking connector.

#### LOCKING FEATURE

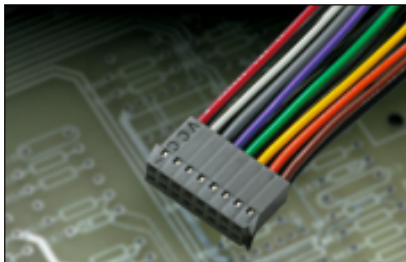


#### POLARITY FEATURE



#### ORDERING CODES

MODEL **CNX V04 DRT** STYLE  
 DR = DUAL ROW  
 T = TIN PLATE  
 V = VERTICAL  
 04 = # OF CIRCUITS 2 X 2  
 min 4 circuits, max 16



U.S. & Foreign Pat. Pend.

### DUAL ROW "SLIM LINE" FEMALE LOCKING CONNECTOR

#### FEATURES

- Designed with a positive locking mechanism. "Click it's Locked".
- Polarization is preserved by means of connector latches.
- Available from four to sixteen circuit configurations.
- Terminals are tested for 3 amp continuous service.
- Available with 22 or 24 AWG stranded wire rated at 300V 105°C rating.
- Thermoplastic materials U.L. rated at 94 V0.

#### ORDERING CODES

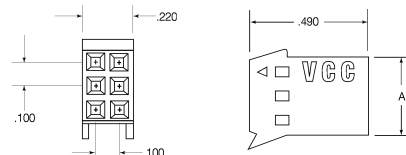
MODEL **450 404** NUMBER OF CIRCUITS  
 SLIM LINE CONNECTOR  
 404 = 4 CIRCUITS  
 406 = 6 CIRCUITS  
 408 = 8 CIRCUITS  
 410 = 10 CIRCUITS  
 412 = 12 CIRCUITS  
 414 = 14 CIRCUITS  
 416 = 16 CIRCUITS  
 NOT SOLD SEPARATELY

#### SPECIFICATIONS

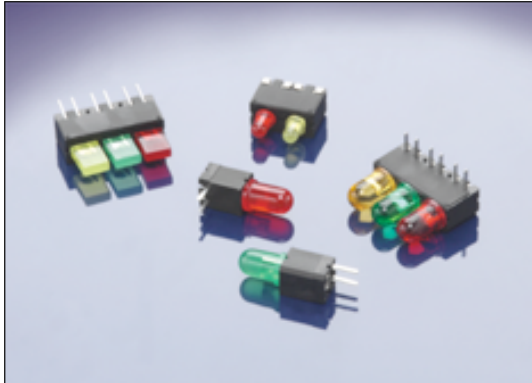
**MATERIAL** Connector - Thermoplastic (black) U.L. 94 V0  
4 to 16 circuits, dual row, with locking and polarizing latches  
Terminals - Phosphor bronze, bright tin plated  
3 amp continuous service rating  
Wire - 22 AWG, 7 strand copper, PVC insulated. 300V 105°C  
Call factory for additional options.  
Mates with VCC CNX DRT VXX positive locking dual row pin header (.025 sq pins on .100 centers)

#### OUTLINE DRAWING

CONNECTOR BODY					
P/N	Dim. A.	Circuits	P/N	Dim. A	Circuits
450 404	.245"	2 X 2	450 412	.625"	2 X 6
450 406	.325"	2 X 3	450 414	.725"	2 X 7
450 408	.425"	2 X 4	450 416	.825"	2 X 8
450 410	.525"	2 X 5			



## LED SOCKETS FOR CIRCUIT BOARD MOUNTING



U.S. & Foreign Pat. Pend.

### SPECIFICATIONS

**MATERIAL:** Housing - Thermoplastic, (black), UL 94 V0  
Contacts - Phosphor bronze, 60/40 tin plated.

**MOUNTING:** PCH Series - Thru-hole horizontal mounting sockets, .035"(.89mm) holes on .100" centers.  
PCV Series - Thru-hole vertical mounting sockets, .035"(.89mm) holes on .100" centers.  
SMD Series - Surface mount, horizontal mounting sockets, .060" (1.52mm) X .060" (1.52mm) component pad.  
SMD sockets available in bulk and in tubes.

