



## Lighting & Indicators

Banner offers a wide variety of lighting and indicator solutions, including LED lighting, signal tower lights, indicators, touch buttons and pick-to-light indicators. With flexible designs, high-quality and energy-efficient LED products, Banner's lighting and indication selection offers a unique solution that suits many environmental, workplace efficiency and mounting needs.

# LIGHTING & INDICATORS

---

LED LIGHTING **page 384**

SIGNAL TOWER LIGHTS **page 412**

INDICATORS **page 434**

TOUCH BUTTONS **page 468**

PICK-TO-LIGHT **page 482**

# Light Up the Visual Factory

Enhance your Visual Management Efforts with Banner's Lighting and Indicators.



## Illuminate the Work Area with LED Lighting

- Boost Worker Productivity
- Improve Product Quality
- Reduce Energy Costs

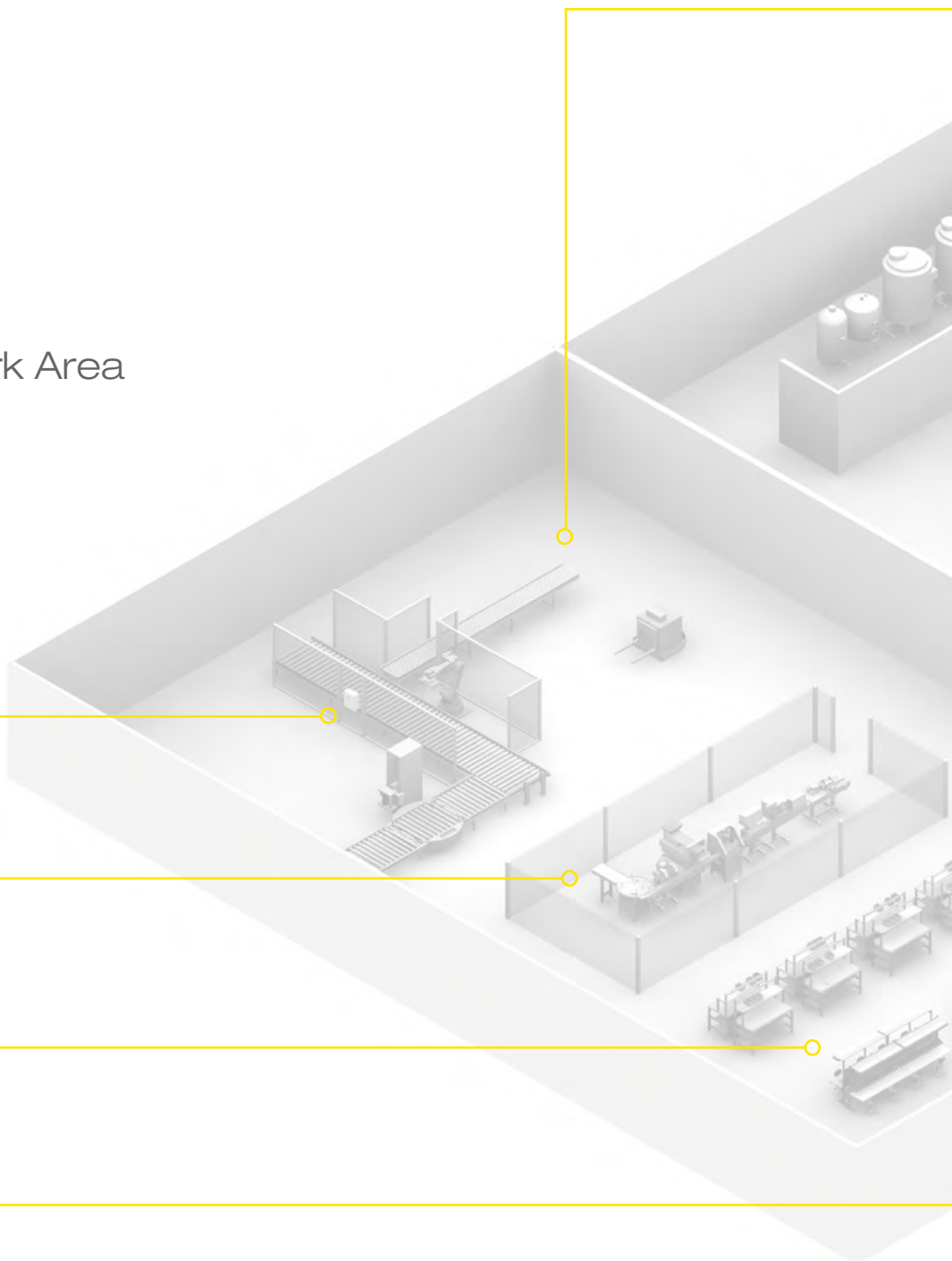
Electrical Panel Lighting

Machine Lighting

Workstation Lighting

Visual Inspection Station

Sensor Emulation



## Communicate Status

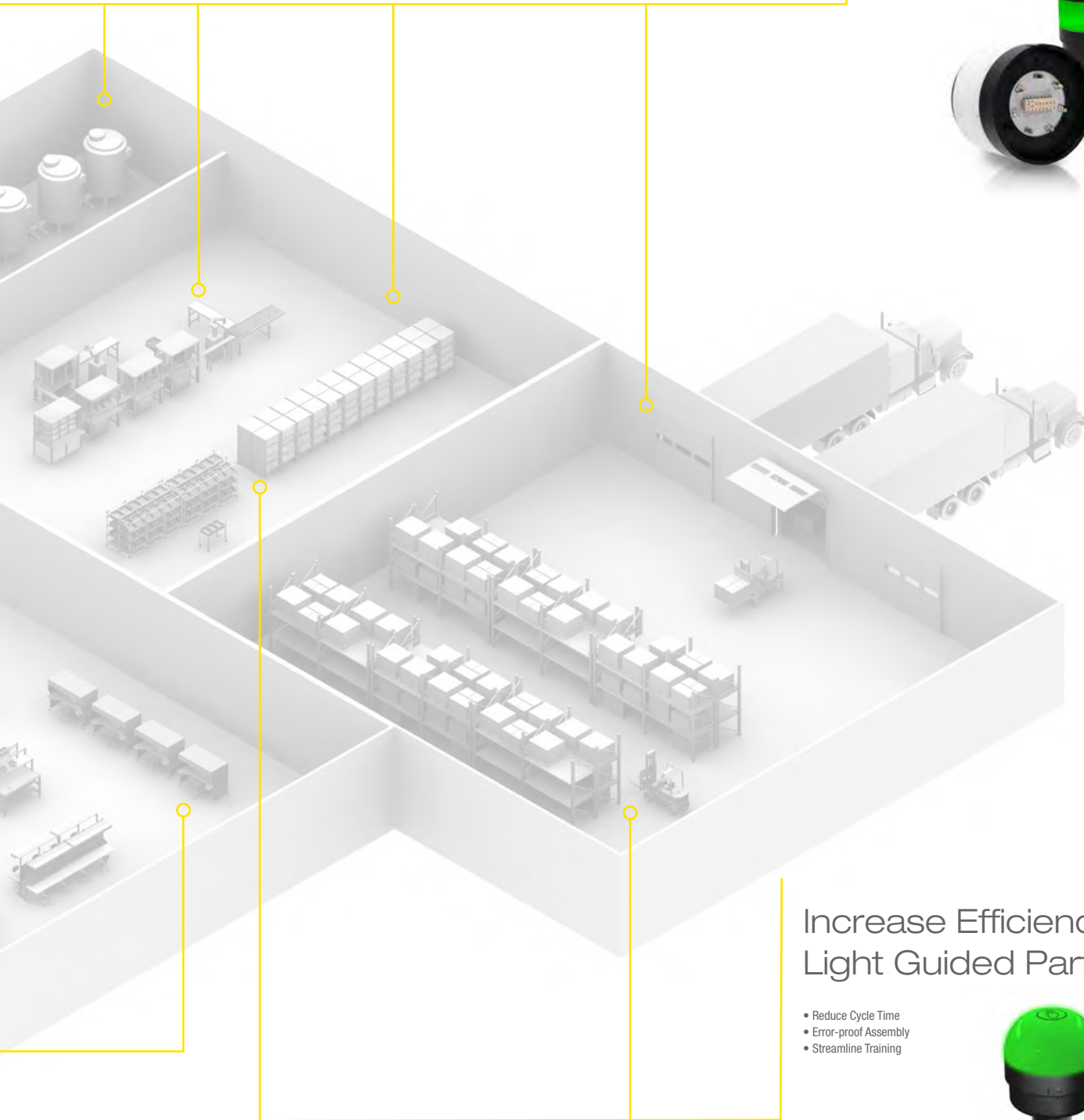
- Empower Operators
- Alert Supervisors
- Accelerate Resolution



Machine and  
Process Status

Call for  
Parts

Loading Dock/Bay  
Communication



Pick-to-Light for  
Assembly and Kitting

Pick-to-Light for  
Warehouse and Logistics

## Increase Efficiency with Light Guided Part Picking










- Reduce Cycle Time
- Error-proof Assembly
- Streamline Training





## LED Lighting

Banner's LED lighting offers high-quality, energy-efficient products that provide bright illumination for up to 50,000 hours. Robust, vibration-resistant housings and sleek designs make Banner's LED lighting ideal for a wide range of industrial and mobile applications, including machine lighting, enclosure lighting, visual inspection illumination and work cell lighting.

Series	Description	Available Colors	Dimensions (L x W x D)	Housing Material	Power Supply
	<b>WLS28-2</b> Banner's LED Strip Light has a sturdy aluminum housing, shatterproof window and a low-profile, space-saving design. page 386	Cool White Warm White Red Green Blue Yellow UV365 UV395	Length varies by model <b>Unlensed:</b> 21 x 28 mm <b>Lensed:</b> 32.2 x 28 mm	Clear anodized aluminum	12 to 30 V dc
	<b>WLS15</b> Banner's LED Strip Light has a low-profile, space-saving design and is perfect for cabinet lighting. page 390	Daylight White Cool White	Length varies by model 30.6 x 15.5 mm	Clear anodized aluminum inner housing	12 V dc or 24 V dc
	<b>WLB32</b> Banner's WLB32 is a bright LED fixture that features an even light output for a no glare 'glow.' page 392	Daylight White	Length varies by model 32 x 46 mm	Anodized aluminum	12 to 30 V dc, 90 to 264 V ac
	<b>WLB92</b> Banner's WLB92 is an ultra-bright LED fixture that features an even light output. page 394	Daylight White Warm White Red Green Blue Yellow	Length varies by model 97.4 x 103.6 mm	Anodized aluminum	24 V dc, 100 to 277 V ac
	<b>WLS27</b> Protected by a shatterproof copolyester shell and a redundant sealing method prevents water ingress. Each strip light provides brilliant, even illumination. page 396	Cool White Warm White Red Green Blue Yellow UV395	Lighted length varies by model ø 27 mm	FDA-grade copolyester outer housing	12 to 30 V dc
	<b>WLC60</b> The WLC60 Heavy-Duty LED Light is engineered to withstand harsh environments making it the first choice for a machine lighting solution. page 398	Cool White	<b>Base mount:</b> (339 or 638) x 60.9 x 31.3 mm  <b>Flush mount:</b> 367 x 88 x 30.8 mm	Nickel-plated aluminum or 316 Stainless Steel	12 to 30 V dc
	<b>WLC90</b> Extremely compact and bright, making them an excellent choice for machining centers and food processing equipment. page 400	Cool White	89.0 x 91.0 x 28.2 mm	Nickel-plated aluminum	12 to 30 V dc
	<b>WLA</b> Area Lights provide high intensity, uniform light with low energy consumption and a small footprint. page 402	Cool White Warm White Red Green Blue Yellow	Length varies by model 25.8 x 180.1 mm	PBT	12 to 30 V dc
	<b>WL50S</b> These lights are rugged and water-resistant, making them a good choice for machine lighting, food and beverage applications and mobile applications. page 404	Cool White, Green, Red	<b>WL50S:</b> 65.8 x ø 50 mm <b>WL50S (stainless):</b> 71 x ø 56 mm	<b>WL50S:</b> Black anodized aluminum  <b>SS models:</b> Stainless Steel	12 to 30 V dc





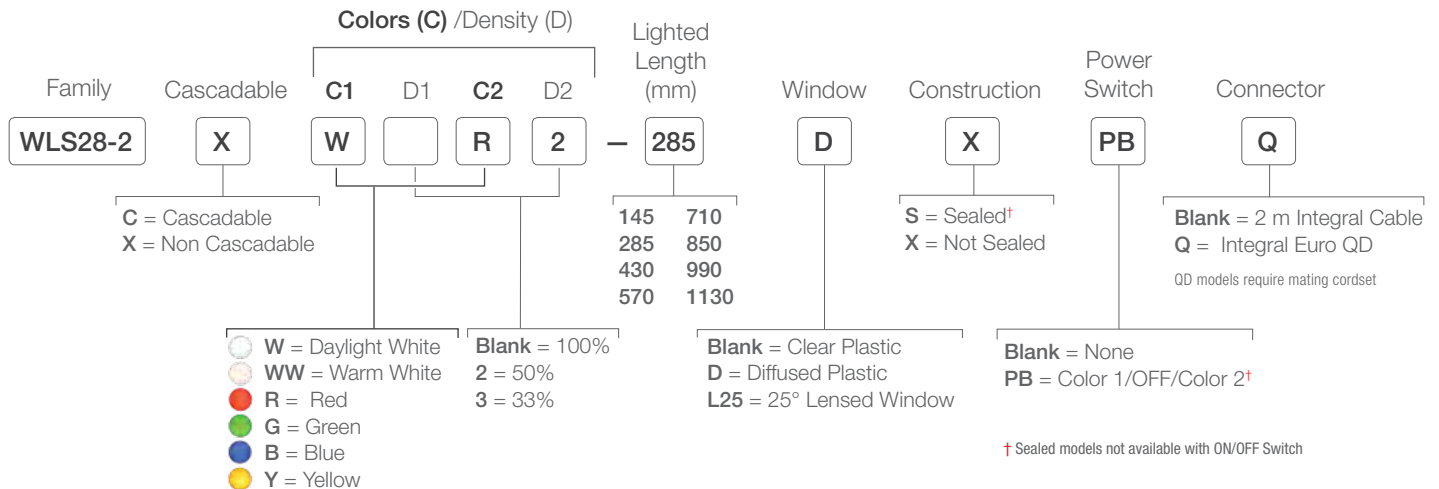
# WLS28-2 Series

## LED Strip Lights

- Sturdy aluminum housings, shatterproof windows and a low-profile, space-saving design
- Enhanced light quality with bright, densely-spaced LEDs (8 color options available)
- Rugged, water-resistant IP69K models
- Magnetic mount options available for easy installation
- Can be cascaded end-to-end to minimize wiring
- Dimmable models available see page 408

### Dual-Color WLS28-2

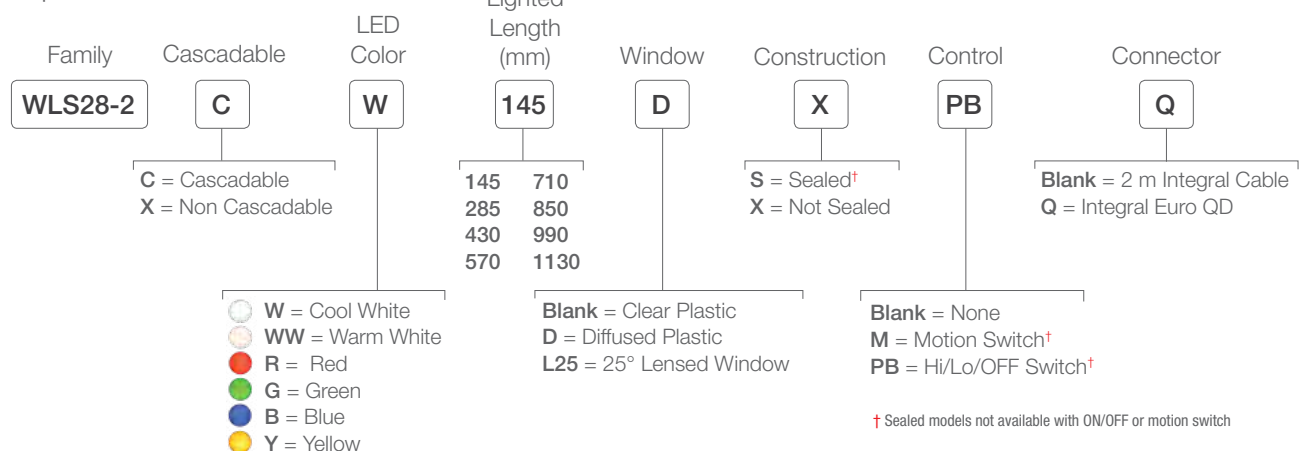
Example Model Number: WLS28-2XWR2-285DXPBQ



† Sealed models not available with ON/OFF Switch

### 1 -Color WLS28-2

Example Model Number: WLS28-2CW145DXPBQ



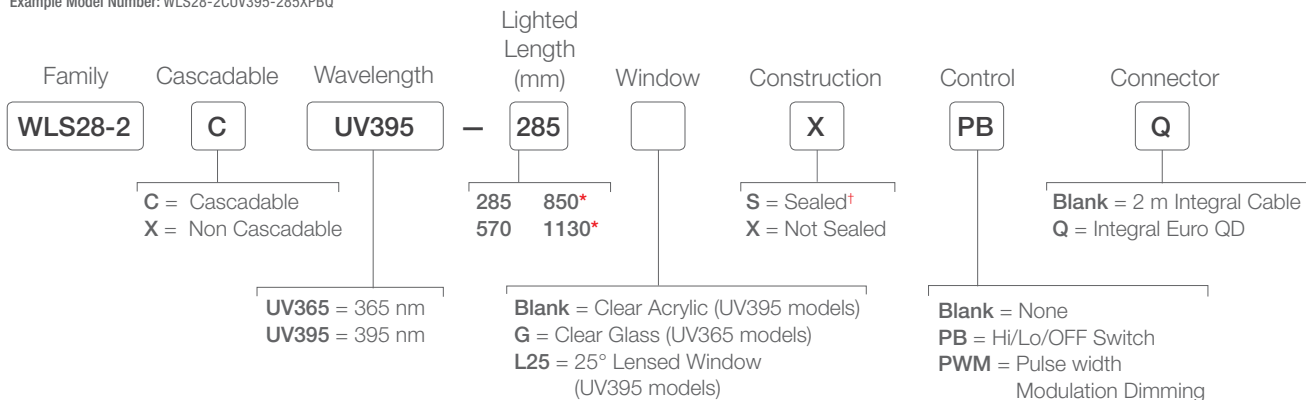
† Sealed models not available with ON/OFF or motion switch

For more specifications see page 389.

 Connection options: A model with a QD requires a mating cordset

## UV WLS28-2

Example Model Number: WLS28-2CUV395-285XPBQ



\* Not available in UV365 models

† Sealed models not available with ON/OFF Switch

For more specifications see page 389.

