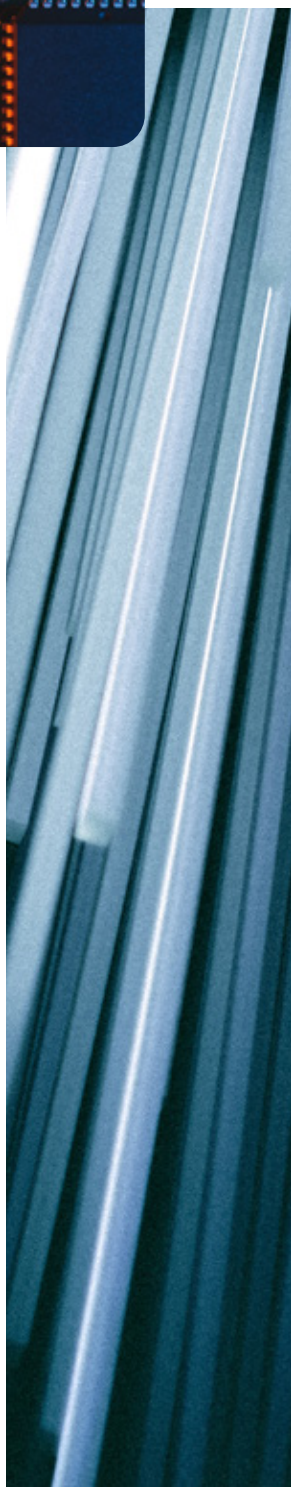
wamco

ELECTRONICS
CAPABILITIES

LEDs • Indicators • Miniature Lamps • Modules • Optoelectronics

ABOUT WAMCO

Trusted and leading provider of lighting solutions to aerospace, automotive, and industrial electronics markets globally.



Established in 1968 as a U.S. supplier of lighting to the Aerospace market. Over the past 50+ years, Wamco's ingenuity and forward thinking vision steadily brought the company much deserved growth and in the early 90's Wamco began offering LEDs to multiple market segments. Wamco excels by constantly engineering and expanding its LED product portfolio to meet the unique needs of every client in every market.

Today, Wamco serves its customers with offices in Asia and North America(HQ). Wamco's innovative ideas and designs makes us a highly valuable resource in solving difficult lighting and optoelectronic challenges. Our reputation for quality is based on understanding lighting technologies, unique applications, and most importantly the specific needs of each customer. Our expertise and history has made Wamco the trusted lighting solutions partner.

ELECTRONICS CAPABILITIES

Wamco has the engineering capabilities to take products from concept to commercialization. Our solutions and performance driven team allow us to design, engineer, and manufacture high quality products that incorporate technology innovations in lighting, optics, optoelectronics, and so much more.

- In House Design
- Prototype Development
- Lighting Design & Development
- Reverse Engineering Services
- Obsolescence Solutions
- Life Cycle Sustainment Support