**LED DATA:** Standard 3mm and 5mm devices  
Leads - Min. .017 (.43mm) round or square.

### ORDERING CODES:

#### PCH 330

MODEL

- PCH 330 Horizontal Mount (Single Unit)
- \* PCH 660 Horizontal Mount (Dual Unit)
- \* PCH 990 Horizontal Mount (Triple Unit)
- PCV 220 Vertical Mount (Single Unit)
- \* PCV 440 Vertical Mount (Dual Unit)
- \* PCH 880 Vertical Mount (Triple Unit)
- SMD 330 Horizontal Surface Mount (Single Unit)
- \* SMD 660 Horizontal Surface Mount (Dual Unit)
- \* SMD 990 Horizontal Surface Mount (Triple Unit)

\* View outline drawings on the web  
direct url address [www.vccilite.com/pch\\_pcv](http://www.vccilite.com/pch_pcv)

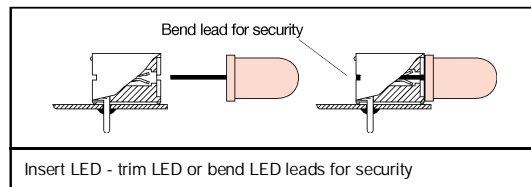
**VERSATILITY** — P-C-LITEs are soldered directly to the PCB which permits easy insertion or removal of the LED. PCH and SMD series mount horizontally, PCV series mounts vertically. STD series standoff can be used to make fine adjustments in the extended length of the LED.

**DESIGN** — P-C-LITEs are manufactured from UL listed thermoplastics. Unique three finger contact design permits automatic adjustment to the various sizes and shapes of LED leads.

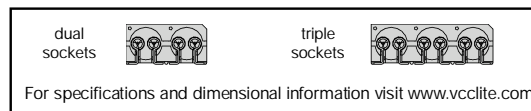
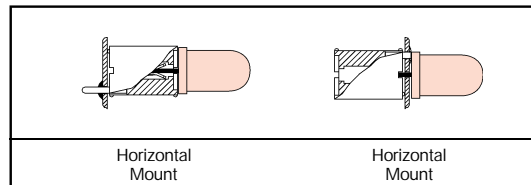
**APPLICATION** — P-C-LITEs are relampable sockets for circuit board mounting of LEDs. They are used to display circuit condition for status, logic and fault detection. The sockets are also used for mounting photodetection type devices as well as incandescent bi-pin lamps.

**INSTALLATION** — P-C-LITE sockets (PCH/PCV) are affixed to PCB by wave soldering. IR reflow is used for the SMD. Molded standoffs permit easy board cleaning. LED leads can be bent after insertion for added security.

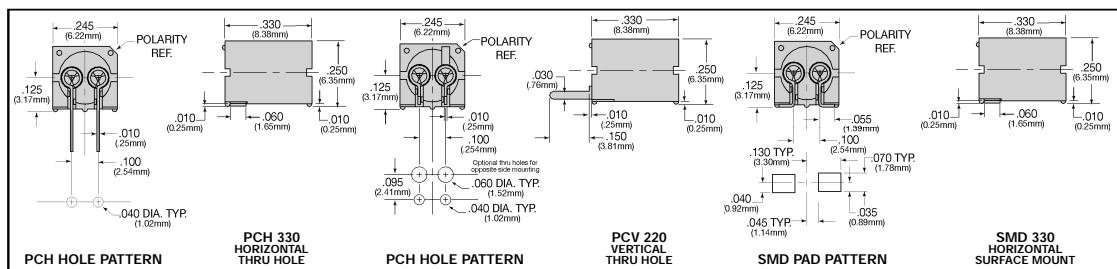
### HORIZONTAL MOUNT PCH & SMD SERIES



### VERTICAL MOUNT PCV SERIES



### OUTLINE DRAWING



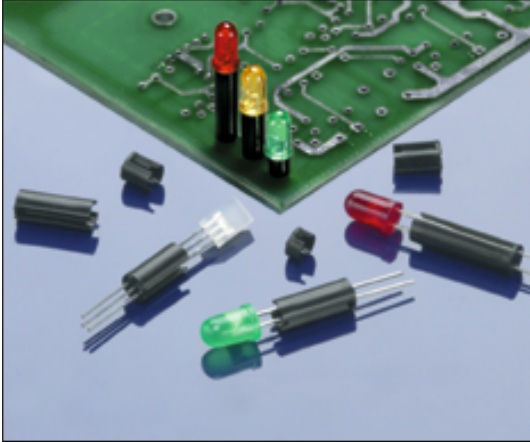


# P-C-LITE®

## VISUAL COMMUNICATIONS COMPANY, INC.

7920-F Arjons Dr., San Diego, CA 92126  
In CA (858) 549-6900 (800) 522-5546  
FAX (858) 549-3520 www.vcc-lite.com

### PCB STANDOFFS FOR BI/TRI-LEAD COMPONENTS



U.S. & Foreign Pat. Pend.