 Connection options: A model with a QD requires a mating cordset

## Euro-Style

Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number (example,  
**MQDC-406RA**)



## 4-Pin

**MQDC-406**  
2 m (6.5')  
**MQDC-415**  
5 m (15')  
**MQDC-430**  
9 m (30')

## Euro-Style QD Double-Ended



## 4-Pin Straight/Straight

**MQDEC-401SS**  
0.31 m (1')  
**MQDEC-403SS**  
0.91 m (3')  
**MQDEC-406SS**  
2 m (6.5')  
**MQDEC-412SS**  
3 m (12')  
**MQDEC-420SS**  
6 m (20')  
**MQDEC-430SS**  
9 m (30')  
**MQDEC-450SS**  
15 m (50')

## 4-Pin Straight/Right-Angle

–  
**MQDEC-403RS**  
0.91 m (3')  
**MQDEC-406RS**  
2 m (6.5')  
**MQDEC-412RS**  
3 m (12')  
**MQDEC-420RS**  
6 m (20')  
**MQDEC-430RS**  
9 m (30')  
**MQDEC-450RS**  
15 m (50')

## Euro-Style QD Splitter



## Length

Branches	Trunk
0 m	0 m
0.3 m	0 m
0.3 m	0.3 m
0.3 m	2.5 m
0.3 m	4.6 m
0.3 m	7.6 m
0.3 m	7.6 m

## 4-Pin

**CSB-M1240M1240**  
**CSB-M1240M1241**  
**CSB-M1241M1241**  
**CSB-M1248M1241**  
**CSB-M12415M1241**  
**CSB-M12425M1241**  
**CSB-UNT425M1241**

Additional cordset information is available.  
See page 758



SMBWLS28RA



SMBWLS28SM



**SMBWLSMAG**  
Set of magnets &  
screws



**SMBWLSMAGR**  
Protective cover to  
prevent scratches to  
painted surface



## PSD-24-4

Class 2 Power Supply  
Input: 90-264 V ac 1.5A  
Output: 24 V dc 3.9A  
2 m 4-Pin Euro

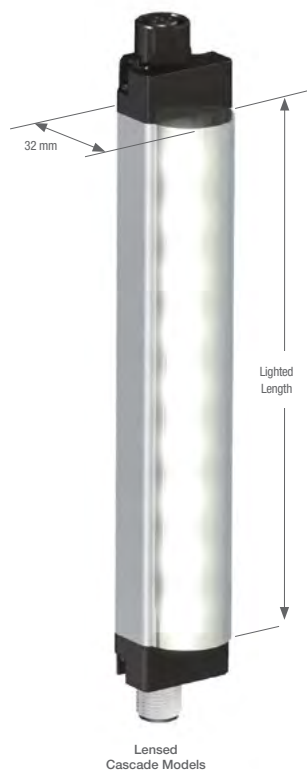
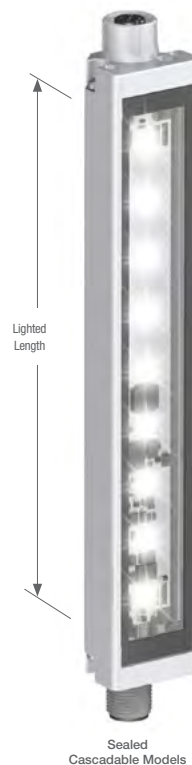


**WLS28-2PBQ**  
In-Line Switch with  
M12 connector






**WLS28-2MQ**  
In-Line Motion  
Detection Switch  
with M12 connector





## WLS28-2 Specifications

Supply Voltage and Current	12 to 30 V dc <b>Max. current per length:</b> 1-Color WLS28-2 (for Dual-color models, contact factory)										
	Lighted Length	12 V dc	24 V dc	30 V dc	Max. Current (A)	Lumens* (Typical @ 25° C)					
						Cool White	Warm White	Green	Red	Yellow	Blue
	145 mm	0.33 A	0.15 A	0.12 A	0.4	325	325	180	55	50	40
	285 mm	0.66 A	0.30 A	0.24 A	0.8	650	650	360	110	100	80
	430 mm	1.01 A	0.46 A	0.36 A	1.2	975	975	540	165	150	120
	570 mm	1.36 A	0.61 A	0.48 A	1.6	1300	1300	720	220	200	160
	710 mm	1.75 A	0.77 A	0.60 A	2.0	1625	1625	900	275	250	200
	850 mm	2.13 A	0.92 A	0.73 A	2.4	1950	1950	1080	330	300	240
	990 mm	2.59 A	1.08 A	0.85 A	2.8	2275	2275	1260	385	350	280
	1130 mm	3.04 A	1.24 A	0.97 A	3.2	2600	2600	1440	440	400	320
* Lumen values are reduced by 25% on diffuse window models											
Light Characteristics	<b>Color Temperature (CCT):</b> <b>1-Color: Daylight White:</b> 6,000–7,100 K <b>Warm White:</b> 2,850–3,250 K <b>Dual-Color: Daylight White:</b> 4,700–5,300 K <b>Warm White:</b> 2,850–3,250 K										
Construction	Clear anodized aluminum housing; painted zinc end caps; clear polycarbonate window; zinc plated steel brackets										
Mounting	(2) swivel brackets and (4) screws included										
Environmental Rating	IP50, IP67/IP69K										
Operating Conditions	<b>Temperature:</b> –40 to +70 °C <b>Storage Temperature:</b> –40 to +70 °C										
Application Notes	When connecting cascable lights in series it is important not to exceed maximum current limitations: Maximum length of light at 12 V dc = 1.5 m Maximum length of light at 24 V dc = 3.0 m Maximum length of light at 30 V dc = 3.1 m										
Certifications	  										



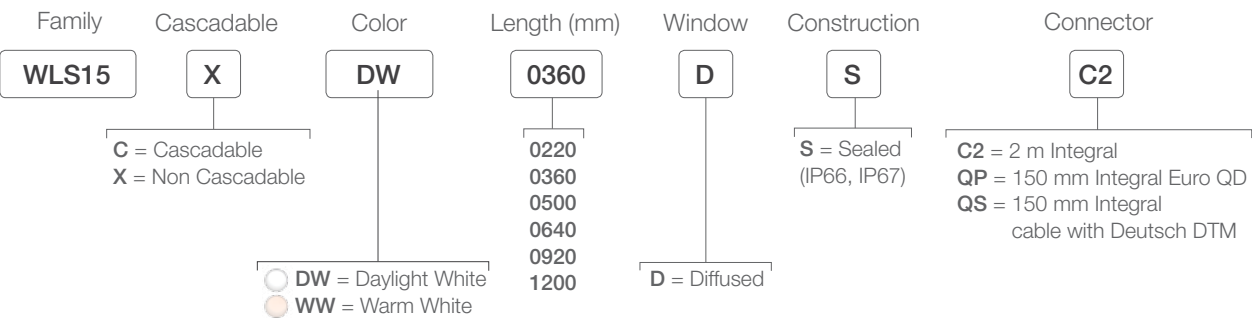
# WLS15 Series

## LED Strip Lights

- Low-profile space-saving design
- Rugged, water-resistant design
- Available in six lengths from 220 mm to 1200 mm
- Daisy chain power to multiple lights
- Optional snap clips for easy installation and repositioning
- Capability to dim lights using PWM input
- Operates on 12 V dc or 24 V dc in one model

### WLS15

Example Model Number: WLS15XDW0360DSC2



Connection options: A model with a QD requires a mating cordset

## TOUCH BUTTONS

## PICK-TO-LIGHT

**Euro-Style**

Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number (example,  
**MQDC-406RA**)

**4-Pin**

**MQDC-406**  
2 m (6.5')  
**MQDC-415**  
5 m (15')  
**MQDC-430**  
9 m (30')

**Euro-Style QD Double-Ended****4-Pin  
Straight/Straight**

**MQDEC-401SS**  
0.31 m (1')  
**MQDEC-403SS**  
0.91 m (3')  
**MQDEC-406SS**  
2 m (6.5')  
**MQDEC-412SS**  
3 m (12')  
**MQDEC-420SS**  
6 m (20')  
**MQDEC-430SS**  
9 m (30')  
**MQDEC-450SS**  
15 m (50')

**4-Pin  
Straight/Right-Angle**

**MQDEC-403RS**  
0.91 m (3')  
**MQDEC-406RS**  
2 m (6.5')  
**MQDEC-412RS**  
3 m (12')  
**MQDEC-420RS**  
6 m (20')  
**MQDEC-430RS**  
9 m (30')  
**MQDEC-450RS**  
15 m (50')

**Euro-Style  
QD Splitter****Length**

Branches	Trunk
0 m	0 m
0.3 m	0 m
0.3 m	0.3 m
0.3 m	2.5 m
0.3 m	4.6 m
0.3 m	7.6 m
0.3 m	7.6 m





**4-Pin**

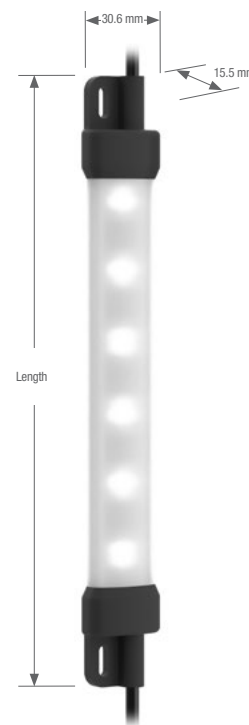
**CSB-M1240M1240**  
**CSB-M1240M1241**  
**CSB-M1241M1241**  
**CSB-M1248M1241**  
**CSB-M12415M1241**  
**CSB-M12425M1241**  
**CSB-UNT425M1241**

Additional cordset information is available.  
See page 758

**LMBWLS15****LMBWLS15-150S****LMBWLS15MAG**

## WLS15 Specifications

Supply Voltage and Current	12 V dc or 24 V dc nominal Absolute operational limits of 10 V dc to 15 V dc and 20 V dc to 27 V dc Use only with a suitable Class 2 power supply (UL) or a SELV power supply (CE) Light can be PWM dimmed between 25% to 100% with a frequency up to 1000 Hz						
	Light Length (mm)	Typical Current (A) at 25 °C		Maximum Current (A) at -40 °C		Lumens	
		12 V dc	24 V dc	12 V dc	24 V dc	Daylight White	Warm White
	0220	0.19	0.10	0.24	0.12	175	170
	0360	0.38	0.20	0.48	0.24	350	340
	0500	0.57	0.30	0.72	0.36	525	510
	0640	0.76	0.40	0.96	0.48	700	680
	0920	1.14	0.60	1.44	0.72	1050	1020
	1200	1.52	0.80	1.92	0.96	1400	1360
	Light Characteristics	Color Temperature (CCT): Daylight white: 5,000 K Warm white: 3,000 K CRI: 80 minimum					
Construction	Clear anodized aluminum inner housing; Polycarbonate outer housing, Polyamide end caps						
Mounting	Integral mounting slots for M4 (#8) screws, tighten to 5 in-lbf max torque Multiple bracket options available						
Environmental Rating	Rated IEC IP66 and IEC IP67 Suitable for wet locations per UL 2108						
Operating Conditions	Temperature: -40 to +70 °C Storage Temperature: -40 to +70 °C						
Application Notes	When connecting cascable lights in series it is important not to exceed maximum current limitations: Maximum length of light at 12 V dc = 2.4 m Maximum length of light at 24 V dc = 6 m						
Certifications	<div></div>						



# WLB32 Series

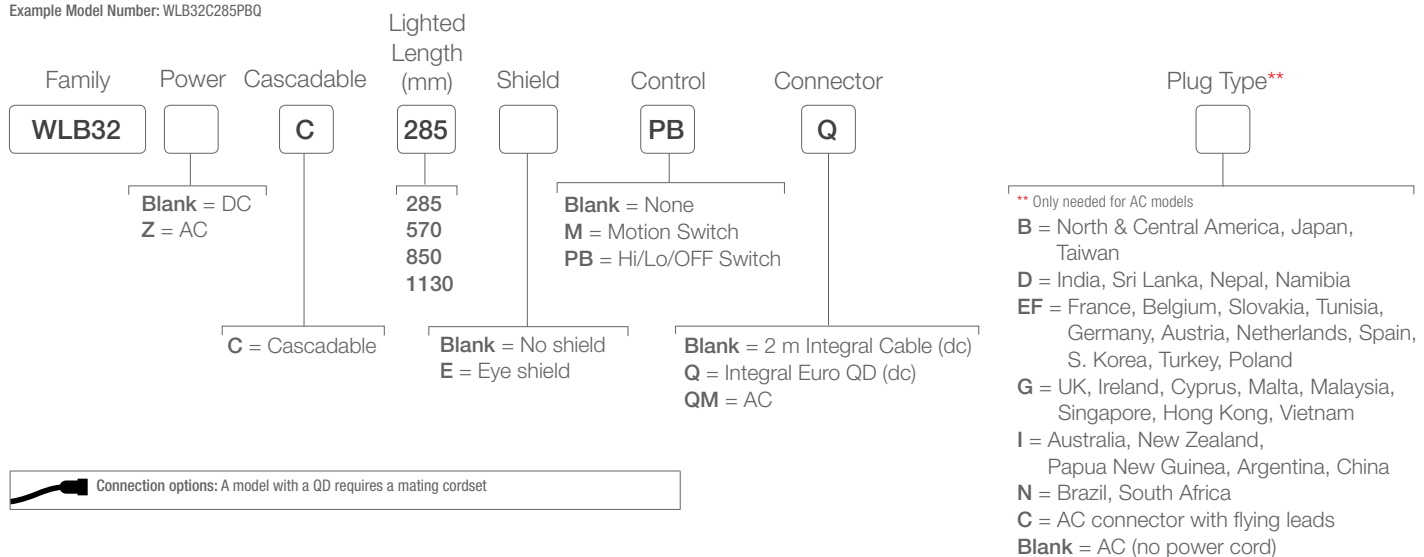
## LED Light Bar



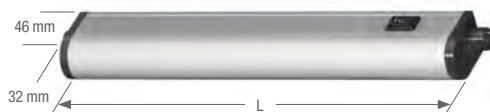
- Banner's WLB32 is an ultra-bright LED fixture that features an even light output for a no glare 'glow'
- Highly energy efficient for overall cost savings
- High/Low/OFF switch
- Daisy chain power to multiple lights
- Metal housing, shatterproof window
- Easy installation with snap clips, or a choice of magnetic or angle brackets

### WLB32

Example Model Number: WLB32C285PBQ



Connection options: A model with a QD requires a mating cordset



Length (L)	AC Models	DC Models
298 mm	WLB32ZC285PBQM	WLB32C285PBQ
580 mm	WLB32ZC570PBQM	WLB32C570PBQ
862 mm	WLB32ZC850PBQM	WLB32C850PBQ
1144 mm	WLB32ZC1130PBQM	WLB32C1130PBQ



## Cordsets for DC Models

**Euro-Style**

Straight connector models listed; for right-angle, add **RA** to the end of the model number (example, **MQDC-406RA**)

**4-Pin**

**MQDC-406**  
2 m (6.5')  
**MQDC-415**  
5 m (15')  
**MQDC-430**  
9 m (30')

**Euro-Style QD Double-Ended**  
For cascading**4-Pin**  
Straight/Straight

**MQDEC-401SS**  
0.31 m (1')  
**MQDEC-403SS**  
0.91 m (3')  
**MQDEC-406SS**  
2 m (6.5')  
**MQDEC-412SS**  
3 m (12')  
**MQDEC-420SS**  
6 m (20')  
**MQDEC-430SS**  
9 m (30')  
**MQDEC-450SS**  
15 m (50')

**4-Pin**  
Straight/Right-Angle

**MQDEC-403RS**  
0.91 m (3')  
**MQDEC-406RS**  
2 m (6.5')  
**MQDEC-412RS**  
3 m (12')  
**MQDEC-420RS**  
6 m (20')  
**MQDEC-430RS**  
9 m (30')  
**MQDEC-450RS**  
15 m (50')

**Euro-Style QD Splitter**

Length		
Branches	Trunk	
0 m	0 m	
0.3 m	0 m	
0.3 m	0.3 m	
0.3 m	2.5 m	
0.3 m	4.6 m	
0.3 m	7.6 m	
0.3 m	7.6 m	

**4-Pin**

**CSB-M1240M1240**  
**CSB-M1240M1241**  
**CSB-M1241M1241**  
**CSB-M1248M1241**  
**CSB-M12415M1241**  
**CSB-M12425M1241**  
**CSB-UNT425M1241**

## Cordsets for AC Models

**Double-Ended**  
NEMA 5-15 grounded  
(IEC Type B)

**LQMAC-306B**  
2 m (6.5')

**Straight/Straight**

**LQMAEC-3005SS**  
0.15 m (0.5')  
**LQMAEC-301SS**  
0.31 m (1')  
**LQMAEC-303SS**  
0.91 m (3')  
**LQMAEC-306SS**  
2 m (6.5')  
**LQMAEC-312SS**  
3 m (12')  
**LQMAEC-320SS**  
6 m (20')  
**LQMAEC-330SS**  
9 m (30')

**Double-Ended**  
For cascading**LMBWLB32****LMBWLB32-180S****LMBWLB32MAG****LMBWLB32U****LMBWLB32UT**

Additional cordset information is available.  
See page 758

## WLB32 Specifications

Supply Voltage and Current	12 to 30 V dc 90 to 264 V ac								
	Lighted Length (mm)	Max Current Draw (A)		Typical Current Draw (A)					Lumens
		DC	AC (at 90 V ac)	12 V DC	24 V DC	30 V DC	120 V ac	230 V ac	
	285	0.8	0.125	0.66	0.31	0.24	0.075	0.045	650
	570	1.6	0.250	1.36	0.62	0.48	0.150	0.080	1300
	850	2.4	0.375	2.19	0.93	0.72	0.225	0.115	1950
	1130	3.2	0.500	3.02	1.24	0.96	0.300	0.150	2600
<b>Light Characteristics</b>	<b>Color:</b> Daylight white <b>Color temperature (CCT):</b> 5000K (±300K)								
<b>Useful Life</b>	Lumen Maintenance - L70 When operating within specifications, output will decrease less than 30% after 50,000 hours.								
<b>Push Button</b>	<b>I</b> = 100% intensity <b>I</b> = 50% intensity <b>0</b> = Off								
<b>Construction</b>	Anodized aluminum housing; polycarbonate window and end caps; stainless steel mounting brackets								
<b>Mounting</b>	Snap clips; magnetic mount or swivel bracket accessories available								
<b>Environmental Rating</b>	IEC IP50								
<b>Operating Conditions</b>	<b>DC models:</b> -40 °C to 70 °C <b>AC models:</b> -25 to 45 °C								
<b>Certifications</b>									



# WLB92 Series

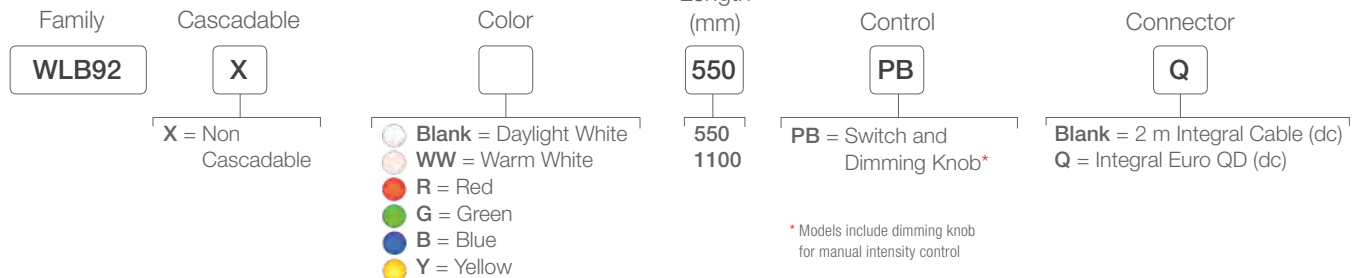
## LED Light Bar



- Increase worker productivity and ergonomics with bright, high-quality, uniform light
- Durable light stands up in your environment with a rugged metal housing and shatterproof light cover
- No maintenance time or cost with long-life, energy-efficient LEDs
- Flexibility to place light where needed with ac and dc models
- Easy installation with variety of mounting options: surface, swivel, snap and hanging brackets
- AC models are DLC certified and have a five year warranty
- Dimmable models available see page 408

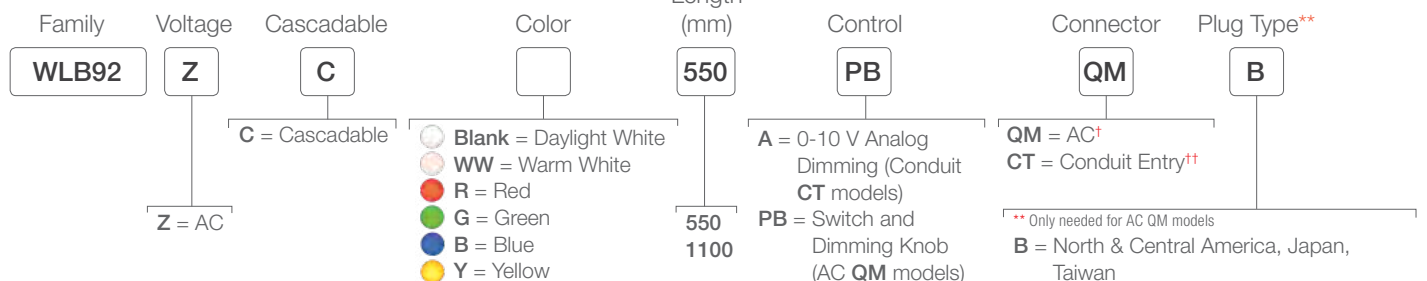
### WLB92, 24 V DC

Example Model Number: WLB92X550PBQ



### WLB92, 100-277 V AC

Example Model Number: WLB92ZC550PBQMB



† Models with a connector include ON/OFF switch as well as a dimming knob for intensity control

†† Conduit entry models include dimmability via a 0 to 10 V input circuit

\*\* Only needed for AC QM models

B = North & Central America, Japan, Taiwan  
D = India, Sri Lanka, Nepal, Namibia  
EF = France, Belgium, Slovakia, Tunisia, Germany, Austria, Netherlands, Spain, S. Korea, Turkey, Poland  
G = UK, Ireland, Cyprus, Malta, Malaysia, Singapore, Hong Kong, Vietnam  
I = Australia, New Zealand, Papua New Guinea, Argentina, China  
N = Brazil, South Africa  
C = AC connector with flying leads  
Blank = AC (no power cord)

Connection options: A model with a QD requires a mating cordset

Cordsets for DC Models




**Euro-Style**  
Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number (example,  
**MQDC-406RA**)

**4-Pin**  
**MQDC-406**  
2 m (6.5')  
**MQDC-415**  
5 m (15')  
**MQDC-430**  
9 m (30')


Additional cordset information is available.  
See page 758

Cordsets for AC Models



**Double-Ended**  
For Cascading

**Straight/Straight**  
**LQMAEC-3005SS**  
0.15 m (0.5')  
**LQMAEC-301SS**  
0.31 m (1')  
**LQMAEC-303SS**  
0.91 m (3')  
**LQMAEC-306SS**  
2 m (6.5')  
**LQMAEC-312SS**  
3 m (12')  
**LQMAEC-320SS**  
6 m (20')  
**LQMAEC-330SS**  
9 m (30')



**Double-Ended**  
NEMA 5-15 grounded  
(IEC Type B)

**LQMAC-306B**  
2 m (6.5')



**LMBWLB92**



**LMBWLB92CLIP**



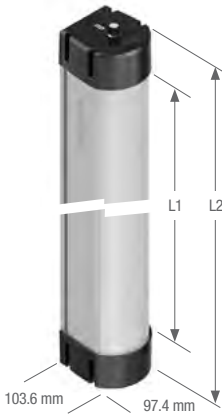
**LMBWLB92HK5**



**LMBWLB92S**






**LMBWLB92RAS**



Length (L1)	Length (L2)	Model
543 mm	665 mm	WLB92...550..
1098 mm	1220 mm	WLB92...1100..