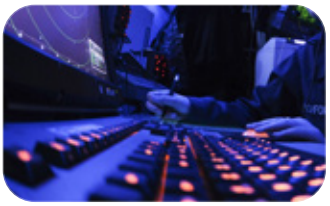
PAGE 6

Panel Mount Indicator Lights

PAGE 7

Metric LED Panel Mount Indicators

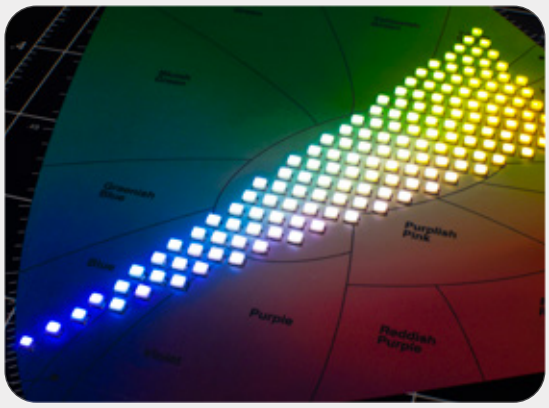
PAGE 8



LED Miniature Lamps

PAGE 9

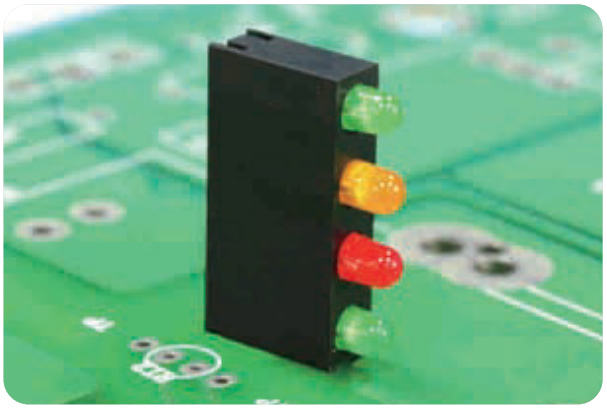
LED Modules & LED Sticks



PAGE 10

Color Corrected LEDs (Booted LEDs)

PAGE 11



Optoelectronics

PANEL MOUNT INDICATOR LIGHTS

Wamco offers a variety of panel mount indicators utilizing incandescent, LED, and neon technology. These indicators come in numerous combinations of colors, voltages, terminals, bezels, and lens types. Our indicators are built to last in industrial environments and ideal for use in commercial and industrial machinery, instrument panels, industrial vehicles, and many other applications.

Available in various colors:

Part Series	Mounting Hole (in.)	Technology	Lens Type	Mounting		Operating Voltage			Termination		
				Snap Fit Mount	Hardware Mount	Low Voltage [1]	Line Voltage [2]	High Voltage [3]	Wire Leads [4]	Quick Terminals [5]	Splash Proof NEMA 3-R
WL-2191(Q)Lx	0.31	LED	High-Hat	●		●			●	●	
WL-2191Ux	0.31	LED	Dome	●		●			●		
WL-2194(Q)Ax	0.31	Incandescent	High-Hat	●		●			●	●	
WL-2195(Q)Ax	0.31	Incandescent	Low Profile	●		●			●	●	
WL-211xAx	0.31	Neon	Low Profile	●			●		●		
WL-215x(Q)Ax	0.31	Neon	High-Hat	●			●		●	●	
WL-6091(Q)Mx	0.38	LED	Dome		●	●			●	●	●
WL-601x(Q)Mx	0.38	Neon	Dome		●		●		●	●	●
WL-1091(Q)Mx	0.50	LED	Dome	●		●	●		●	●	
WL-6391Q2Mx	0.50	LED	Dome		●	●				●	●
WL-6391Q2Cx	0.50	LED	High Hat		●	●				●	●
WL-1090(Q)DXLx	0.50	LED	Low Profile	●		●			●	●	
WL-6391Q2Dx	0.50	LED	Low Profile		●	●				●	●
WL-1090(Q)Ax	0.50	Incandescent	Dome	●		●			●	●	
WL-1090(Q)Cx	0.50	Incandescent	High-Hat	●		●			●	●	
WL-1090(Q)Dx	0.50	Incandescent	Low Profile	●		●			●	●	
WL-105x(Q)Ax	0.50	Neon	Dome	●			●		●	●	
WL-106xCx	0.50	Neon	High Hat	●			●	●	●		
WL-105x(Q)Cx	0.50	Neon	High-Hat	●			●		●	●	
WL-103x(Q)Dx	0.50	Neon	Low Profile	●			●		●	●	
WL-106xDx	0.50	Neon	Low Profile	●			●	●	●		
WL-557x(Q)	0.69	LED	Low Profile		●	●	●		●	●	●
WL-102(0)(1)Q2Dx	.375 x 1.28	Incandescent	Low Profile	●		●				●	
WL-102(2)(3)Q2Dx	.375 x 1.28	Neon	Low Profile	●			●			●	

Notes:

1. Low voltage: 6V, 12V, 24V
2. Line voltage: 105-125V, 208-250V AC 50~60Hz
3. High voltage: 432-528V, 540-660V AC 50-60Hz
4. Wires leads: 18 AWG, 6"" length with 1/2"" strip are standard
5. Quick terminals: .187"" or .250"" Faston terminals are standard

- Consult individual part series datasheets for detailed product information

RoHS compliant

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METRIC LED PANEL MOUNT INDICATORS

Wamco offers a variety of LED indicators available in numerous, styles, sizes, voltages, and color options. Our indicators are built to last in industrial environments and provide brilliant indication while lowering maintenance costs. Ideal for use in commercial and industrial machinery, appliances, instrument panels, industrial vehicles, and many other applications.

Available in various mono colors:

		Color(s)				Voltage			
Part Series	Mounting Hole (mm) [1]	Bezel Type [2]	Technology	Sunlight Visible	Mono Color	Bi-Color (R/G)	Tri-Color (R/Y/G)	Low Voltage [3]	DC	DC / AC	Ingress Protection
WL-1900x	6	Superflat	LED		●			●	●		
WL-1901x	8	Superflat	LED		●			●	●		IP67
WL-1904x	8	Prominent	LED		●			●	●		IP67
WL-1905x	8	Recessed	LED		●			●	●		IP67
WL-1908x	8	Prominent	LED	●	●			●		●	IP67
WL-1909x	8	Recessed	LED	●	●			●		●	IP67
WL-1914x	8	Prominent	LED	●		●		●	●		IP67
WL-1915x	8	Recessed	LED	●		●		●	●		IP67
WL-19TRx	8	Prominent	LED				●	●	●		IP67
WL-1921x	14	Standard	LED		●			●	●		IP67
WL-192Ax	14	Standard	LED	●	●			●		●	IP67

Notes:

1. Mounting: secured using supplied gasket, spring washer, and nut
2. Bezel finish: available in satin chrome, black chrome, and matte chrome finish
3. Low voltage: 12V, 24V, 28V
4. Quick terminals: 2.8mm terminals are standard for 8mm and 14mm indicators; 2.0mm terminals are standard for 6mm indicators

- Consult individual part series datasheets for detailed product information

RoHS compliant

LED MINIATURE LAMPS

Designed and constructed to allow for direct replacement of many industry standard incandescent lamps. These lamps can be purchased in many different combinations including color, voltage and base type. In addition, these high brightness devices last up to ten times as long as their traditional counterparts.

Available in various mono colors:

Part Series	Bulb Size	Base Type	LED Light Source: High Brightness	LED Light Source: Number of LEDs	LED Light Source: Multi-Chip [1]	Voltage: Low Voltage [2]	Voltage: Line Voltage [3]	Voltage: DC	Voltage: DC / AC	Voltage: AC
WL-1500x	T1	SMF		1		●		●		
WL-15015x	T1	Bi-Pin		1		●			●	
WL-15101x	T1¾	MF SX6s	●	1		●		●		
WL-1510Mx	T1¾	MF SX6s		1	●	●			●	
WL-15121x	T1¾	MG S5.7s	●	1		●			●	
WL-1506Mx	T2	PSB Tel Slide		1	●	●	●		●	
WL-15071x	T2	Tel Slide		1		●			●	
WL-15071x(UC)	T2	Tel Slide	●	1		●			●	
WL-18602x	T3¼	BA9s		1		●			●	
WL-18606x	T3¼	BA9s		1			●			●
WL-1860Mx	T3¼	BA9s		1	●	●	●		●	
WL-18620x	T3¼	BA9s	●	3		●			●	
WL-18626x	T3¼	BA9s	●	3			●			●

Notes:

1. Multi-chip: construction includes multiple LED dice to ensure low level, uniform backlighting of illuminated switches and push buttons
2. Low voltage: 12V, 24V, 28V
3. Line voltage: 105-125V, 208-250V AC 50~60Hz

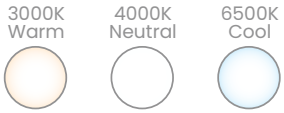
- Consult individual part series datasheets for detailed product information

RoHS compliant

LED MODULES

High reliability, high energy efficiency solid-state line of LED products transform the lighting world, indoors and outdoors. Suitable for a broad spectrum of lighting applications including architectural, commercial, indoor and outdoor decorative, and signage --- to name a few.