**APPLICATION** — P-C-LITE component standoffs are designed for printed circuit board mounting of multi-lead devices ie. LEDs, IR emitter/detectors, lamps, resistors, capacitors, transistors and diodes.

**VERSATILITY** — P-C-LITE component standoffs cope with various problems in mounting passive components. These include height control, lateral stability, lead retention, lead shorting and removal of soldering residue.

**DESIGN** — P-C-LITE component standoffs provide lead separation and retention for both bi and tri-lead components. Molded tabs retain the component and standoff as a unit permitting preassembly operations. Clearance pads are provided for proper PCB cleaning.

**INSTALLATION** — P-C-LITE component standoffs permit the use of various shapes and sizes of LEDs, as well as other bi/tri-lead components. Device height control is simplified with mounts ranging in lengths from .100 to 1.00 inch in increments of .010 inch.

### SPECIFICATIONS

**MATERIAL:** Standoff - Thermoplastic U.L. 94 V0.  
Color, Black.

**DESIGN:** Channels provide lead separation and lateral stability for components. Molded tabs retain component leads within the standoff for preassembly. Raised pads allow for easy PCB cleaning.

**MOUNTING:** Suitable for passive components, bi-lead, tri-lead, 3mm, 5mm, LEDs, resistors, capacitors, diodes. Standoffs vary in height from .100 minimum to 1.0 inch maximum, increments of .010 inch.

### ORDERING CODE

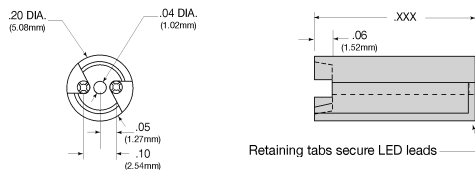
Length in Inches STD XXX BLK Color  
(.100 to 1.0 inch)

100	200	300	400	500	600	700	800	900
110	210	310	410	510	610	710	810	910
120	220	320	420	520	620	720	820	920
130	230	330	430	530	630	730	830	930
140	240	340	440	540	640	740	840	940
150	250	350	450	550	650	750	850	950
160	260	360	460	560	660	760	860	960
170	270	370	470	570	670	770	870	970
180	280	380	480	580	680	780	880	980
190	290	390	490	590	690	790	890	990

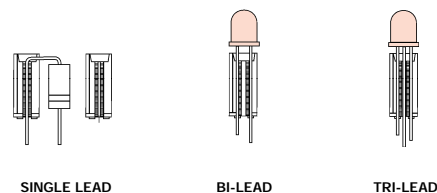
also available in one inch

U.L. 94 V0.

### OUTLINE DRAWING



### MOUNTING CONFIGURATIONS

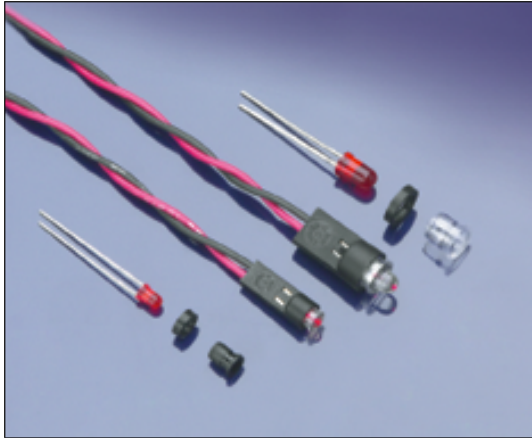


# CLIPMOUNT®

## VISUAL COMMUNICATIONS COMPANY, INC.

7920-F Arjons Dr., San Diego, CA 92126  
In CA (858) 549-6900 (800) 522-5546  
FAX (858) 549-3520 www.vccite.com

### PANEL MOUNTS FOR IR & VISIBLE LED DEVICES



#### SPECIFICATIONS

**MATERIAL:** Mount - Polycarbonate; (black - clear )  
Ring - Polypropylene (black)  
(U.L. Listed Material )

**DESIGN:** Permits LED to slide into mount without restriction. Tip of LED is exposed while mount provides contrast on front of display panel.