WLB92 Specifications

Supply Voltage and Current	24 V dc +/- 10% 100 to 277 V ac						
	Lighted Length (mm)	Max Current Draw (A)		Typical Current Draw (A)			
		DC	AC (at 90 V ac)	24 V DC	120 V ac	230 V ac	Lumens
	550	1.75 A	0.425 A	1.45 A	0.295 A	0.160 A	3130
	1100	3.5 A	0.850 A	2.9 A	0.590 A	0.310 A	6500
Light Characteristics	<b>Color:</b> Daylight white <b>Color temperature (CCT):</b> 5000K (±300K) <b>Color:</b> Warm white <b>Color temperature (CCT):</b> 3,000 K						
Useful Life	Lumen Maintenance - L70 When operating within specifications, output will decrease less than 30% after 50,000 hours.						
Construction	Anodized aluminum housing; polycarbonate window and end caps						
Mounting	Several options available; see above and datasheet						
Environmental Rating	IEC IP40						
Operating Conditions	See datasheet						
Certifications	   AC daylight white models only						

# WLS27 Series

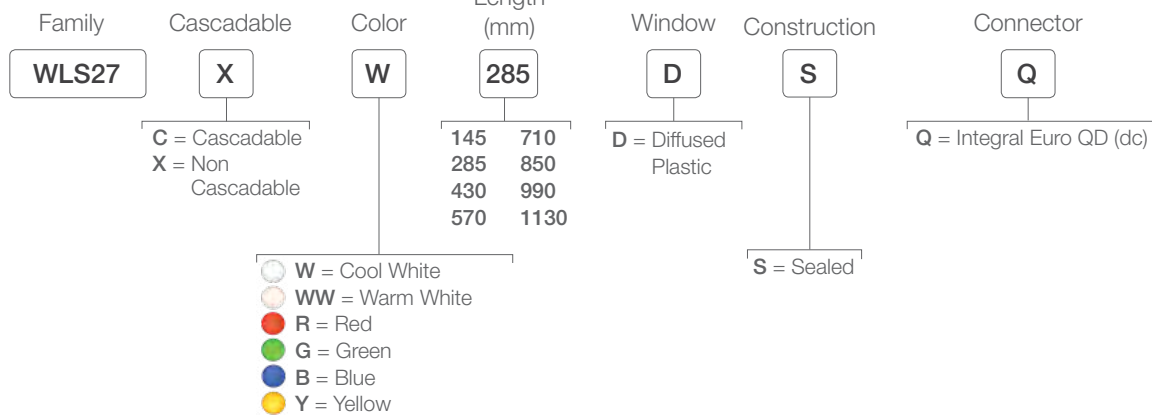
## LED Light Bar



- Sturdy internal aluminum housings, encased in shatterproof, UV-stabilized, copolyester shells
- Round shape makes them suitable for laminar airflow applications
- Rugged, water-resistant IP66, IP67 and IP69K design
- Daisy chain power to multiple lights
- Capability to dim lights using the wiring pinout (Hi/Lo/Off)
- Automatic temperature protection built into the unit extends the product life
- Single- and dual-colored models available
- Dimmable models available see page 408

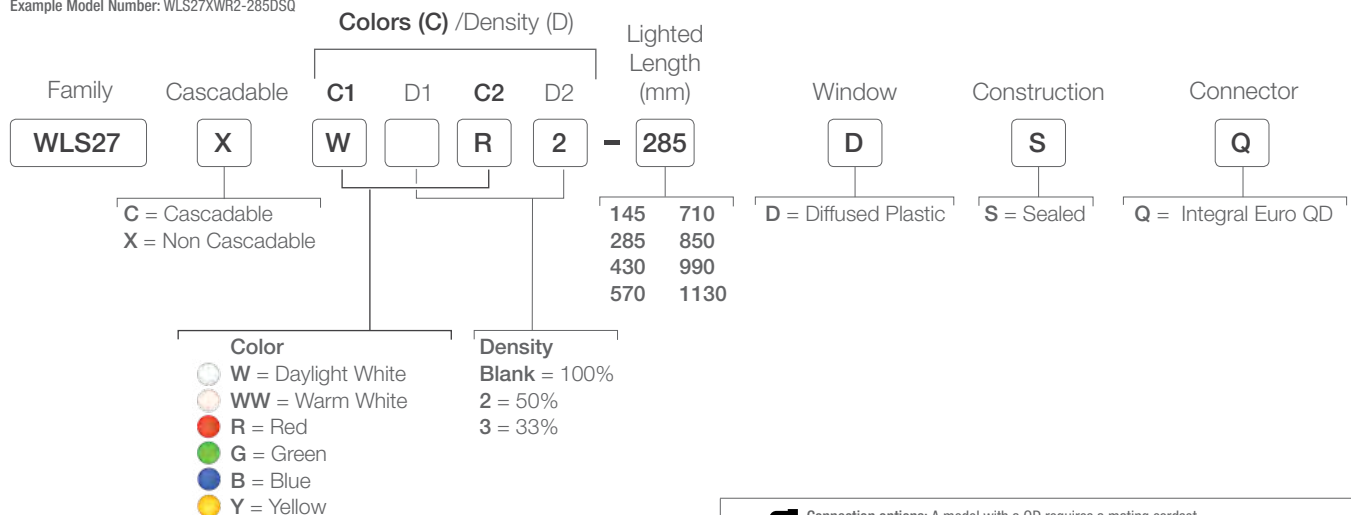
### WLS27

Example Model Number: WLS27XW285DSPWMQ



### Dual-Color WLS27

Example Model Number: WLS27XWR2-285DSQ



Connection options: A model with a QD requires a mating cordset

## Standard

## Euro-Style

Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number (example,  
**MQDC-406RA**)



**4-Pin**  
**MQDC-406**  
2 m (6.5')  
**MQDC-415**  
5 m (15')  
**MQDC-430**  
9 m (30')

Euro-Style QD  
Double-Ended

**4-Pin  
Straight/Straight**  
**MQDEC-401SS**  
0.3 m (1')  
**MQDEC-403SS**  
1 m (3')  
**MQDEC-406SS**  
2 m (6.5')

Euro-Style  
QD Splitter

**Length**  
**Branches** **Trunk** **4-Pin**  
0.3 m 0.3 m **CSB-M1241M1241**

IP69K  
Washdown

**M12 Euro-Style**  
Washdown Cordset  
Straight connector  
models only



**4-Pin**  
**MQDC-WDSS-0406**  
2 m (6.5')  
**MQDC-WDSS-0415**  
5 m (15')  
**MQDC-WDSS-0430**  
9 m (30')

Euro-Style QD  
Double-Ended  
Washdown

**4-Pin  
Straight/Straight**  
**MQDEC-WDSS-401SS**  
0.3 m (1')  
**MQDEC-WDSS-403SS**  
1 m (3')  
**MQDEC-WDSS-406SS**  
2 m (6.5')

Additional cordset information is available.  
See page 758



**WLS28-2PBQ**  
In-Line Switch with  
M12 connector



**WLS28-2MQ**  
In-Line Motion  
Detection Switch  
with M12 connector



**LMBWLS27EC**



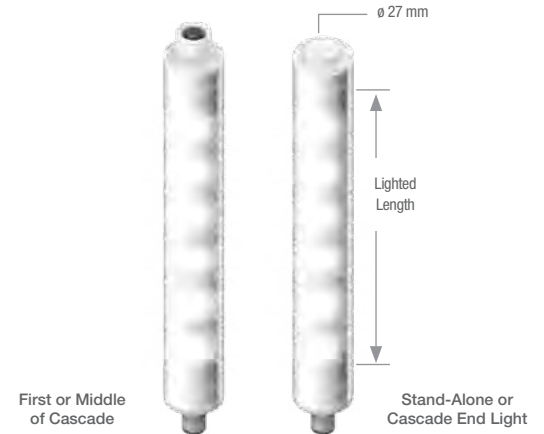
**LMBWLS27H**



**LMBWLS27U**



**LMBWLS27SP**



Length (mm)	One-Color WLS27 Lumens (Typical @ 25 °C)						Typical Wattage* (Watts)
	Cool White	Warm White	Red	Green	Blue	Yellow	
145	325	325	55	180	40	50	3.6
285	650	650	110	360	80	100	7.2
430	975	975	165	540	120	150	11.0
570	1300	1300	220	720	160	200	14.6
710	1625	1625	275	900	200	250	18.5
850	1950	1950	330	1080	240	300	22.1
990	2275	2275	385	1260	280	350	25.9
1130	2600	2600	440	1440	320	400	29.8

\*Typical operating wattage is measured at 24 V dc

## WLS27 Specifications

Supply Voltage and Current	12 to 30 V dc									
	Lighted Length (mm)	Typical Current Draw (A)			Max. Current (A)	Lighted Length (mm)	Typical Current Draw (A)			Max. Current (A)
		12 V dc	24 V dc	30 V dc			12 V dc	24 V dc	30 V dc	
	145	0.33 A	0.15 A	0.12 A	0.4	710	1.75 A	0.77 A	0.60 A	2.0
	285	0.66 A	0.30 A	0.24 A	0.8	850	2.13 A	0.92 A	0.73 A	2.4
	430	1.01 A	0.46 A	0.36 A	1.2	990	2.59 A	1.08 A	0.85 A	2.8
	570	1.36 A	0.61 A	0.48 A	1.6	1130	3.04 A	1.24 A	0.97 A	3.2
Light Characteristics	Color: Cool white    Color temperature (CCT): 6000–7100K									
Useful Life	Lumen Maintenance - L70 When operating within specifications, output will decrease less than 30% after 50,000 hours.									
Construction	Clear anodized aluminum housing; FDA-grade copolyester outer housing									
Mounting	Bracket <b>LMBWLS27EC</b> included (2 for lights up to 570 mm or 3 for lights 710 mm and longer); see datasheet for additional options									
Environmental Rating	IEC IP66, IP67, and IP69K, per DIN 40050									
Operating Conditions	–40 to +70 °C									
Certifications										

# WLC60 Series

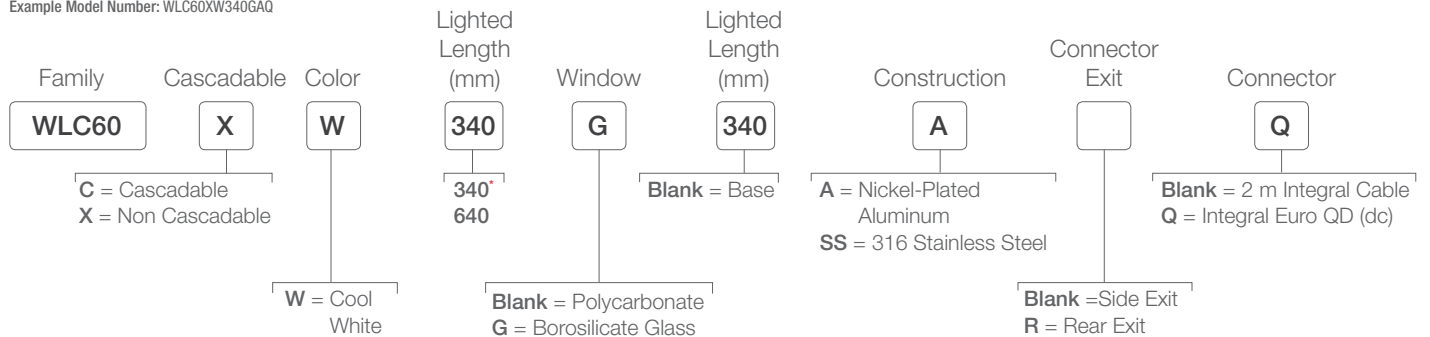
## Heavy-Duty LED Light



- LED technology delivers best in class brightness
- Oil, chemical and water resistant with IP67, IP68g and IP69K ratings
- High brightness paired with advanced glare-reducing optics
- Easy to install with a wide variety of mounting solutions
- Highly resistant to vibration and shock
- All models have three discrete intensity level settings
- Dimmable models available see page 409

### WLC60

Example Model Number: WLC60XW340GAQ



\* Flush mount, rear exit, and stainless steel options are only available in 340 mm length

 Connection options: A model with a QD requires a mating cordset

Standard

**Euro-Style**  
Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number  
(example, **MQDC-406RA**)



4-Pin

**MQDC-406**  
2 m (6.5')  
**MQDC-415**  
5 m (15')  
**MQDC-430**  
9 m (30')

**Euro-Style QD  
Double-Ended**



4-Pin  
Straight/Straight

**MQDEC-401SS-PUR**  
0.3 m (1')  
**MQDEC-403SS-PUR**  
1 m (3')  
**MQDEC-406SS-PUR**  
2 m (6.5')

IP69K  
Washdown

**M12 Euro-Style  
Washdown Cordset**  
Straight connector  
models only



4-Pin

**MQDC-WDSS-0406**  
2 m (6.5')  
**MQDC-WDSS-0415**  
5 m (15')  
**MQDC-WDSS-0430**  
9 m (30')

Additional cordset information is available.  
See page 758



LMBWLC60F



LMBWLC60RA



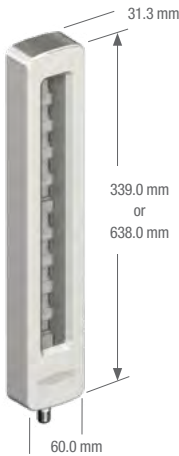
LMBWLC60RA



LMBWLC60MAG





**PSD-24-4**  
Class 2 Power Supply  
Input: 90-264 V ac 1.5A  
Output: 24 V dc 3.9A  
2 m 4-Pin Euro



Base Mount

WLC60 Specifications

Supply Voltage and Current	12 to 30 V dc Max. current per length:					
	Light Length	12 V dc	24 V dc	30 V dc	Watts	Lumens (Typical @ 25° C) Cool White
	340 mm	1.4 A	0.7 A	0.56 A	16.8	1300
	640 mm	3.1 A	1.53 A	1.22 A	37.2	2600
Light Characteristics	<b>Color:</b> Cool white <b>Color temperature (CCT):</b> 6,000–7,100K					
Construction	Nickel plated aluminum or 316 stainless steel housing, polycarbonate or borosilicate glass window					
Environmental Rating	IEC IP67/IP68g / IP69K per DIN 40050					
Connections	Integral 4-pin Euro style QD or 2 m integral cable, depending on model. QD cordsets are ordered separately.					
Operating Conditions	<b>Temperature:</b> Max intensity –40 to +50 °C Dim settings –40 to +70 °C <b>Storage Temperature:</b> –40 to +70 °C					
Application Notes	When connecting cascable lights in series, it is important not to exceed the maximum current limitation of 4 Amps. See datasheet for more information.					
Certifications	 					



# WLC90 Series

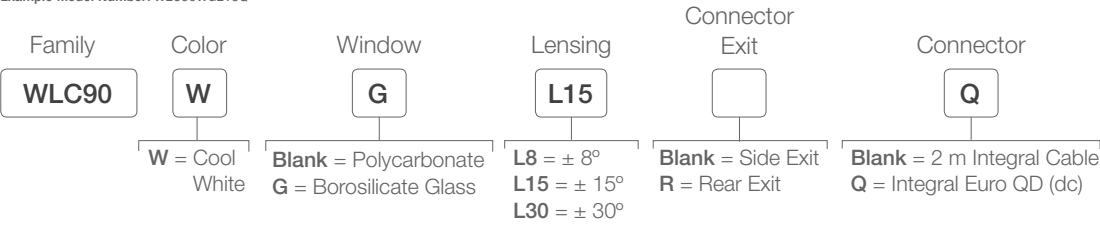
## Heavy-Duty LED Light



- Rugged housing resists water, coolants, oils and detergent with IP67, IP68g and IP69K and ratings
- Wide operating temperature range with an internal monitoring circuit that will dim the LEDs to a safe level at extreme temperatures
- Three lens options to suit many application needs
- Pan and tilt brackets for versatile mounting to direct light in any direction
- All models have three discrete intensity level settings
- Dimmable models available see page 409

### WLC90

Example Model Number: WLC90WGL15Q



 Connection options: A model with a QD requires a mating cordset

Standard

**Euro-Style**  
Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number (example,  
**MQDC-406RA**)



4-Pin

- MQDC-406**  
2 m (6.5')
- MQDC-415**  
5 m (15')
- MQDC-430**  
9 m (30')

IP69K  
Washdown

**M12 Euro-Style**  
Washdown cordset  
straight connector  
models only



4-Pin

- MQDC-WDSS-0406**  
2 m (6.5')
- MQDC-WDSS-0415**  
5 m (15')
- MQDC-WDSS-0430**  
9 m (30')

Additional cordset information is available.  
See page 758



LMBWLC90PT



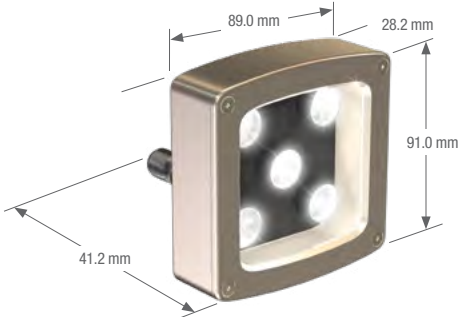
SMBAMS70AS



**PSD-24-4**  
Class 2 Power Supply  
Input: 90-264 V ac 1.5A  
Output: 24 V dc 3.9A  
2 m 4-Pin Euro





Side Exit



Rear Exit

WLC90 Specifications

Supply Voltage and Current	12 to 30 V dc <b>Max. current:</b> 850 mA at 12 V dc 410 mA at 24 V dc 330 mA at 30 V dc <b>Max. input power:</b> 10.2 Watts
Light Characteristics	<b>Color:</b> Cool white <b>Color temperature (CCT):</b> 6,000–7,100K
Construction	Nickel plated aluminum housing, polycarbonate or borosilicate glass window
Environmental Rating	IEC IP67/IP68g / IP69K per DIN 40050
Operating Conditions	<b>Temperature:</b> Max intensity –40 to +70 °C <b>Storage Temperature:</b> –40 to +70 °C
Certifications	 



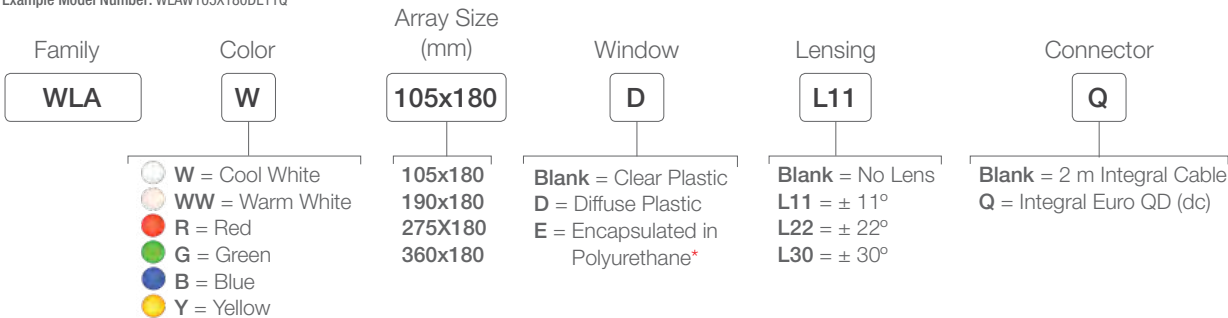
# WLA Series

## LED Area Light

- Up to 2200 lumens for extremely bright illumination
- Encapsulated models available for enhanced resistance to chemicals, vibration and shock
- Choice of clear or diffuse window for reduced glare
- Optical lensed options create more focused illumination
- Rugged housing rated to IP69K for high-pressure, high-temperature washdown applications
- Dimmable models available see page 409