Color temperatures typically available:



Part Series	Size(mm)	Wattage	Beam Angle	LED Light Source: Red	LED Light Source: Blue	LED Light Source: White	Voltage: 12V DC	Voltage: 24V DC	Lighting Type: Backlight	Lighting Type: Edgelight	Lighting Type: High Brightness
WL-BFL333x	55 x 13	0.66W	160°	●	●	●	●		●		
WL-BFL333x(HO)	55 x 13	1.00W	160°			●	●		●		●
WL-BFL366x	37 x 35	1.00W	160°			●	●		●		
WL-BFL359x	62 x 23	1.60W	160°			●		●	●		
WL-BFL358x	62 x 23	1.92W	18° x 70°			●		●		●	
WL-BFL357x(H03)	275 x 32	7.5W	10° x 50°			●	●			●	●
WL-BFL357x(H06)	539 x 32	15W	10° x 50°			●	●			●	●
WL-BFL357PCBx(H03)	236 x 23	7.5W	10° x 50°			●	●			●	●
WL-BFL357PCBx(H06)	500 x 23	15W	10° x 50°			●	●			●	●
WL-BFL130x (LED Ball)	Ø40 x 59	1.7W	10° x 50°			●		●			

Notes:

1. Consult individual part series datasheets for detailed product information

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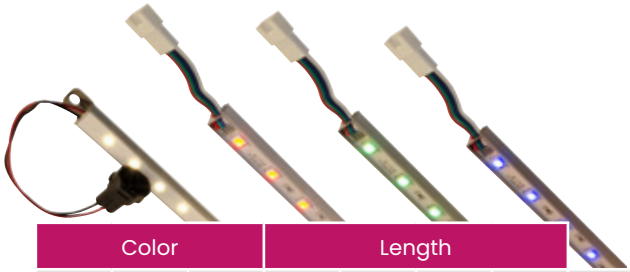
LED STICKS



Designed for a multitude of direct and indirect lighting applications such as building alcoves, shelves, side lighting of sign panels, and many more. These devices provide many advantages including brilliant light output, significant energy savings, and reduced maintenance costs.

Part Series	Voltage (V)	Wattage	Beam Angle	Color: White 3000K	Color: White 6000K	Color: RGB	Length: 300mm	Length: 600mm	Length: 900mm	Length: 1200mm	IP65
WL-B05Gx	24V DC	3W ~ 12W	120°			●	●	●	●	●	
WL-B05Ix	24V DC	3W ~ 12W	120°	●	●		●	●	●	●	●

Notes:

- Consult individual part series datasheets for detailed product information

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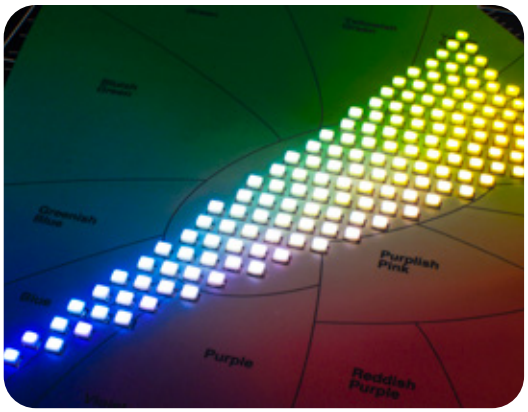
COLOR CORRECTED LEDs (BOOTED LED)

Booted LEDs provide a unique solution to an age-old problem of meeting stringent color requirements in the aerospace industry. By meeting precise color coordinates, Wamco helps reduce labor costs associated with "fine-tuning" or "balancing" lighted panels, keyboards, switches and indicators. Stability coupled with the high reliability of LED technology in shock and vibration environments make Wamco's booted LEDs an ideal choice for many applications.