**MOUNTING:** Mounts thru front of panel. Retaining ring secures mount when used with PCB mounted LED. With interconnect cable, mount is secured by use of an LED connector.

3mm (SMC 130) mounts in a .171" (4.34mm) hole on 1/4" centers. Panel thickness 1/32" to 1/16".

5mm (CMC 285) mounts in a .281" (7.14mm) hole on 3/8" centers. Panel thickness 1/32" to 1/8".

See specs. page 11 for use with CNX connectors.

**SOCKET:** 3mm .130" OD trim leads from base of LED to a length of .400" (10.16mm) for all panel thicknesses.  
5mm .230" OD trim leads from base of LED to a length of .350" (8.89mm) for all panel thicknesses.

#### ORDERING CODE

<b>MODEL</b>	<b>CMC</b>	<b>285</b>	<b>BLK</b>	<b>COLOR</b>
SMC 130 (3mm MOUNT)				BLK Black
CMC 285 (5mm MOUNT)				CTP Clear
RNG 132 (RING)				
RNG 268 (RING)				

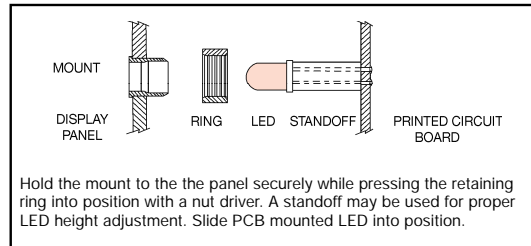
**VERSATILITY** – Clipmount provides a method of displaying PCB or panel mounted LEDs on a display panel. These mounts are available in either black or clear allowing an LED viewing angle of up to 180 degrees. Mounts are available for both 3mm and 5mm LEDs.

**BRIGHTNESS** – Clipmount provides direct viewing of the LED. Mono and multicolor LEDs as well as infrared and photo-detection devices can be mounted in this manner. This design also permits use of either diffused or non-diffused LEDs.

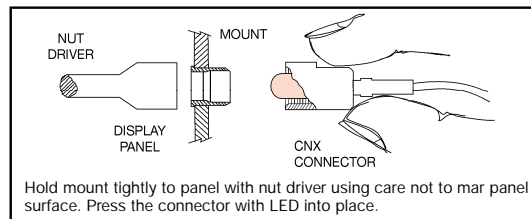
**APPLICATION** – Clipmount permits the panel display of a PCB mounted LED without its physical attachment to the front panel. This mount enables the use of interconnects between display panels and circuit boards.

**INSTALLATION** – Clipmounts are easily installed for PCB mounted LEDs. Simply slide mount thru a 9/32" panel hole and press retaining ring into place. The LED is now able to slide in and out of mount without its physical attachment to front panel. For interconnect applications, hold mount tightly to panel with a nut driver and press connector with LED on from rear.