### WLA

Example Model Number: WLAW105X180DL11Q



\* Encapsulated models only available in cool white with no lens

Connection options: A model with a QD requires a mating cordset

Standard

**Euro-Style**  
Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number (example,  
**MQDC-406RA**)



4-Pin

**MQDC-406**  
2 m (6.5')  
**MQDC-415**  
5 m (15')  
**MQDC-430**  
9 m (30')

IP69K  
Washdown

**M12 Euro-Style**  
Washdown Cordset  
Straight connector  
models only



4-Pin

**MQDC-WDSS-0406**  
2 m (6.5')  
**MQDC-WDSS-0415**  
5 m (15')  
**MQDC-WDSS-0430**  
9 m (30')

Additional cordset information is available.  
See page 758



SMBBSSM



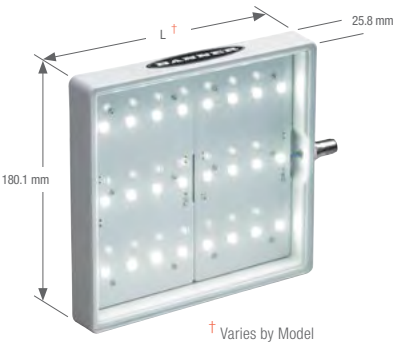
SMBBSRA





**SMBWLAMAG**  
Set of four magnets  
& screws



**PSD-24-4**  
Class 2 Power Supply  
Input: 90-264 V ac 1.5A  
Output: 24 V dc 3.9A  
2 m 4-Pin Euro



WLA Specifications

Supply Voltage and Current	12 to 30 V dc (10% max. ripple) Max. current per length:									
	Size				Watts	Lumens* (Typical @ 25° C)				
		12 V dc	24 V dc	30 V dc		Cool White	Warm White	Green	Red	Yellow Blue
	WLA105X180	0.8A	0.5A	0.32A	9.6	550	435	325	125	275 95
	WLA190X180	1.6A	0.8A	0.64A	19.2	1100	870	650	250	550 190
	WLA275X180	2.4A	1.2A	0.96A	28.8	1650	1305	975	375	825 285
	WLA360X180	3.2A	1.6A	1.28A	38.4	2200	1740	1300	500	1100 380
	* Diffuse models have 35% less Lumens									
Light Characteristics	Color Temperature (CCT): Cool White: 6,000-7,100K, Warm White: 2,800-3,200K									
Construction	PBT housing; acrylic window, nickel-plated brass connector									
Environmental Rating	IP69K and IP67									
Operating Conditions	Temperature: -20 to +50 °C Relative Humidity: 95% (non-condensing) Storage Temperature: -40 to +70 °C									
Certifications	 									



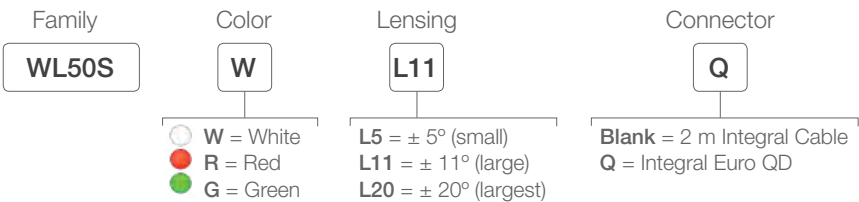
# WL50S Series

## LED Spot Work Light

- Three lens options to suit many application needs
- Rugged, sealed housing rated to IP69K
- 50 mm diameter with flat profile and 30 mm mounting base
- Stainless steel version with FDA-grade silicone gasket and Viton® O-Ring seal
- Many bracket options for simple mounting and alignment
- Dimmable models available contact factory

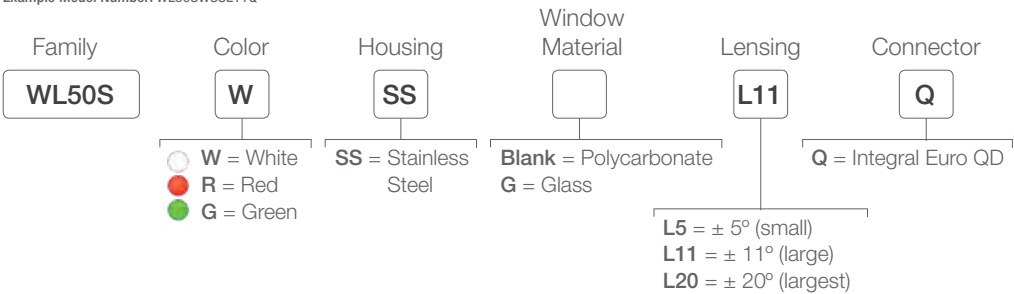
### WLS50

Example Model Number: WL50SWL11Q



### WLS50, Stainless Steel

Example Model Number: WL50SWSSL11Q



 Connection options: A model with a QD requires a mating cordset

**Euro-Style**

Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number (example,  
**MQDC-406RA**)

**4-Pin**

**MQDC-406**  
2 m (6.5')  
**MQDC-415**  
5 m (15')  
**MQDC-430**  
9 m (30')

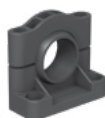
**Euro-Style**

Stainless steel for  
washdown. Straight  
connector models only

**5-Pin**

**MQDCWD-506**  
2 m (6.5')  
**MQDCWD-530**  
9 m (30')

Additional cordset information is available  
See page 758.




**SMB30A****SMB30SC**

Additional bracket information is available  
See page 727.

**FLX18**

Additional flex arm  
information is available  
See page 410

**WL50S****WL50S Stainless Steel****WL50S Specifications**

Supply Voltage and Current	12 to 30 V dc, 400 mA max.				
Light Characteristics (Aluminum and Stainless Steel models)	Lens Angle	Model	LED Color	Window Material	Lumens* (Typical @ 25° C)
	±5° (smaller, more focused spot)	WL50SWL5Q	White	Polycarbonate	295
		WL50SRL5Q	Red	Polycarbonate	110
		WL50SGL5Q	Green	Polycarbonate	210
	±11° (larger spot)	WL50SWL11Q	White	Polycarbonate	285
		WL50SRL11Q	Red	Polycarbonate	105
		WL50SGL11Q	Green	Polycarbonate	200
	±20° (largest spot)	WL50SWL20Q	White	Polycarbonate	270
		WL50SRL20Q	Red	Polycarbonate	100
		WL50SGL20Q	Green	Polycarbonate	190
Color Temperature (CCT): White: 5,000-8,300 K					
Supply Protection Circuitry	Protected against reverse polarity and transient voltages				
Construction	WL50S...: Black anodized aluminum housing; polycarbonate window; nickel-plated QD connector or PVC-jacketed cable; black zinc-plated steel mounting nut WL50SS...: 316 stainless steel housing, polycarbonate or glass window with Viton seal, 316 stainless steel M30 mounting nut, FDA grade silicone base gasket				
Useful Life	When operating within specifications, output will decrease less than 30% after 50,000 hours				
Environmental Rating	IEC IP67, IP69K per DIN 40050-9				
Operating Conditions	Temperature: -20 to +50 °C Relative Humidity: 95% (non-condensing) Storage Temperature: -40 to +70 °C				
Vibration and Mechanical Shock	All models meet Mil. Std. 202F requirements method 201A (vibration: 10 to 60 Hz max., double amplitude 0.06", maximum acceleration 10G). Also meets IEC 947-5-2; 30G 11 ms duration, half sine wave.				
Certification	  				



# WL50 Series

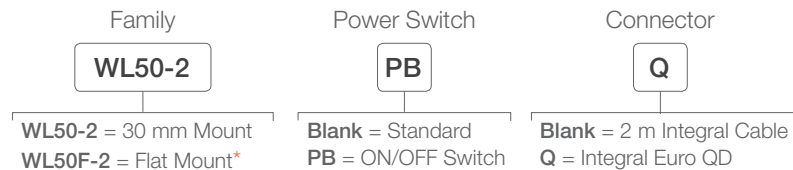
## LED Work Light



- Low power consumption
- Aesthetic shape that sheds debris and moisture
- Rugged, water-resistant IP69K models
- VELCRO® brand VELCOIN® fasteners included for quick mounting and convenient repositioning of light
- Long-lasting LED technology for zero maintenance after installation
- Dimmable models available contact factory

### WL50-2

Example Model Number: WL50-2Q



Connection options: A model with a QD requires a mating cordset

For 9 m cable, add suffix W/30 to 2 m model number (example, WL50F W/30).

QD models: For a 4-pin 150 mm Euro-style pigtail QD, add suffix QP to 2 m model number (example, WL50FQP).

\* Flat-mount models include a 48 mm circular Velcro® mounting kit for easy mounting.

**Euro-Style**  
Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number (example,  
**MQDC-406RA**)

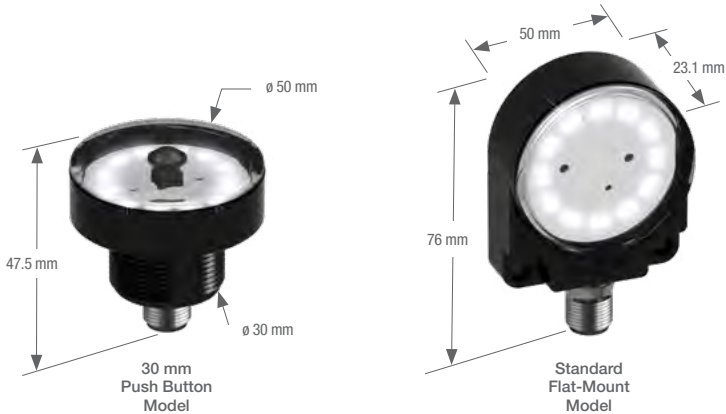


**4-Pin**  
**MQDC-406**  
2 m (6.5')  
**MQDC-415**  
5 m (15')  
**MQDC-430**  
9 m (30')




Additional cordset information is available  
See page 758.



**FLX18**  
Additional flex arm  
information is available  
See page 410



WL50-2 Specifications

Supply Voltage	12 to 30 V dc Max. current: 233 mA @ 12 V dc; 110 mA @ 24 V DC, 90 mA @ 30 V dc Max. input power: 2.8 watts
Light Characteristics	Color temperature (CCT): 6,000 to 7,100 K Color: Cool white Lumens: 185
Power-up Response Time	Light ON: 1 millisecond max. (models without push button)
Construction	Polycarbonate housing; Nickel-plated QD connector or PVC-jacketed cable
Environmental Rating	Standard models: IP67, IP69K per DIN 40050 Push button models: IEC IP67
Operating Conditions	Temperature: -40° to +50° C Relative Humidity: 95% (non-condensing) Storage Temperature: -40° to +70° C
Application Note	Push button models: When power is initially applied to the device, or following a power interruption and the light is off, push the push button to turn the light on.
Certification	  

# LC65P1T

## LED Dimming Controller



The LED Pulse-Width Modulation (PWM) Dimming Controller allows an operator to dim an LED light source without loss of accuracy.

- Paired with Banner's LED lighting helps further increase energy savings, helping to reduce overall energy costs
- Ability to dim light at an operator station
- Works with special models of the strip lights, heavy-duty lights, area lights, spot lights and work lights
- Allows for control of multiple lights with one module
- Compact and easy to install
- Model keys below configured for use with Dimming Controller (LC65P1T ordered separately)

### WLS27 LED Strip Light

Family	Cascadable	Color	Lighted Length (mm)		Window	Construction	Intensity Control	Connector
<b>WLS27</b>	<b>X</b>	<b>W</b>	<b>285</b>		<b>D</b>	<b>S</b>	<b>PWM</b>	<b>Q</b>
C = Cascadable X = Non Cascadable		W = Daylight White	145	710	D = Diffused Plastic	S = Sealed	PWM = Dimmable via Pulse Width Modulation	Q = Integral Euro QD
			285	850				
			430	990				
			570	1130				



page 396

### WLS28-2 LED Strip Lights

Family	Cascadable	LED Color	Lighted Length (mm)	Window	Construction	Intensity Control	Connector
<b>WLS28-2</b>	<b>C</b>	<b>W</b>	<b>145</b>		<b>X</b>	<b>PWM</b>	<b>Q</b>
C = Cascadable X = Non Cascadable		W = Cool White	145    570    990	Blank = Clear Plastic D = Diffused Plastic L25 = 25° Lensed Window	S = Sealed X = Not Sealed	PWM Dimming	Blank = 2 m Integral Cable Q = Integral Euro QD
285    710							
430    850							



page 386

### WLB92 Light Bar

Family	Cascadable	Color	Lighted Length (mm)	Control	Connector
<b>WLB92</b>	<b>X</b>		<b>550</b>	<b>PWM</b>	<b>Q</b>
X = Non Cascadable		Blank = Daylight White	550	PWM = Dimmable via Pulse Width Modulation	Blank = 2 m Integral Cable (dc) Q = Integral Euro QD (dc)
			1100		



page 394

## WLA LED Area Lights



page 402

Family	LED Color	Array Size (mm)	Window	Lensing	Dimmer Switch	Connector
<b>WLA</b>	<b>W</b>	<b>105X180</b>		<b>L11</b>	<b>PWM</b>	<b>Q</b>
	W = Cool White	105X180 190X180 275X180 360X180	Blank = Clear Plastic D = Diffused Plastic E = Encapsulated in Polyurethane*	Blank = No Lenses L11 = $\pm 11^\circ$ L22 = $\pm 22^\circ$ L30 = $\pm 30^\circ$	PWM Dimming	Blank = 2 m Integral Cable Q = Euro Integral QD

\* Encapsulated models not available with lens options

## WLC90 Heavy-Duty LED Light



page 400

Family	LED Color	Window	Lensing	Connector Exit	Intensity Control	Connector
<b>WLC90</b>	<b>W</b>	<b>G</b>	<b>L15</b>		<b>PWM</b>	<b>Q</b>
	W = Cool White	Blank = Polycarbonate G = Borosilicate Glass	L8 = $\pm 8^\circ$ L15 = $\pm 15^\circ$ L30 = $\pm 30^\circ$	Blank = Side Exit R = Rear Exit	PWM Dimming	Blank = 2 m Integral Cable Q = Euro Integral QD

## WLC60 Heavy-Duty LED Light



page 398

Family	Cascadable	LED Color	Lighted Length (mm)	Window	Mounting Type	Construction	Connector Exit	Intensity Control	Connector
<b>WLC60</b>	<b>X</b>	<b>W</b>	<b>340</b>	<b>G</b>		<b>A</b>		<b>PWM</b>	<b>Q</b>
	C = Cascadable X = Non-Cascadable	W = Cool White	340* 640		Blank = Base Mount		Blank = Side Exit R = Rear Exit (340 models only)	PWM Dimming	Blank = 2 m Integral Cable Q = Euro Integral QD
				Blank = Polycarbonate G = Borosilicate Glass	A = Nickel-Plated Aluminum				

\* Flush mount, rear exit, and stainless steel options are only available in 340 mm length



page 404



page 406

WL50S and WL50-2 also have the PWM option available. Contact factory for more information

Connection options: A model with a QD requires a mating cordset

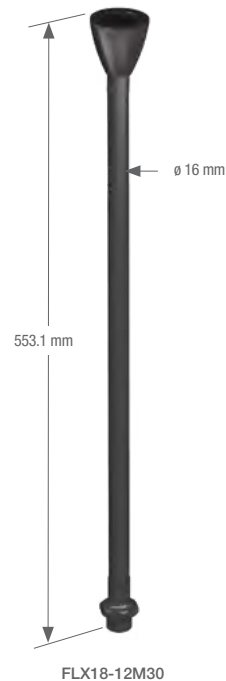
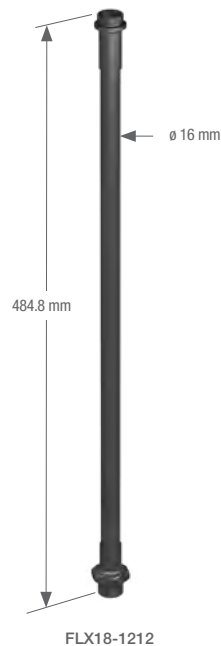
# Flex Arm



















## For Work Lights



Banner's Flex Arm Mounting Accessories provide versatile mounting options to easily direct lighting where it is needed, whether in a work station or along a manufacturing line. The Flex Arm is available for use with spot lights, work lights and vision spot lights.

- Versatile mounting options including magnetic mount, clamp mount and flange mount
- Vinyl coated to protect against moisture
- Adjustable arm allows for easy repositioning of light to suit many application needs
- Concentrate light exactly where needed
- Portability with magnetic and clamp mount options



Models	Base Connection	Light Connection	Brackets		
FLX18-1212	 1/2-14 NPSM	 1/2-14 NPSM (Male) Use with: WL50-2 WL50-2PB	 SMB22	 SMBFLXMAG	 LMB12RA
FLX18-F12	 3-Hole Flange	 1/2-14 NPSM (Male) Use with: WL50-2 WL50-2PB	Direct Mount		
FLX18-12M30	 1/2-14 NPSM	 M30 x 1.5 (Female) Use with: WL50-2 WL50-2PB WL50S	 SMB22	 SMBFLXMAG	 LMBE12RA
FLX18-DM30	 2 x 1/4-20W 1.375 spacing	 M30 x 1.5 (Female) Use with: WL50-2 WL50-2PB WL50S	 SMBFLXCLAMPD	 SMBFLXMAGD	
FLX18-FM30	 3-Hole Flange	 M30 x 1.5 (Female) Use with: WL50-2 WL50-2PB WL50S	Direct Mount		





---

## Tower Lights

Banner's Tower Lights are designed to be exceptionally bright with a long, visible indication range, providing excellent operational status for workers and supervisors. Several models are available for use in a variety of environments, including options with audible alerts.