OVER **1000 COLOR VARIATIONS** POSSIBLE

BENEFITS & FEATURES

- Color chromaticity is color tuned per specific customer requirements
- Can achieve colors not normally available with traditional white or colored LED technology
- Strict color control; typically ± .02 for x & y color coordinates
- Strict brightness control (± 18%) available for some package styles
- Typically provided in a single color and intensity bin per part number
- High CRI (95 typical) in white color space
- Excellent color and brightness stability
  Solid state reliability

Part Series	Package Size (mm)	Package Type	Technology	Forward Current (I_F)	Forward Voltage (V_F)	Luminous Intensity (I_V) [1]
WL-L2021Bx	2.4 x 1.8 x 1.6	Compact	LED	5mA	2.9V	170 mcd
WL-L2031Bx	2.4 x 1.8 x 1.0	Low profile	LED	10mA	3.1V	270 mcd
WL-L2032Bx	2.4 x 1.8 x 1.0	Low profile	LED	20mA	3.2V	710 mcd
Wl-L2033Bx	2.4 x 1.8 x 1.0	Low profile	LED	30mA	3.0V	1400 mcd
WL-L2030Bx	3.8 x 3.4 x 2.3	Standard	LED	10mA	3.1V	350 mcd
WL-L2027Bx	3.8 x 3.4 x 2.3	Standard	LED	20mA	3.1V	700 mcd
WL-L2034Bx	3.8 x 3.4 x 2.3	Standard	LED	30mA	3.4V	1400 mcd
WL-L2035Bx	3.8 x 3.4 x 2.3	Standard	LED	50mA	2.9V	4500 mcd
WL-L2040Bx	3.4 x 3.4 x 1.1	Low profile	LED	150mA	3.2V	33 Lumens

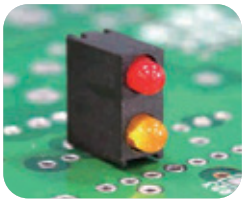
Notes:

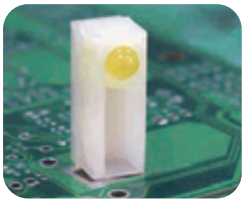
1. Luminous Intensity values are for reference only and are dependent upon color chromaticity
- Consult individual part datasheets for detailed product information

OPTOELECTRONICS

LED Printed Circuit Board Indicators (PCBI)

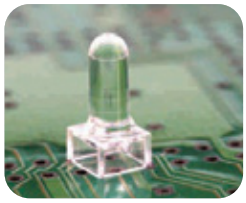
Our broad range of LED PCB indicators are ideally suited for key markets including; aerospace, automotive, appliance, communications, industrial, medical and military. Available in many standard sizes, arrays, and configurations in a variety of LED colors, LED sizes, and termination options. Custom solutions may also be developed upon request.





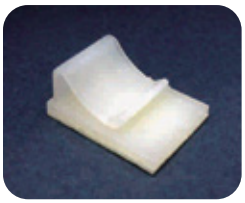
LED Holders and Optical Light Pipes

Our Optical Light Pipes are designed to achieve bright and even illumination with superior aesthetics. Available in many standard configurations in a variety of sizes, lengths, and colors to fit many applications.



Hardware, Wire & Cable Management

Thousands of electronic hardware, wire and cable management components available to support efficient device and instrumentation assembly. Products include; PCB spacer, PCB supports, handles, grommets, bushings, cable clips, routing clamps, PCB terminals, PCB contacts, cable sleeving, heat shrink, cable glands, IP68 rated cord grips, and many others. We can cross product from multiple manufacturers or support a completely new development program.



Thousands of Options Available

NOT FINDING WHAT YOU ARE LOOKING FOR?

FOR A COMPLETE PRODUCT LIST CONTACT US AT +1 (714) 545-5560 or VISIT **WAMCOINC.COM**

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