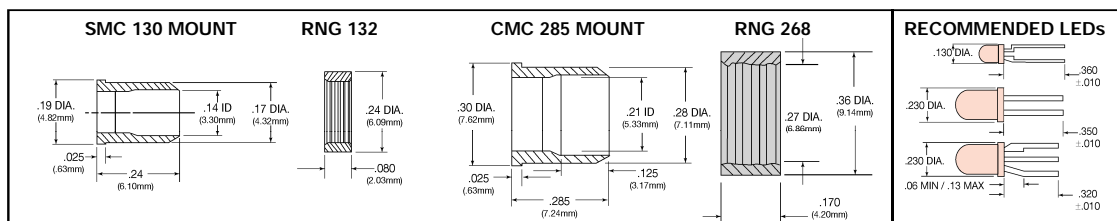
#### PRINTED CIRCUIT BOARD ASSEMBLY



#### INTERCONNECT CABLE ASSEMBLY

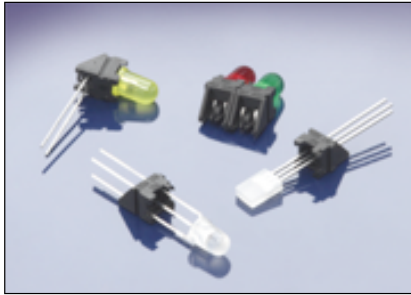


#### OUTLINE DRAWING



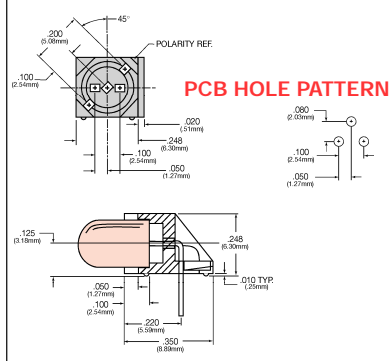
# P-C-LITE/ CLIPMOUNT®

**VISUAL COMMUNICATIONS  
COMPANY, INC.**  
7920-F Arjons Dr., San Diego, CA 92126  
In CA (858) 549-6900 (800) 522-5546  
FAX (858) 549-3520 www.vcclite.com



U.S. & For. Pat. Issued & Pend.

## OUTLINE DRAWINGS

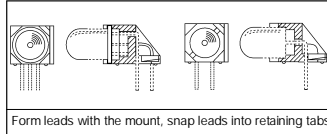


## PCB MOUNT FOR BI/TRI-LEAD LEDs

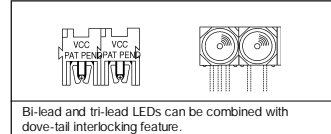
### FEATURES

- Right angle PCB mount for bi and tri-lead LEDs for use as logic and diagnostic indicators.
- Accommodates round and rectangular shapes of LEDs with or without flanges.
- Dove-tail interlock feature allows mounting of both mono and multi-colored LEDs.
- Mount forms LED leads which are locked into position by retaining tabs.
- Formed LED leads are staggered in their length permitting easier PCB insertion.
- Molded standoffs permit the easy cleaning of PCB after wave soldering operation.

### PCB MOUNTING OF BI & TRI-LEAD LEDs



### PCB MOUNTING OF LEDs IN ARRAYS



### SPECIFICATIONS

**MATERIALS:** Housing - Thermoplastic (black)  
U.L. 94 V0.

**MOUNTING:** PCH 175 - Right angle thru-hole mount for LEDs. Can be used as a single LED mount or banded together in an array with its dove-tail interlocking feature.

When banded together with the PCH 175 the LEDs are on .250" centers.

**LED:** 5mm size - round or rectangular shape with or without flange. Bi-lead, standard .100" lead spacing. Tri-lead, either .050" or .100" lead spacing. Both the bi-lead and tri-lead LEDs can also be combined in arrays with one another.

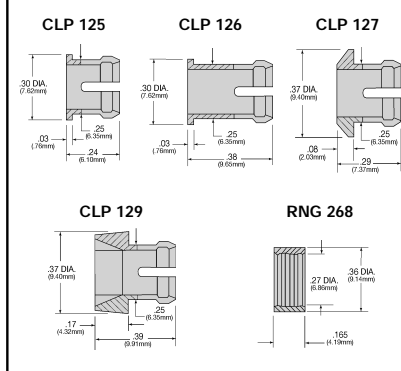
### ORDERING CODES

**MODEL** \_\_\_\_\_ **PCH 175**



U.S. & Foreign Pat. Pend.

## OUTLINE DRAWINGS

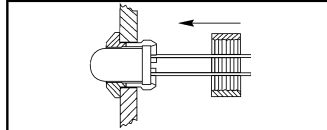


## CLIPMOUNT® LED MOUNTING CLIPS

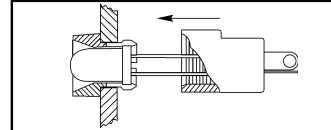
### FEATURES

- Universal, used for mounting all standard 5mm LEDs.
- Low cost installation method for panel mounting LEDs.
- Styles include inner/outer reflector, standard clip, (short and extended).
- Accommodate panel thickness ranging from .032" to .250".
- LEDs are replaceable when mount is used with Conxrite socket
- Various styles of Clipmounts vastly increase the engineer's range of selection.

### CLIPMOUNT WITH RING



### CLIPMOUNT WITH CONXRITE



### SPECIFICATIONS

**MATERIAL** Clip - Polycarbonate, Ring - Polypropylene (U.L. Listed Materials).

**DESIGN** Style - Inner, outer reflector, standard clip, (short and extended).

**MOUNTING:** Mount thru front of panel. Mounting holes should be deburred but not chamfered. Hole size .250" (6.35mm), holes on 3/8" centers.