Series	Description	Number of Segments	Brightness	Dimensions	Power Supply	Communication
	<b>TL70</b> Designed to be exceptionally bright with a long, visible indication range, providing excellent operational status for workers and supervisors. page 414	1 to 6	High-Brightness	30 mm base Height varies by model	DC or AC models available	Wireless option
	<b>TL50</b> Designed to be exceptionally bright with a long, visible indication range, providing excellent operational status for workers and supervisors. page 418	1 to 7	Standard or High-Brightness	30 mm base Height varies by model	DC or AC models available	IO-Link option
	<b>TL50C</b> Compact design makes them ideal for status indication on small to mid-size pieces of equipment. page 422	1 to 7	Standard	30 mm base Height varies by model	DC or AC models available	NA
	<b>TL50BL</b> Extremely rugged and built for use in the toughest industrial environments. With a sleek and stylish design, the TL50 Beacon's housing is UV stabilized, making it suitable for use in outdoor environments. page 426	1 to 5	Daylight Visible	30 mm base Height varies by model	DC or AC models available	NA
	<b>CL50</b> Illumination provides easy-to-see operator guidance and equipment status indication for workers and supervisors. page 430	1	Standard	30 mm base Height varies by model	DC or AC models available	NA

# TL70 Series

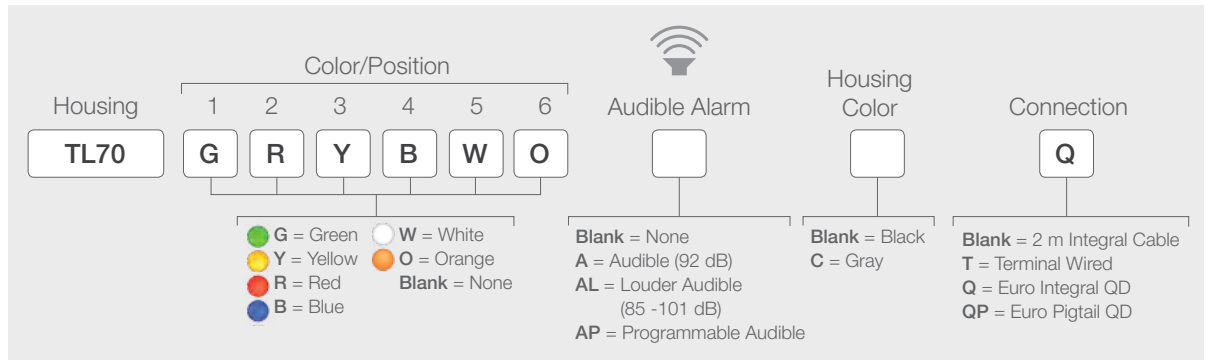
## Tower Lights



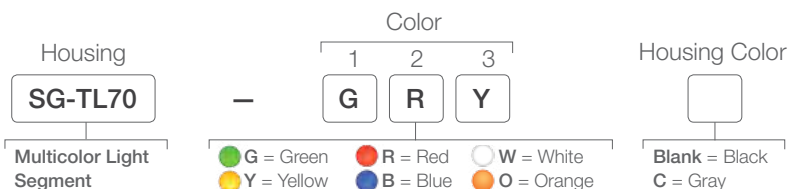
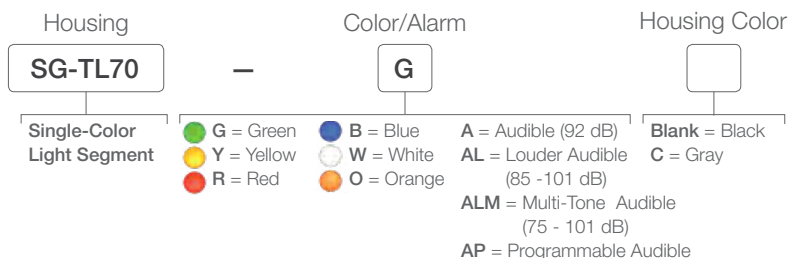
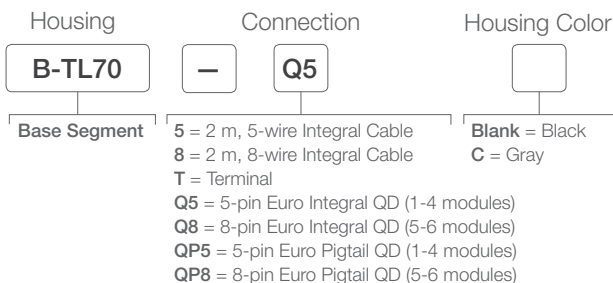
- Light segments have user-selectable solid ON or flashing
- Up to light segments (six color options) or five segments plus an audible in one device
- Rugged, water-resistant IP65 housing with UV stabilized material
- Bright, uniform indicator segments appear gray when off to eliminate false indication from ambient light
- Cordsets and brackets see page 432

LASER  
MARKING  
AVAILABLE

### Preassembled TL70 DC Tower Lights



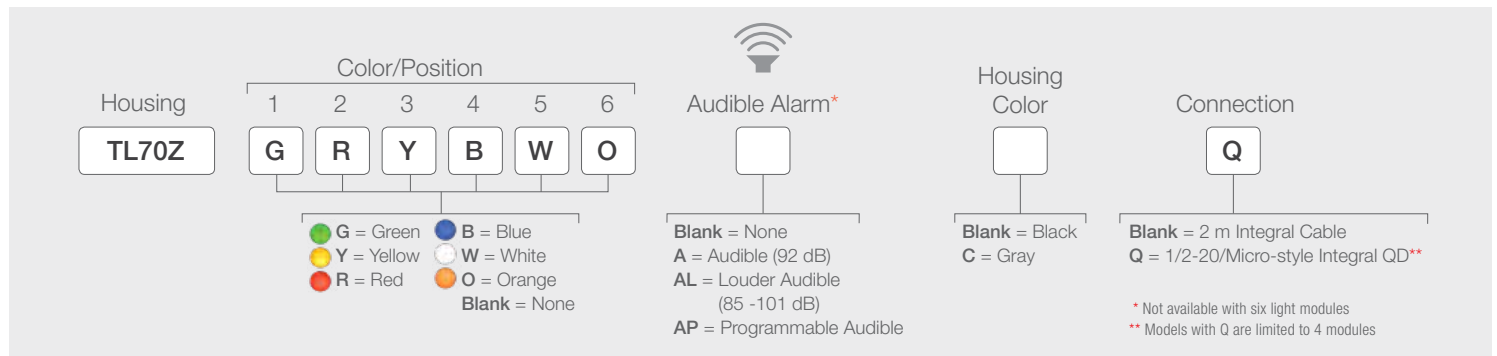
### Build Your Own TL70 DC Tower Lights



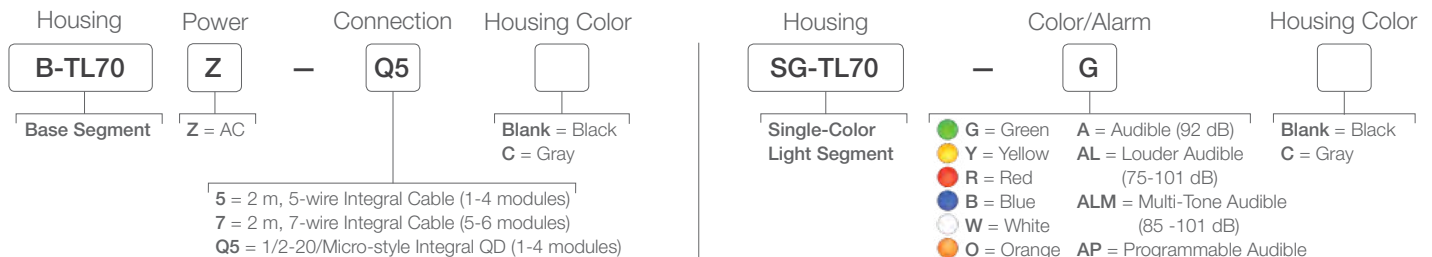
For more specifications see page 417.

Connection options: A model with a QD requires a mating cordset (see page 432).

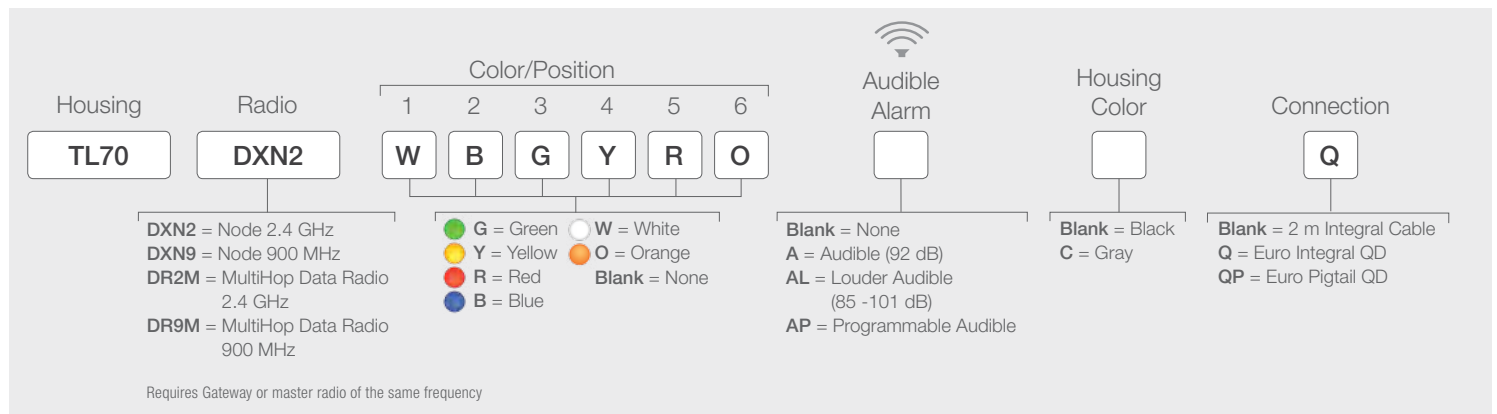
## Preassembled TL70 AC Tower Lights



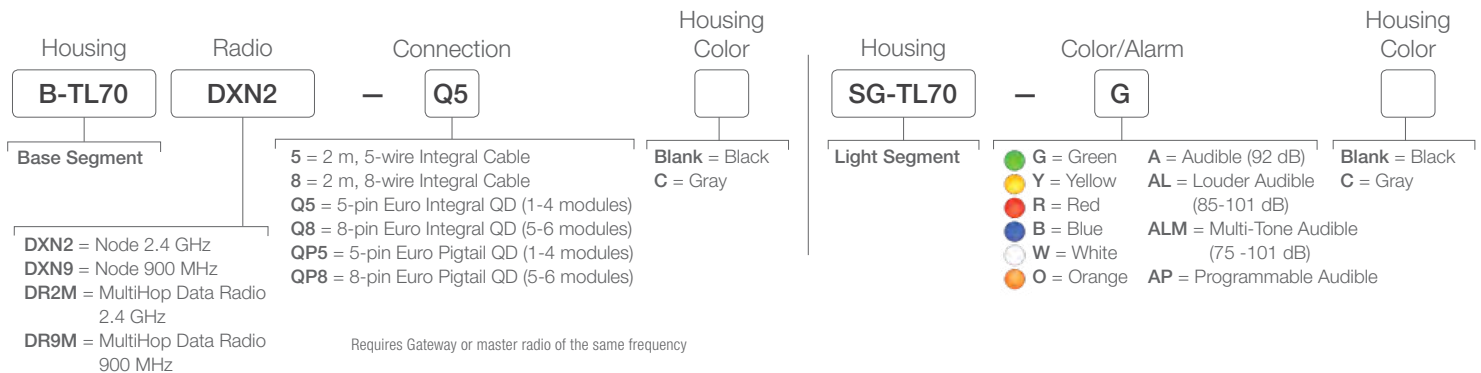
## Build Your Own TL70 AC Tower Lights



## Preassembled TL70 Wireless Tower Lights



## Build Your Own TL70 Wireless Tower Lights



For more specifications see page 417.

Connection options: A model with a QD requires a mating cordset (see page 432).

# Building a Tower Light

[www.bannerengineering.com/towerlights](http://www.bannerengineering.com/towerlights)

Choose  
Type

1



Standard dc, Wireless, or ac

Audible or  
No Audible

2



Sealed Omni-Directional Audible

Number of  
Lighting  
Segments

3



Position 6 (Light or Audible)

Position 5

Position 4

Position 3

Position 2

Position 1

Base

Connections

4



Integral QD



Euro Pigtail



Integral Cable



Terminal Wired

Housing  
Color

5






## TL70

Color Count	AC Tower Height (H)	AC Tower Height with Audible (H)	DC Tower Height (H)	DC Tower Height with Audible (H)
1	155.6 mm	212.3 mm	87.6 mm	144.3 mm
2	205.3 mm	262.0 mm	137.3 mm	194.0 mm
3	255.0 mm	311.7 mm	187.0 mm	243.7 mm
4	304.7 mm	361.4 mm	236.7 mm	293.4 mm
5	354.4 mm	411.1 mm	286.4 mm	343.1 mm
6	404.1 mm	NA	336.1 mm	NA

## TL70 Specifications

Supply Voltage and Current	12 to 30 V dc <b>Indicators—Maximum current per LED color:</b> <b>Blue, Green, White:</b> 420 mA at 12 V dc; 145 mA at 30 V dc <b>Red, Yellow, Orange:</b> 285 mA at 12 V dc; 120 mA at 30 V dc <b>Audible:</b> <b>Standard:</b> 30 mA at 12 to 30 V dc <b>Loud:</b> 350 mA at 12 V dc; 110 mA at 30 V dc <b>Multitone:</b> 270 mA at 12 V dc; 110 mA at 30 V dc <b>Programmable:</b> 250 mA at 12 V dc; 110 mA at 30 V dc		100 to 240 V ac; 50/60 Hz <b>Maximum current per color or audible module:</b> 70 mA at 120 V ac and 60 Hz 50 mA at 230 V ac and 50 Hz
Supply Protection Circuitry	Protected against reverse polarity and transient voltages		
Indicator Response Time	<b>DC models:</b> <b>OFF Response:</b> 150 $\mu$ s (maximum) at 12 to 30 V dc <b>ON Response:</b> 180 ms (maximum) at 12 V dc; 50 ms (maximum) at 30 V dc		<b>AC models:</b> <b>OFF Response:</b> 150 $\mu$ s (maximum) at 12 to 30 V dc <b>ON Response:</b> 180 ms (maximum) at 12 V dc; 50 ms (maximum) at 30 V dc
Audible Alarm	2.6 KHz $\pm$ 250 Hz oscillation frequency; maximum intensity 92 dB at 1 m (3.3 ft) (typical)		
Audible Adjustments	Rotate the cover until the desired volume is reached Change in sound intensity from fully open to fully closed is 8 dB		
Radio Range* (Wireless Models)	<b>900 MHz, 1 Watt (Internal antenna):</b> Up to 3.2 km (2 miles) <b>2.4 GHz, 65 mW (Internal antenna):</b> Up to 1000 m (3280 ft) with line of sight		
Minimum Separation Distance (Wireless Models)	<b>900 MHz, 1 Watt:</b> 4.57 m (15 ft) <b>2.4 GHz, 65 mW:</b> 0.3 m (1 ft)		
Construction	Bases, segments and Covers: Polycarbonate		
Environmental Rating	IEC IP65		
Operating Conditions	-40 to +50 °C <b>Relative Humidity:</b> 95% @ 50 °C (non-condensing) <b>Storage Temperature:</b> -40 to +70 °C		
Certifications			

\* Radio range significantly decreases without line of sight. Always verify your wireless network's range by running a site survey.

# TL50 Series

## Tower Lights



- Exceptionally bright with a long, visible indication range
- Install quickly and easily with no assembly required
- Clearly evident on/off status
- Versatile mounting options
- Compact, sleek, rugged design with IP67 models available
- Audible alert: continuous, pulsed and staccato models available
- Models available with IO-Link communication
- Cordsets and brackets see page 432

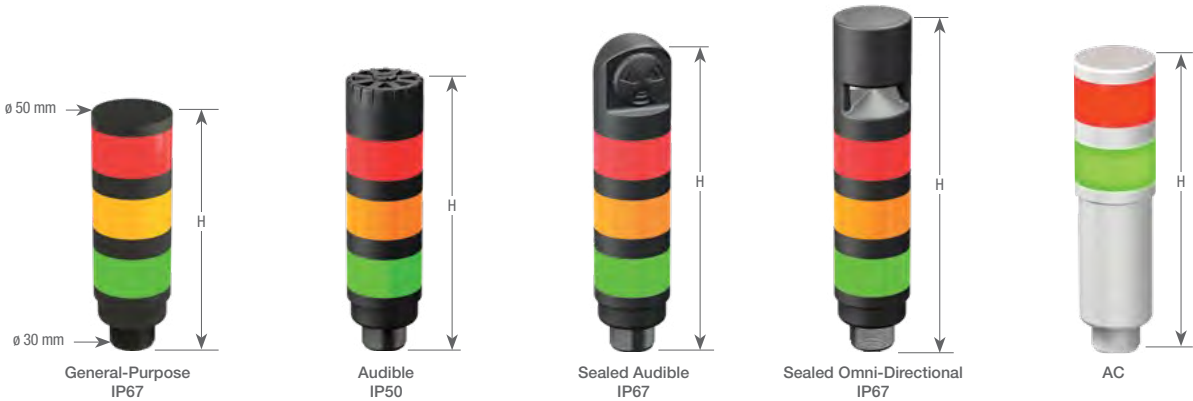
LASER  
MARKING  
AVAILABLE

### TL50 Tower Light



For more specifications see page 421.

Connection options: A model with a QD requires a mating cordset (see page 432).




All models available in black or gray


TL50

	Tower Height (H)	Tower Height (H)	Tower Height (H)	Tower Height (H)	Tower Height (H)
Color Count	General-Purpose IP67	Audible† IP50	Sealed Audible IP67	Sealed Omni-Directional IP67	AC
0	—	92.0 mm	74.4 mm	88.4 mm	Add 69 mm to any of these heights to get total height
1	61.2 mm	92.0 mm	115.1 mm	129.1 mm	
2	101.9 mm	132.7 mm	155.8 mm	169.8 mm	
3	142.6 mm	173.4 mm	196.5 mm	210.5 mm	
4	183.3 mm	214.1 mm	237.2 mm	—	
5	224.0 mm	254.8 mm	277.9 mm	291.1 mm	—
6	264.7 mm	298.5 mm	318.6 mm	332.6 mm	
7	305.4 mm	—	—	—	


† Tower height (H) with top unscrewed approximately 3.5 mm to allow sound to escape.



**Audible**  
max. intensity 92 db  
@ 1 meter (typical)



**Sealed Audible**  
max. intensity 94 db  
@ 1 meter (typical)



**Sealed Omni-Directional Audible**  
max. intensity 99 db  
@ 1 meter (typical)

Sure Cross® Wireless I/O & EZ-LIGHT® Indicators Machine monitoring enables an entirely new category of applications and machine diagnostics free from wired limitation. Contact factory for information.





# Building a Tower Light

[www.bannerengineering.com/towerlights](http://www.bannerengineering.com/towerlights)

Choose  
Type

1



Standard  
High Intensity  
Daylight Visible  
Standard with IO-Link

Audible or  
No Audible

2



**Audible**  
max. intensity 92 db  
@ 1 meter (typical)



**Sealed Audible**  
max. intensity 94 db  
@ 1 meter (typical)



**Sealed Omni-  
Directional Audible**  
max. intensity 99 db  
@ 1 meter (typical)

Lighting  
Options/  
Function

3



Position 7 (not available with audible)

Position 6

Position 5

Position 4

Position 3

Position 2

Position 1

Base



Color availability varies  
between models

Connections

4



Integral QD



Euro Pigtail






Integral Cable

Housing  
Color

5



## TL50 Specifications

Supply Voltage and Current	<p><b>DC models:</b> 18 to 30 V dc (10% max. ripple); or 21 to 27 V ac</p> <p><b>Standard Brightness:</b> Indicators: 45 mA max. current per LED color Standard Audible Alarm (IP50): @ 25 mA max. current Sealed Audible Alarm (IP67): 35 mA max. current Omni-Directional Sealed Audible Alarm: 45 mA max. current</p> <p><b>High Brightness: max. current per LED color:</b> Indicators: 18 V dc—100 mA; 30 V dc—60 mA; 21 V ac—80 mA; 27 V ac—70 mA Standard Audible (IP50): 25 mA max. current Sealed Audible Alarm (IP67): 35 mA max. current</p> <p><b>Audible only:</b> @ 45mA max.</p> <p><b>AC models:</b> 100 to 240 V ac; 50 or 60 Hz</p>
Indicators	LEDs are independently selected— Green, Yellow, Red, Blue, White, Turquoise, Orange, Violet, Sky Blue or Magenta; 1-7 colors depending on model
Supply Protection Circuitry	Protected against reverse polarity and transient voltages
Input Response Time	<p><b>Indicators ON/OFF (dc):</b> 10 milliseconds (max.)</p> <p><b>Indicators ON/OFF (ac):</b> 500 milliseconds (max.)</p>
Audible Alarm	<p>Audible measurements are made in the direction sound exits the device. For standard audible models, this is the top of the unit (when mounted vertically, sound is directed toward the ceiling). For sealed audible models (IP67), sound exits the vented openings in the side of the unit, which should be oriented so that the sound is directed toward the machine operator(s). In environments with high ambient noise levels or high ceilings that absorb sound, the sealed version is recommended.</p> <p><b>Standard Audible Alarm:</b> 2.7 KHz <math>\pm</math> 500 Hz oscillation frequency; max. intensity 92 db @ 1 meter (typical)</p> <p><b>Sealed Audible Alarm:</b> 29 KHz to 250 Hz oscillation frequency; max. intensity 94 db @ 1 meter (typical)</p> <p><b>Omni-Directional Sealed Audible Alarm with Intensity Adjustment:</b> 2.1 KHz <math>\pm</math> 250 Hz oscillation frequency; max intensity 95 dB at 1 meter (3.3 ft) (typical)</p>
Audible Adjustments	<p><b>Standard Audible Alarm:</b> Unscrew the cover (up to 1.5 turns max.) to adjust the audible intensity. (Do not exceed 1.5 turns or the cover may detach during operation.) For max. intensity, rotate the center plug 180° counterclockwise to remove it.</p> <p><b>Sealed Audible Alarm and Omni-Directional Sealed Audible Alarm with Intensity Adjustment:</b> Rotate the front cover until the desired intensity is reached.</p>
Construction	<p><b>Bases and Covers:</b> ABS</p> <p><b>Light Segment:</b> Polycarbonate</p>
Environmental Rating	<p><b>General-Purpose:</b> IEC IP67</p> <p><b>Audible:</b> IEC IP50 or IEC IP67, depending on model</p>
Operating Conditions	<p><b>General-Purpose:</b> -40 to +50 °C</p> <p><b>Audible:</b> -20 to +50 °C</p> <p><b>Relative Humidity:</b> 95% @ 50 °C (non-condensing)</p> <p><b>Storage Temperature:</b> -40 to +70 °C</p>
Certifications	   <b>IO-Link®</b>