Panel thickness for CLP 125, 127 & 129, 1/32" to 1/8". For CLP 126, 1/8" to 1/4". Complete assembly using RNG 268. Clipmounts CLP 125, 127 & 129 with CONXRITE, maximum panel thickness .110". With CLP 126, maximum .250" panel thickness.

**LEDs:** 5mm standard or low profile, diffused or non-diffused.

### ORDERING CODES

**MODEL** \_\_\_\_\_ **CLP 125 BLK**

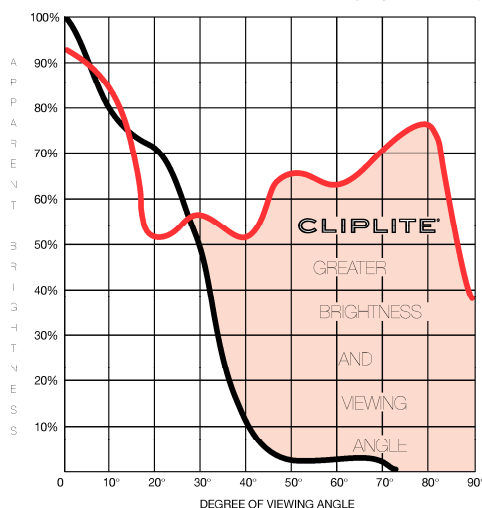
CLP 125 Standard clip  
CLP 126 Extended clip  
CLP 127 Outer reflector clip  
CLP 129 Inner reflector clip  
RNG 268 retaining ring

**COLOR** \_\_\_\_\_  
BLK Black only

## BRIGHTNESS COMPARISON VCC's LED LENS MOUNTS vs EXPOSED LEDs

USING A POINT SOURCE LED

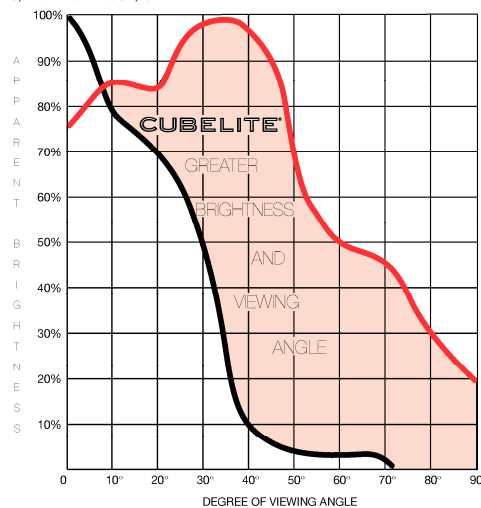
INDEPENDENT TEST CONDUCTED BY  
INSTRUMENT DEVELOPMENT ENGINEERING ASSOCIATES, INC. MONTROSE, CA



CLIPLITE INCREASES OVERALL  
LED VISIBILITY BY MORE THAN 125%

— CLIPLITE

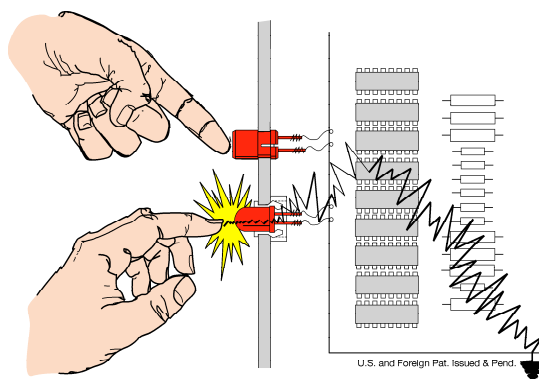
— EXPOSED LED



CUBELITE INCREASES OVERALL  
LED VISIBILITY BY MORE THAN 140%

— CUBELITE

— EXPOSED LED



# STATIC SHIELD

## LED LENS MOUNTS PROTECT ICs UP TO 16 KV

By simply walking across a carpeted floor a person can generate 10,000 volts of electrostatic discharge (ESD). Tests reveal that an exposed panel mounted LED can permit transmission of ESD onto PC boards at a level as low as 7 KV, resulting in faults and catastrophic failures of ICs and other semi-conductor components.

Visual Communications Company offers you protective lens and mounting devices for LEDs to combat ESD, (**Cliplite & Cubelite**). Tests using these devices show that transmission of ESD does not occur until 15-16 KV is reached. This is a level sufficiently high enough to provide protection against electrostatic discharge.