# TL50C Series

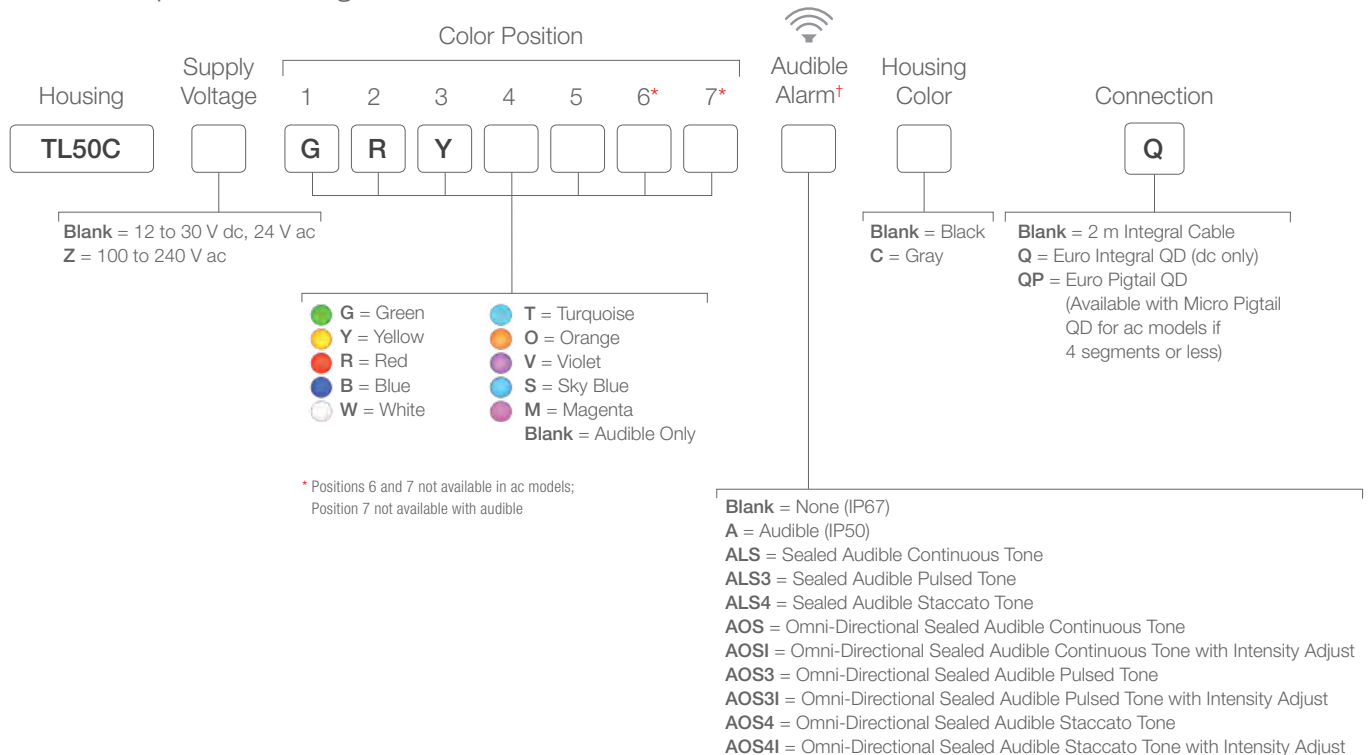
## Compact Tower Lights



- Displays up to seven colors in one tower
- Half the height of standard TL50 models
- Bright, uniform lighted segments with 10 color choices available
- Available with standard, sealed or Omni-Directional audible
- Compact, sleek, rugged design with IP67 models available
- DC models work down to 12 volts, allowing for use in battery-powered mobile equipment
- Audible alert: continuous, pulsed and staccato models available
- Cordsets and brackets see page 432

LASER  
MARKING  
AVAILABLE

TL50C Compact Tower Light



For more specifications see page 425.

Connection options: A model with a QD requires a mating cordset (see page 432).



TL50C

Color Count	Tower Height (H) General-Purpose IP67	Tower Height (H) Audible† IP50	Tower Height (H) Sealed Audible IP67	Tower Height (H) Sealed Omni-Directional IP67	Tower Height (H) AC
1	46.2 mm	77.1 mm	100.2 mm	114.2 mm	Add 69 mm to any of these heights to get total height
2	72.0 mm	102.9 mm	126.0 mm	140.0 mm	
3	97.8 mm	128.7 mm	151.8 mm	165.8 mm	
4	123.6 mm	154.5 mm	177.6 mm	191.6 mm	
5	149.4 mm	180.3 mm	203.4 mm	217.4 mm	
6	175.2 mm	206.1 mm	229.2 mm	243.4 mm	—
7	201.0 mm	—	—	—	—

† Tower height (H) with top unscrewed approximately 3.5 mm to allow sound to escape.

Audible Types

**Audible**  
max. intensity 92 db  
@ 1 meter (typical)

**Sealed Audible**  
max. intensity 94 db  
@ 1 meter (typical)

**Sealed Omni-Directional Audible**  
max. intensity 99 db  
@ 1 meter (typical)

# Building a Tower Light

[www.bannerengineering.com/towerlights](http://www.bannerengineering.com/towerlights)

Choose  
Type

1



Compact

Audible or  
No Audible

2



**Audible**  
max. intensity  
92 db @ 1 meter  
(typical)



**Sealed Audible**  
max. intensity 94 db  
@ 1 meter (typical)



**Sealed Omni-  
Directional Audible**  
max. intensity 99 db  
@ 1 meter (typical)

Lighting  
Options/  
Function

3



Position 7 (not available with audible)

Position 6

Position 5

Position 4

Position 3

Position 2

Position 1

Base



Color availability varies  
between models

Connections

4



Integral QD



Euro Pigtail





Integral Cable

Housing  
Color

5



## TL50C Specifications

Supply Voltage and Current	<b>DC models:</b> 12 to 30 V dc; or 21 to 27 V ac <b>Indicators: Max. current per LED color:</b> at 12 V: 135 mA at 24 V: 55 mA at 30 V: 45 mA <b>Standard Audible Alarm:</b> 25 mA max. current <b>Sealed Audible Alarm:</b> 35 mA max. current <b>Omni-Directional Sealed Audible Alarm:</b> 45 mA max. current	<b>AC models:</b> 100 to 240 V ac; 50 or 60 Hz
Indicators	LEDs are independently selected, 1 to 7 colors depending on model	
Supply Protection Circuitry	Protected against reverse polarity and transient voltages	
Input Response Time	<b>Indicators ON/OFF (dc):</b> 10 milliseconds (max.) <b>Indicators ON/OFF (ac):</b> 500 milliseconds (max.)	
Audible Adjustments	<b>Standard Audible Alarm:</b> Unscrew the cover (up to 1.5 turns max.) to adjust the audible intensity. (Do not exceed 1.5 turns or the cover may detach during operation.) For max. intensity, rotate the center plug 180° counterclockwise to remove it. <b>Sealed Audible Alarm and Omni-Directional Sealed Audible Alarm with Intensity Adjustment:</b> Rotate the front cover until the desired intensity is reached. <b>Omni-Directional Sealed Audible Alarm:</b> No adjustment	
Construction	<b>Bases and Covers:</b> ABS <b>Light Segment:</b> Polycarbonate	
Environmental Rating	<b>Non-Audible and Sealed Audible:</b> IEC IP67 <b>Standard Audible:</b> IEC IP50	
Operating Conditions	<b>General-Purpose:</b> -40 to +50 °C <b>Audible:</b> -20 to +50 °C <b>Relative Humidity:</b> 95% @ 50 °C (non-condensing) <b>Storage Temperature:</b> -40 to +70 °C	
Certifications	 	

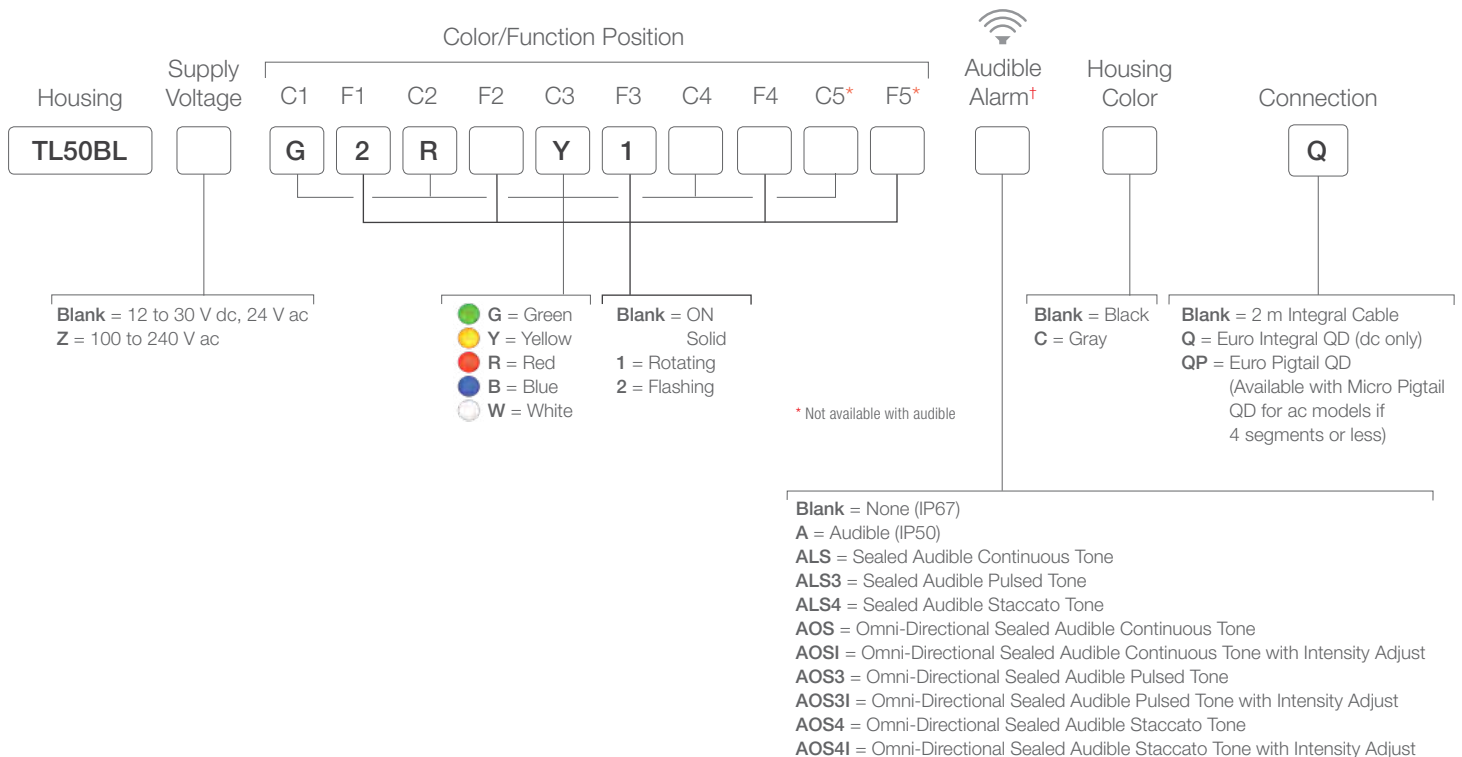
# TL50BL Series

## Beacon Tower Lights



- Highly visible indication for indoor or outdoor applications
- Compact, stylish design with rotating and flashing options
- Audible alert: continuous, pulsed and staccato models available
- Omni-Directional audible models provide clear annunciation in the noisiest environments
- Models available with rugged, water-resistant IP67 housing
- Cordsets and brackets see page 432

TL50BL Beacon Tower Light



For more specifications see page 430.

Connection options: A model with a QD requires a mating cordset (see page 432).



TL50BL

Color Count	Tower Height (H) General-Purpose IP67	Tower Height (H) Audible† IP50	Tower Height (H) Sealed Audible IP67	Tower Height (H) Sealed Omni-Directional IP67	Tower Height (H) AC
1	46.2 mm	77.1 mm	100.2 mm	129.1 mm	Add 69 mm to any of these heights to get total height
2	72.0 mm	102.9 mm	126.0 mm	169.8 mm	
3	97.8 mm	128.7 mm	151.8 mm	210.5 mm	
4	123.6 mm	154.5 mm	177.6 mm	—	
5	149.4 mm	—	—	—	

† Tower height (H) with top unscrewed approximately 3.5 mm to allow sound to escape.

Audible Types



**Audible**  
max. intensity 92 db  
@ 1 meter (typical)



**Sealed Audible**  
max. intensity 94 db  
@ 1 meter (typical)



**Sealed Omni-Directional Audible**  
max. intensity 99 db  
@ 1 meter (typical)



# Building a Tower Light

[www.bannerengineering.com/towerlights](http://www.bannerengineering.com/towerlights)

Choose  
Type

1



Daylight Visible

Audible or  
No Audible

2



**Audible**  
max. intensity 92 db  
@ 1 meter (typical)



**Sealed Audible**  
max. intensity 94 db  
@ 1 meter (typical)



**Sealed Omni-  
Directional Audible**  
max. intensity 99 db  
@ 1 meter (typical)

Lighting  
Options/  
Function

3



Position 5 (not available with audible)

Position 4

Position 3

Position 2

Position 1

Base



Connections

4



Integral QD



Euro Pigtail





Integral Cable

Housing  
Color

5



## TL50 Beacon Specifications

Supply Voltage and Current	<p><b>DC models:</b> 12 to 30 V dc (10% max. ripple); or 21 to 27 V ac</p> <p><b>Indicators — max. current per LED color:</b></p> <p>    @ 12 V dc: 125 mA</p> <p>    @ 30 V dc: 60 mA</p> <p>    @ 21 V ac: 80 mA</p> <p>    @ 27 V ac: 70 mA</p> <p><b>Standard Audible Alarm:</b> 25 mA max. current</p> <p><b>Sealed Audible Alarm:</b> 35 mA max. current</p> <p><b>AC models:</b> 100 to 240 V ac</p>
Indicators	1-5 colors depending on model; Green, Red, Yellow, Blue and White LEDs are independently selected
Supply Protection Circuitry	Protected against reverse polarity and transient voltages
Input Response Time	<p><b>Indicators ON/OFF (dc):</b> 1 milliseconds (max.)</p> <p><b>Indicators ON/OFF (ac):</b> 500 milliseconds (max.)</p>
Audible Alarm	<p>Audible measurements are made in the direction sound exits the device. For standard audible models, this is the top of the unit (when mounted vertically, sound is directed toward the ceiling). For sealed audible models, sound exits the vented openings in the side of the unit, which should be oriented so that the sound is directed toward the machine operator(s). In environments with high ambient noise levels or high ceilings that absorb sound, the sealed version is recommended.</p> <p><b>Standard Audible Alarm:</b> 2.7 KHz <math>\pm</math> 500 Hz oscillation frequency; max. intensity 92 db @ 1 meter (typical)</p> <p><b>Sealed Audible Alarm:</b> 2.9 KHz <math>\pm</math> 250 Hz oscillation frequency; max. intensity 94 db @ 1 meter (typical)</p>
Audible Adjustments	<p><b>Standard Audible Alarm:</b> Unscrew the cover (up to 1.5 turns max.) to adjust the audible intensity. (Do not exceed 1.5 turns or the cover may detach during operation.) For max. intensity, rotate the center plug 180° counterclockwise to remove it.</p> <p><b>Sealed Audible Alarm and Omni-Directional Sealed Audible Alarm with Intensity Adjustment:</b> Rotate the front cover until the desired intensity is reached.</p>
Construction	<p><b>Bases and Covers:</b> ABS</p> <p><b>Light Segment:</b> Polycarbonate</p>
Environmental Rating	<p><b>Standard Audible:</b> IEC IP50</p> <p><b>Non Audible and Sealed Audible:</b> IEC IP67</p>
Operating Conditions	<p><b>Temperature:</b></p> <p>    <b>General-Purpose:</b> -40 to +50 °C</p> <p>    <b>Standard and Sealed Audible:</b> -20 to +50 °C</p> <p><b>Max. Rel. Humidity:</b> 95% @ 50 °C (non-condensing)</p> <p><b>Storage Temperature:</b> -40 to +70 °C</p>
Certifications	 

# CL50 Series

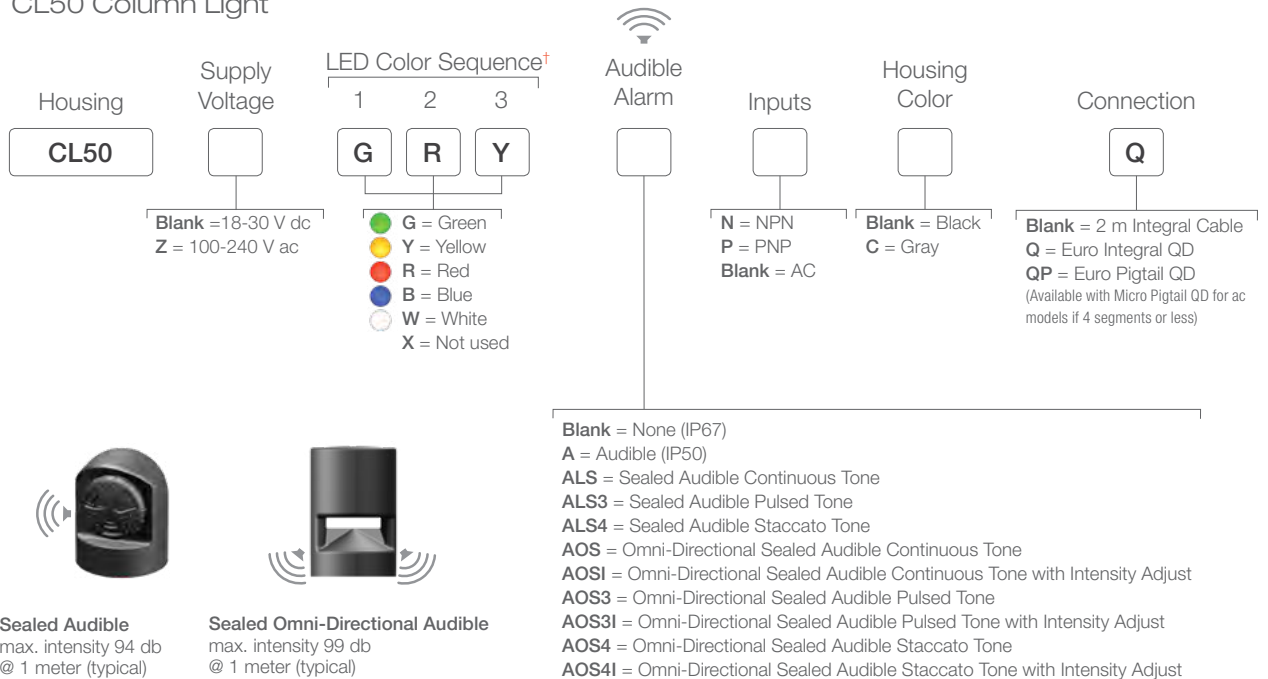
## Column Lights



LASER  
MARKING  
AVAILABLE

- Up to three colors in one device for multiple status indication
- Ideal for machine process status indication and visual guidance
- Install quickly and easily, no tools required
- Large surface area can be easily seen from long distances
- Audible models available with standard or sealed audible element
- Cordsets and brackets see page 432

### CL50 Column Light





Connection options: A model with a QD requires a mating cordset (see page 432).

† Contact factory for other colors and color combinations



All models available in black or gray

## CL50 Specifications

Supply Voltage and Current	18 to 30 V dc (10% max. ripple) 100 mA max. current @ 18 V dc; 70 mA max. current @ 30 V dc <b>Standard Audible Alarm:</b> 25 mA max. current <b>Sealed Audible Alarm:</b> 35 mA max. current <b>Omni-Directional Sealed Audible Alarm:</b> 45 mA max. current <b>AC models:</b> 100 to 240 V ac
Indicators	Green, Red, Yellow, Blue and White; 1-3 colors, depending on model LEDs or audible alarm are independently selected
Supply Protection Circuitry	Protected against reverse polarity and transient voltage
Input Response Time	<b>Indicators ON/OFF (dc):</b> 10 milliseconds (max.) <b>Indicators ON/OFF (ac):</b> 500 milliseconds (max.)
Audible Alarm	<b>Standard Audible Alarm:</b> 2.7 KHz $\pm$ 500 Hz oscillation frequency; max. intensity 92 db @ 1 meter (typical) <b>Sealed Audible Alarm:</b> 2.9 KHz $\pm$ 250 Hz oscillation frequency; max. intensity 94 db @ 1 meter (typical)
Audible Adjustments	<b>Standard Audible Alarm:</b> Unscrew the cover (up to 1.5 turns max.) to adjust the audible intensity. (Do not exceed 1.5 turns or the cover may detach during operation.) For max. intensity, rotate the center plug 180° counterclockwise to remove it. <b>Sealed Audible Alarm:</b> Rotate the front cover until the desired intensity is reached. <b>Omni-Directional Sealed Audible Alarm:</b> No adjustment
Construction	<b>Bases and Covers:</b> ABS <b>Light Segment:</b> Polycarbonate
Environmental Rating	<b>Standard Audible:</b> IEC IP50 <b>General-Purpose and Sealed Audible:</b> IEC IP67
Connections	Integral 4-pin or 5-pin M12/Euro-style QD, 150 mm PVC pigtail with QD, or 2 m (6.5') integral cable, 4-pin or 5-pin Micro-style QD pigtail, depending on model
Operating Conditions	<b>Temperature:</b> <b>Standard and Sealed Audible:</b> -20 to +50 °C <b>General-Purpose:</b> -40 to +50 °C <b>Relative humidity:</b> 95% @ 50 °C (non-condensing) <b>Storage Temperature:</b> -40 to +70 °C
Vibration and Mechanical Shock	All models meet Mil. Std. 202F requirements method 201A (vibration: 10 to 60 Hz max., double amplitude 0.06", maximum acceleration 10G). Also meets IEC 947-5-2; 30G 11 ms duration, half sine wave.
Certifications	 

### Euro-Style

Straight connector models listed; for right-angle, add **RA** to the end of the model number (example, **MQDC-406RA**)



#### 3 Lights/4-Pin

**MQDC-406**  
2 m (6.5')  
**MQDC-415**  
5 m (15')  
**MQDC-430**  
9 m (30')

#### 4 Lights/5-Pin

**MQDC1-506**  
2 m (6.5')  
**MQDC1-515**  
5 m (15')  
**MQDC1-530**  
9 m (30')

#### 5+ Lights/8-Pin

**MQDC2S-806**  
2 m (6.5')  
**MQDC2S-815**  
5 m (15')  
**MQDC2S-830**  
9 m (30')

### Micro-Style For AC models



#### 3-Lights/4-Pins

**MQAC2-406**  
2 m (6.5')  
**MQAC2-415**  
4 m (12')  
**MQAC2-430**  
9 m (30')

#### 4 Lights/5-Pin

**MQAC2-506**  
2 m (6.5')  
**MQAC2-515**  
4 m (12')  
**MQAC2-530**  
9 m (30')

Additional cordset information is available  
See page 758



SMB30A



SMB30MM



SMBAMS30P



SMB30RAVK

Additional bracket information is available  
See page 727



### Laser Marking

Light sections can be permanently marked with custom text or images (all models except TL50BL Beacon)

### Flush Foldable Bracket

for use with elevated mount systems



SA-FFB12 Black  
SA-FFB12C Gray

To change position



1. Remove screws & pull out



2. Adjust angle






3. Push in & replace screws




4. Complete

Elevated Mount System

Features	Model			Components	
<ul style="list-style-type: none"><li>Streamlined black acetal or white UHMW stand-off pipe adapter/cover</li><li>Connects to 30 mm light base</li><li>Mounting hardware included</li></ul>	use with TL50 and CL50 models	<b>SA-M30TE12</b> (black ABS)	<b>SA-M30TE12C</b> (whiteTL50 ABS)		
	Use with TL70 Models	<b>SA-M30</b> (black ABS)	<b>SA-M30C</b> (white ABS)		
<ul style="list-style-type: none"><li>Elevated-use stand-off pipe (½ in. NPSM/DN15)</li><li>Polished 304 stainless steel, black anodized aluminum, or clear anodized aluminum surface</li><li>½ in. NPT thread at both ends</li><li>Compatible with most industrial environments</li></ul>	<b>Polished 304 Stainless Steel</b>	<b>Black Anodized Aluminum</b>	<b>Clear Anodized Aluminum</b>		
	<b>SOP-E12-150SS</b> 150 mm (6") long	<b>SOP-E12-150A</b> 150 mm (6") long	<b>SOP-E12-150AC</b> 150 mm (6") long		
	<b>SOP-E12-300SS</b> 300 mm (12") long	<b>SOP-E12-300A</b> 300 mm (12") long	<b>SOP-E12-300AC</b> 300 mm (12") long		
	<b>SOP-E12-900SS</b> 900 mm (36") long	<b>SOP-E12-900A</b> 900 mm (36") long	<b>SOP-E12-900AC</b> 900 mm (36") long		
<ul style="list-style-type: none"><li>Streamlined black acetal or white UHMW mounting base adapter/cover</li><li>Connects between ½ in. NPSM/DN15 pipe and 30 mm (1-3/16 in) drilled hole</li><li>Mounting hardware included</li></ul>	<b>SA-E12M30</b> (black zinc and ABS)				
	<b>SA-E12M30C</b> (white zinc and ABS)				


EZ-LIGHT® Controllers

Description	Function	Model	
5 toggle switches	ON-OFF-FLASH	LC80T	

12 position rotary switch	ON-OFF-FLASH	LC80R	
---------------------------	--------------	-------	---

EZ-LIGHT® Sealed Right-Angle Brackets

Description	Model		
Bracket kit with base, ½-14 pipe adapter, set screw, fasteners, o-rings and gaskets. For use with stand-off pipe (listed and sold separately).	LMBE12RA		
	LMBE12RAC		

Bracket kit with base, 30 mm adapter, set screw, fasteners, o-rings and gaskets	LMB30RA		
	LMB30RAC		



## Indicators

Banner's Indicators offer a wide variety of bright, highly visible models ranging from daylight visible to multiple colors in one device. Indicators have a rugged design for long-term use and require no additional protective box. Flexibility in design, size and mounting provides a unique solution for many indication applications.

# INDICATORS

---

BASE MOUNT **page 436**

BARREL/T-STYLE MOUNT **page 448**








FLAT MOUNT **page 456**





## Base-Mount Indicators

Base-mount indicators provide a wide variety of indicators for general purpose indication applications. They have a sleek design, audible or daylight visible options available, and most appear gray when off for clear indication of on/off status.

Series	Description	Number of Colors	Brightness	Dimensions	Power Supply	Communication
	<b>K30L</b> These small dome indicators have long-life LEDs for zero maintenance after installation. page 438	<b>K30L:</b> 1 to 3 9 color options <b>K30L2:</b> 7 color options	Standard	<b>Base:</b> 22 mm <b>Dome:</b> 30 mm	10 to 30 V dc	NA
	<b>K50L</b> These indicators are completely epoxy encapsulated, which protects the electronics from the harshest environments. page 439	<b>K50L:</b> 1 to 3 9 color options <b>K50L2:</b> 7 color options	Standard	<b>Base:</b> 30 mm <b>Dome:</b> 50 mm	18 to 30 V dc, 85 to 130 V ac	I/O Link Option ModBus Option
	<b>K70L</b> Bright, uniform indicators in a rugged, water-resistant housing. page 442	1 to 5 (5 color options)	Standard	<b>Base:</b> 30 mm <b>Dome:</b> 70 mm	12 to 30 V dc	Wireless Option
	<b>K90L</b> These indicators are rugged, 90 mm indicator lights that provide extremely bright and uniform illumination. page 443	1 to 5 (5 color options)	High-Brightness	<b>Base:</b> 30 mm <b>Dome:</b> 90 mm	12 to 30 V dc	NA
	<b>K50BL Beacon</b> Extremely bright and ideal for indoor and outdoor areas with high levels of ambient light. page 444	1 or 2 (5 color options)	Day Light Visible	<b>Base:</b> 30 mm	12 to 30 V dc, 85 to 250 V ac	ModBus Option
	<b>K50LD Daylight</b> Features a brightly illuminated base for enhanced visual indication. page 445	<b>AC:</b> 1 <b>DC:</b> 1 or 3 (5 color options)	Day Light Visible	<b>Base:</b> 30 mm	15 to 30 V dc, 85 to 130 V ac	ModBus Option
	<b>K50L &amp; K30L Hazardous Area</b> Indicator Lights for hazardous areas are safe to use in every classified zone or area with extensive intrinsically safe approvals. page 446	1 to 3 (5 color options)	Standard	<b>K50</b> <b>Base:</b> 30 mm <b>Dome:</b> 50 mm  <b>K30</b> <b>Base:</b> 22 mm <b>Dome:</b> 30 mm	10 to 30 V dc	NA

## OTHER AVAILABLE MODELS



Barrel/T-Style Mount

448



Flat Mount

456

# K30L2 Series

## Domed Indicator

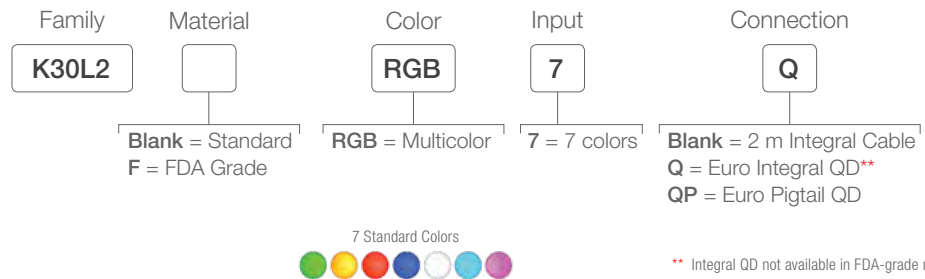


- Bright 30 mm diameter polycarbonate dome gives uniform illumination from all directions
- Seven colors in one device (green, red, yellow, cyan, blue, magenta, white)
- Neutral color when in the OFF condition eliminates false indication from surrounding ambient light
- Rugged IP66, IP67, IP69K and UL Type 4x, 13 design
- Models available in FDA grade materials (not Type 13)
- Bimodal inputs (PNP or NPN)
- Cordsets and brackets available see page 447

LASER  
MARKING  
AVAILABLE

### K30L2

Example Model Number: K30L2RGB7Q



For more specifications see page 445.

Connection Option: A model with a QD requires a mating cordset (see page 447).

# K50L2 Series

## Domed Indicator



- Bright 50 mm diameter polycarbonate dome gives uniform illumination from all directions
- Seven colors in one device (green, yellow, red, blue, white, cyan, magenta)
- Neutral color when in the OFF condition eliminates false indication from surrounding ambient light
- Rugged IP66, IP67, IP69K and UL Type 4x, 13 design
- Models available in FDA grade materials (not Type 13)
- Bimodal inputs (PNP or NPN)
- Models with integrated alarm available
- Cordsets and brackets available see page 447

LASER  
MARKING  
AVAILABLE

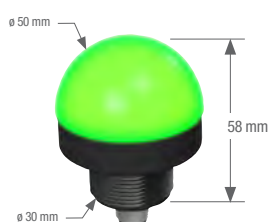
### K50L2

Example Model Number: K50L2RGB7A1Q

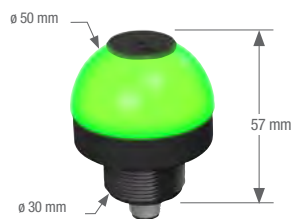


\* Audible models not available in FDA-grade material

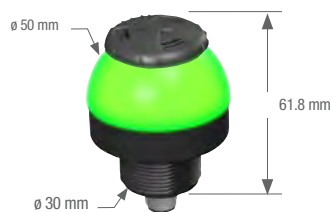
\*\* Integral QD not available in FDA-grade material



K50L2 Models



K50L2 Audible Models  
(A1, AL1)



K50L2 Adjustable Audible Models  
(ALS)

For more specifications see page 445.



Connection Option: A model with a QD requires a mating cordset (see page 447).

# K30L and K50L Series

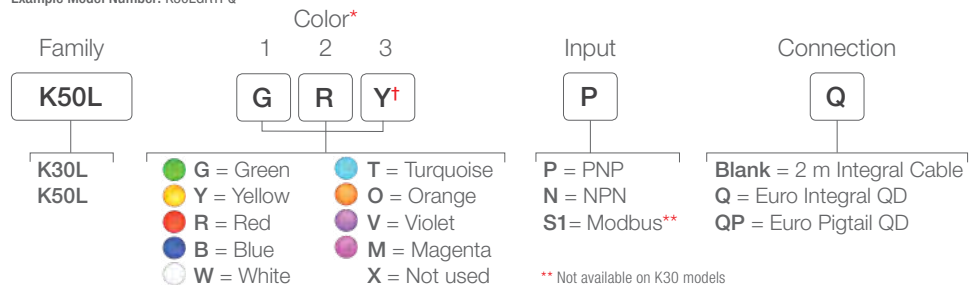
## Domed Indicator



- Smooth 30 or 50 mm diameter dome gives uniform illumination from all directions.
- The neutral color when in the OFF condition eliminates false indication from surrounding ambient light
- Up to three colors in one device with many different color combinations
- Modbus option as well as NPN, PNP
- Long-lasting, energy-efficient LEDs for years of operation with zero maintenance
- Many models rated to IP69K to handle high-pressure washdown environments
- Multifunction models available; contact factory
- Cordsets and brackets available see page 447

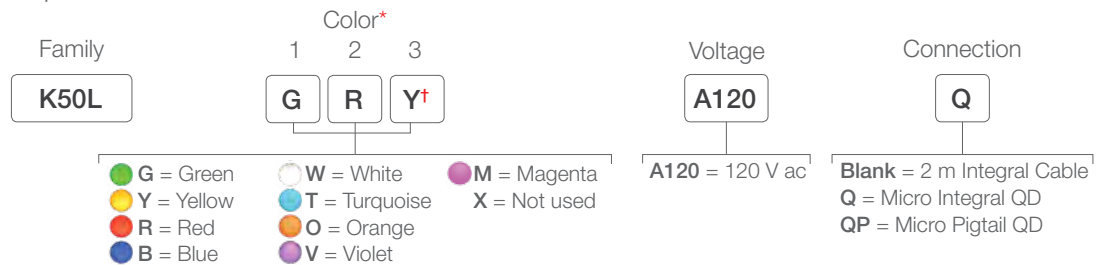
### K30L (10-30 V dc) and K50L (18-30V dc) One-, Two-, or Three-Color

Example Model Number: K50LGRYPQ



### K50L ( 85-130 V ac) One-, Two-, or Three-Color

Example Model Number: K50LGRYA120Q



For more specifications see page 445.

 Connection Option: A model with a QD requires a mating cordset (see page 447).

\* Single-color models are available. Colors are independently selectable. Contact factory for other colors and color combinations.

† Add 7 after last color option for Sensor Emulators (example, K30LGYX7PQ). Use with discrete output of photoelectric and proximity sensors to duplicate the sensor's Green and Yellow indicator function. When the sensor is powered, the Green LED is ON. When the sensor's output is energized, the Yellow LED is ON.

# K50L Audible Series

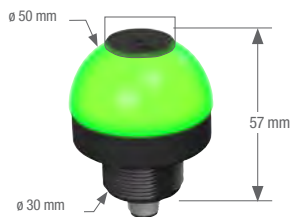
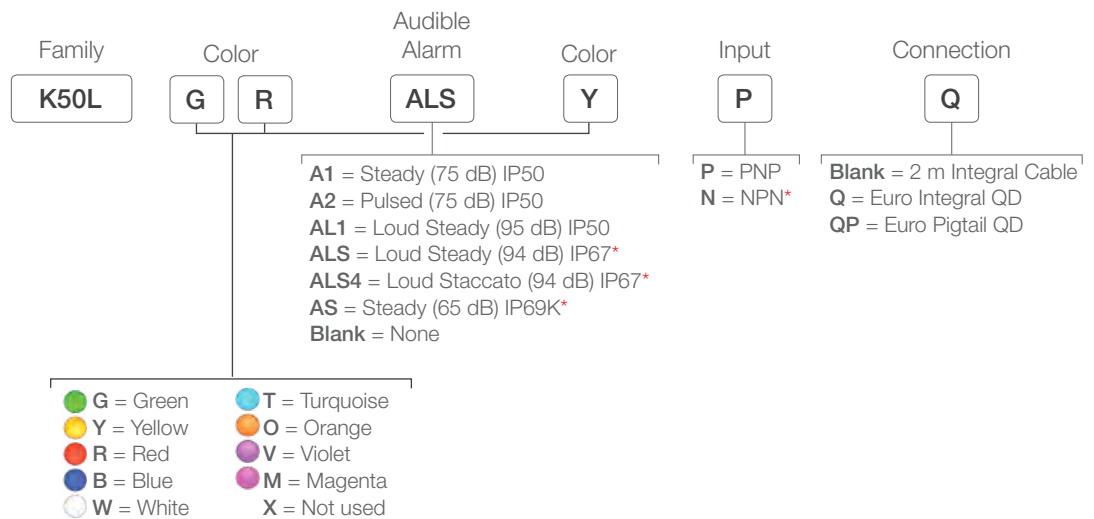
## Audible Domed Indicator



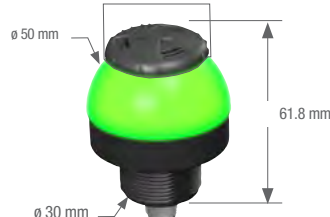
- 50 mm diameter dome gives uniform illumination from all directions and an audible alarm with several tones and intensity levels
- Completely epoxy encapsulated, protecting the electronics from the harshest environments, making them nearly indestructible.
- The neutral color when in the OFF condition eliminates false indication from surrounding ambient light
- Up to three colors in one device with many different color combinations
- Long-lasting, energy-efficient LEDs for years of operation with zero maintenance
- Many models rated to IP69K to handle high-pressure washdown environments
- Cordsets and brackets available see page 447

### K50L One-, Two-, or Three-Color Audible

Example Model Number: K50LGRALSYQPQ



K50L Audible Models  
(A1, A2, AL1)



K50L Adjustable Audible Models  
(ALS, ALS4)



K50L Sealed Audible Models  
(AS)

For more specifications see page 446.

 Connection Option: A model with a QD requires a mating cordset (see page 447).

\* NPN not available on these models

# K70L Series

## Medium-Sized Domed Indicator

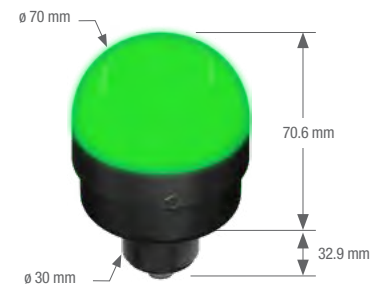
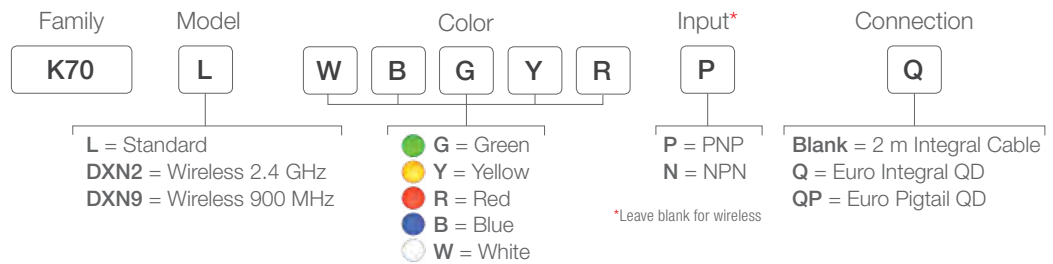


- Bright, uniform indicator light
- All models have flashing input control
- Models are available with up to five colors in one device
- Rugged, water-resistant IP65-rated design
- 12 V to 30 V dc operations
- Wireless options available in either 900 MHz and 2.4 GHz ISM Bands
- Cordsets and brackets available see page 447

LASER  
MARKING  
AVAILABLE

### K70 Standard and Wireless

Example Model Number: K70LWBGYRPQ



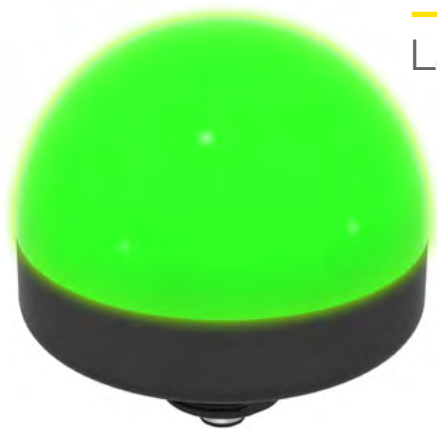
For more specifications see page 445.



Connection Option: A model with a QD requires a mating cordset (see page 447).

# K90L and K90TL Series

## Large Domed Indicator

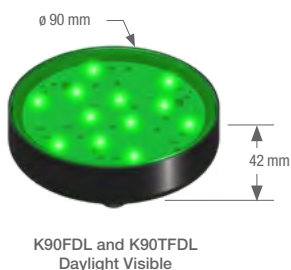
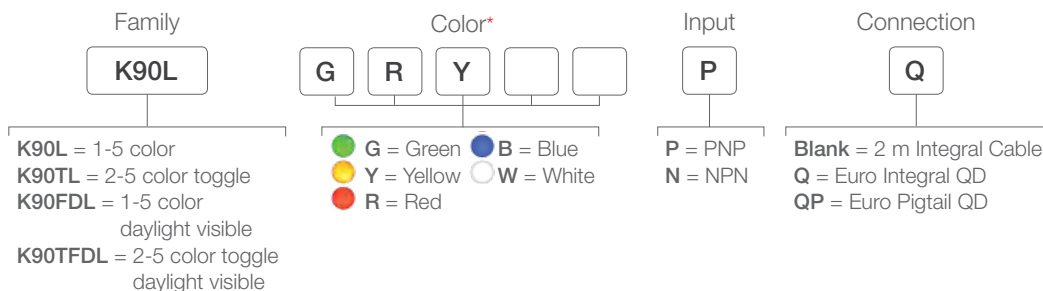


- Rugged, 90 mm indicator lights that provide extremely bright and uniform illumination from all directions and longer distances.
- The K90L models have a separate input wire for internally controlled flashing
- Daylight visible models are available in both the standard and toggle models
- Illuminated dome provides easy-to-see operator guidance
- Up to five colors in one device to communicate multiple statuses
- Rugged design with an IP67-rating
- Cordsets and brackets available see page 447

LASER  
MARKING  
AVAILABLE

### K90L One to Five Color

Example Model Number: K90LGRYPQ



For more specifications see page 447.

 Connection Option: A model with a QD requires a mating cordset (see page 447).

\* Single-color models are available. Colors are independently selectable. Contact factory for other colors and color combinations.

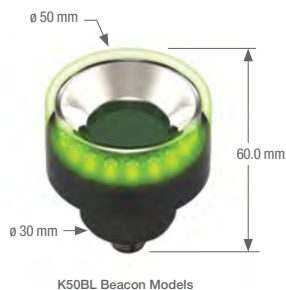


# K50 Beacon Series

## High-intensity Indicator



- Extremely bright, making them ideal for indoor and outdoor areas with high levels of ambient light.
- UV-stabilized polycarbonate housing and epoxy encapsulated electronics allow for years of maintenance-free operation.
- They are available in five colors and a wide range of voltage levels
- Continuous, strobing and rotating models available
- 12-30 V dc models are ideal for battery-powered mobile applications
- Models with LEDs emitting from the top in addition to the perimeter
- Rugged, sealed housing rated to IP69K for high-pressure washdown
- Models for 120 V and 230 V ac operation
- Cordsets and brackets available see page 447



### K50BL & K50BCL One or Two Color, 12-30 V DC

Example Model Number: K50BLR1XGXPQ

Family	Function	Color	Input	Connection
<b>K50BL</b>	<b>R1</b>	<b>1 2</b> <b>X G</b>	<b>P</b>	<b>Q</b>
K50BL = Perimeter View K50BCL = Perimeter & Top View	R1 = Rotating* S1 = Strobing** Blank = None	G = Green Y = Yellow R = Red B = Blue W = White	P = PNP S1 = Modbus	Blank = 2 m Integral Cable Q = Euro Integral QD QP = Euro Pigtail QD



### K50BL & K50BCL One Color, 85-250 V AC

Example Model Number: K50BLGA120Q

Family	Color	Input	Connection
<b>K50BL</b>	<b>G</b>	<b>A120</b>	<b>Q</b>
K50BL = Perimeter View K50BCL = Perimeter & Top View	G = Green Y = Yellow R = Red B = Blue W = White	A120 = 85-130 V ac A230 = 100-250 V ac	Blank = 2 m Integral Cable Q = Micro Integral QD QP = Micro Pigtail QD



Connection Option: A model with a QD requires a mating cordset (see page 447).

\* Rotating only available on K50BL models.

\*\* Strobing only available on K50BCL models.

# K50 Daylight Visible Series

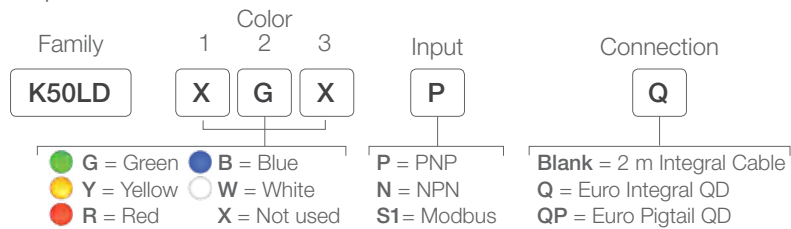
## Directional Indicator



- Flat 50 mm profile with high-intensity LEDs that clearly show status indication
- Intense levels of light output for outdoor environments or in areas with high levels of ambient light
- Easy-to-install 30 mm threaded base mount, no tools required
- Up to three colors in one device to communicate multiple statuses
- Rugged design for many years of operation
- Completely self-contained, no controller needed
- Cordsets and brackets available see page 447

### K50LD One- or Three- Color, 12-30 V DC

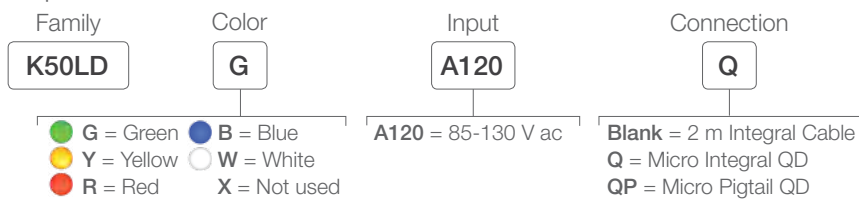
Example Model Number: K50LDXGXPQ





K50L Daylight Models

### K50LD One Color, 85-130 V AC

Example Model Number: K50LDGA120Q



### K30L, K50L, K70L, K90L Base-Mount Specifications

Supply Voltage and Current	<p><b>K90L:</b> 12 to 30 V dc; 475 mA Max. at 12 V dc; 175 mA Max. at 30 V dc</p> <p><b>K70L:</b> 12 V to 30 V dc; 200 mA Max. at 12 V dc; 90 mA Max. at 30 V dc</p> <p><b>K50L:</b> 18 to 30 V dc (10% max. ripple)</p> <p>    <b>Indicators:</b> 65 mA at 12 V dc; 35 mA at 30 V dc max. current per color</p> <p>    <b>Audible:</b> 35 mA max. current</p> <p><b>K50LD:</b> 15 to 30 V dc; 85 to 130 V ac or 75 to 120 V dc @ 16 mA max.</p> <p><b>K50BL:</b> 12 to 30 V dc; 85 to 130 V ac or 75 to 120 V dc; 100 to 250 V ac or 90 to 240 V dc</p> <p><b>K30L:</b> 10 to 30 V dc</p> <p><b>K50L2:</b> 10 to 30 V dc; 220mA Max. at 10 V dc; 100mA Max. at 30 V dc</p> <p><b>K30L2:</b> 10 to 30 V dc; 60mA Max. at 10 V dc; 30mA Max. at 30 V dc</p>	
Supply Protection Circuitry	Protected against reverse polarity, transient voltages	
Construction	Polycarbonate housing	
Environmental Rating	<p><b>K90L:</b> IEC IP67</p> <p><b>K70L:</b> IEC IP65</p> <p><b>K30L, K30L2:</b> IEC IP67/IP69K</p>	<p><b>K50L, K50L2:</b> IEC IP67/IP69K</p> <p>    <b>Audible Models: Standard:</b> IEC IP50    <b>Sealed:</b> IEC IP67/IP69K</p> <p><b>K50LD, K30LD, K50BL:</b> IEC IP67/IP69K</p>
Operating Temperature	-40 to 50 °C	
Certifications	<p>K90L, K70L, K30L, K50L:  K90L, K70L, K30L, K50L:  (Depending on model)</p>	

 Connection Option: A model with a QD requires a mating cordset (see page 447).

# K30L and K50L Hazardous Area

## Domed Indicator



- 30 and 50 mm models rated to IP67 and IP69K for use in harsh environments, making them nearly indestructible
- Extensive approvals ensure indicator lights are safe to use in every classified zone or area
- Up to three colors in one device and five colors to choose from
- Long-lasting LED technology for years of maintenance-free operation
- Unique design appears gray when off, eliminating false indication from ambient light
- Worldwide IECEx approval for quicker access into countries outside Europe and North America

### K30L and K50L Hazardous Area

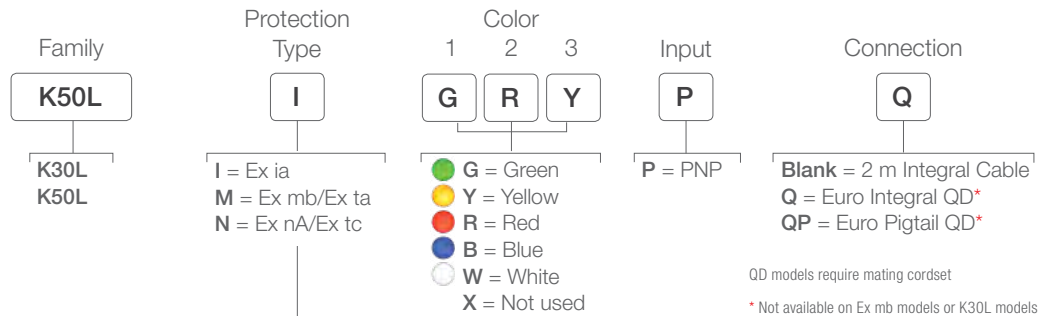
Example Model Number: K50LIGRYPQ



K30L Models



K50L Models




Indicator Family	Protection Method	Suitable for ATEX	Suitable for NEC & CEC
Ex ia	Intrinsically Safe	Gas Zones: 0, 1, & 2 Dust Zones: 20, 21, & 22 mines	Gas zones: 0, 1, & 2 Class I Division 1 & 2 Class II/III Division 1 & 2
Ex mb/Ex ta	Encapsulation/ Enclosure	Gas Zones: 1 & 2 Dust Zones: 20, 21 & 22	Gas zones: 1 & 2 Class I Division 2 Class II/III Division 1 & 2
Ex nA/Ex tc	Non-Sparking/ Enclosure	Gas Zones: 2 Dust Zones: 22	Gas zones: 2 Class I Division 2 Class II/III Division 2

### K50L & K30L Hazardous Area Specifications

Supply Voltage and Current	Exia: 8-30 V dc Ex mb/Ex ta and Ex nA/Ex tc: 10-30 V dc
Supply Protection Circuitry	Protected against reverse polarity, transient voltages
Construction	Polycarbonate housing
Environmental Rating	IEC IP67 and IP69K
Operating Temperature	-40 to +50 °C
Certifications	

Connection Option: A model with a QD requires a mating cordset.



4-Pin

**Euro-Style**  
Straight connector models listed; for right-angle, add **RA** to the end of the model number (example, **MQDC-406RA**)

**MQDC-406**  
2 m (6.5')  
**MQDC-415**  
5 m (15')  
**MQDC-430**  
9 m (30')

Additional cordset information is available.  
See page 758



**SMB30FA**



**SMB22FVK**



**SMB30SC**




**SMB30A**

Additional bracket information is available.  
See page 727

Flush Foldable Bracket

Description	Model
Black	SA-FFB12
Gray	SA-FFB12C






EZ-LIGHT® Controllers

Description	Function	Model
5 toggle switches	ON-OFF-FLASH	LC80T
12 position rotary switch	ON-OFF-FLASH	LC80R



Elevated Mount System

Features	Model			Components
<ul style="list-style-type: none"><li>Streamlined black acetal or white UHMW stand-off pipe adapter/cover</li><li>Connects between 30 mm light base and ½ in. NPSM/DN15 pipe</li><li>Mounting hardware included</li></ul>		<b>SA-M30TE12</b> (black acetal)		
		<b>SA-M30TE12C</b> (white UHMW)		
	<b>Polished 304 Stainless Steel</b>	<b>Black Anodized Aluminum</b>	<b>Clear Anodized Aluminum</b>	
	<b>SOP-E12-150SS</b> 150 mm (6") long	<b>SOP-E12-150A</b> 150 mm (6") long	<b>SOP-E12-150AC</b> 150 mm (6") long	
<ul style="list-style-type: none"><li>Elevated-use stand-off pipe (½ in. NPSM/DN15)</li><li>Polished 304 stainless steel, black anodized aluminum, or clear anodized aluminum surface</li><li>½ in. NPT thread at both ends</li><li>Compatible with most industrial environments</li></ul>	<b>SOP-E12-300SS</b> 300 mm (12") long	<b>SOP-E12-300A</b> 300 mm (12") long	<b>SOP-E12-300AC</b> 300 mm (12") long	
	<b>SOP-E12-900SS</b> 900 mm (36") long	<b>SOP-E12-900A</b> 900 mm (36") long	<b>SOP-E12-900AC</b> 900 mm (36") long	
<ul style="list-style-type: none"><li>Streamlined black acetal or white UHMW mounting base adapter/cover</li><li>Connects between ½ in. NPSM/DN15 pipe and 30 mm (1-3/16 in) drilled hole</li><li>Mounting hardware included</li></ul>		<b>SA-E12M30</b> (black acetal)		
		<b>SA-E12M30C</b> (white UHMW)		



## Barrel/T-Style Indicators

T-Style indicators come in Banner's most popular sensor housings, using the same easy-to-mount brackets and style. They come in a variety of sizes for simple setup and many application uses.

Series	Description	Number of Colors	Brightness	Dimensions	Power Supply
	<b>S18L</b> Standard intensity and high intensity daylight visible models available in a variety of colors with 18 mm bases. page 450	1 to 3 (9 color options)	Varies by model	Base: 18 mm	10 to 30 V dc
	<b>S22L</b> Standard intensity and high intensity daylight visible models available in a variety of colors with 22 mm bases. page 451	1 to 3 (9 color options)	Varies by model	Base: 22 mm	10 to 30 V dc
	<b>T8L</b> The T8L Indicators have a low profile, ideal for simple panel mounting or use on a machine. page 454	1 or 2 (3 color options)	Standard	8 mm light	10 to 30 V dc

OTHER AVAILABLE MODELS



Base Mount 436



Flat Mount 456

# S18L Series

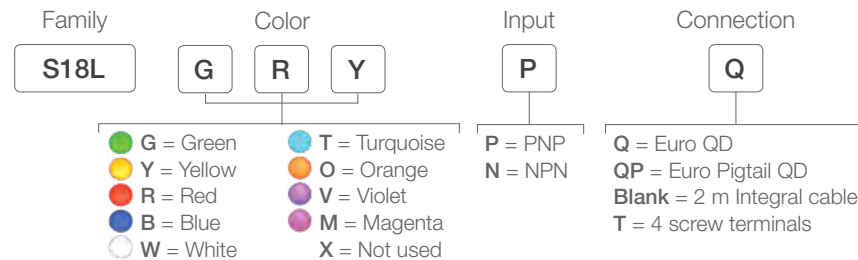
## Barrel-Mount Indicator



- Designed for panel-mount or stand-alone applications
- Daylight visible models available for use in outdoor applications or in areas with high levels of ambient light
- Up to three colors available in one device allowing one S18L to replace three conventional panel indicators
- Compact and light weight, extremely rugged; overmolded IP69K-rated design
- Terminal connection models have color-coded screw heads for quick, error-free wiring
- Cordsets and brackets available see page 452

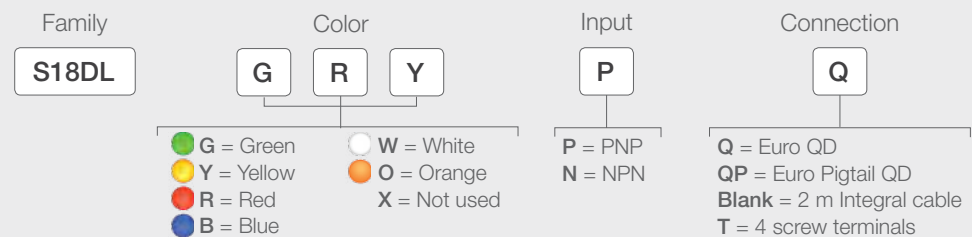
### S18L Multi-Color General-Purpose

Example Model Number: S18LGRYPq



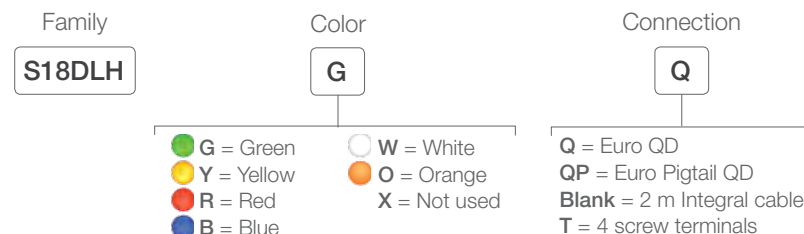
### S18DL Daylight Visible General Purpose

Example Model Number: S18DLGRYPQ



### S18DLH Daylight Visible High-Intensity

Example Model Number: S18DLHGQ



For more specifications see page 453.



Connection Option: A model with a QD requires a mating cordset (see page 452).

Single-color models are available. Colors are independently selectable. Contact factory for other colors and color combinations.

# S22L Series

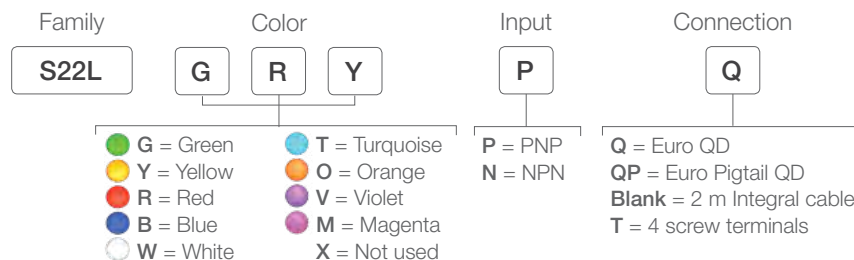
## Barrel-Mount Indicator



- Designed for panel-mount or stand-alone applications
- Daylight visible models available for use in outdoor applications or in areas with high levels of ambient light
- Up to three colors available in one device allowing one S22L to replace three conventional panel indicators
- Compact and light weight, extremely rugged; overmolded IP69K-rated design
- Terminal connection models have color-coded screw heads for quick, error-free wiring
- Cordsets and brackets available see page 452

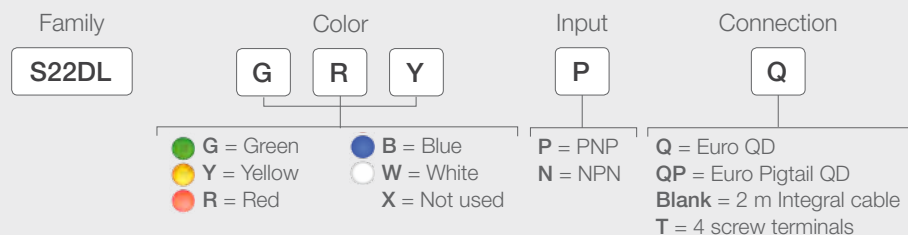
### S22L Multi-Color General Purpose

Example Model Number: S22LGRYPQ



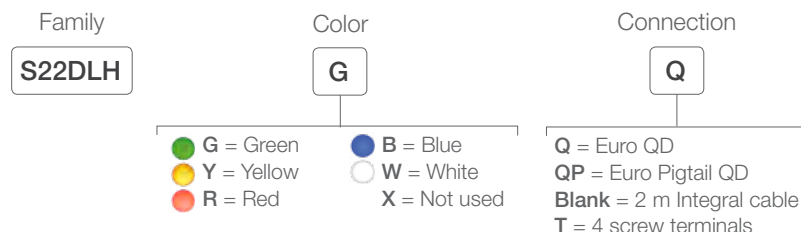
### S22DL Daylight Visible General Purpose

Example Model Number: S22DLGRYPQ



### S22DLH Daylight Visible High Intensity

Example Model Number: S22DLHGQ



For more specifications see page 453.



Connection Option: A model with a QD requires a mating cordset (see page 452).

Single-color models are available. Colors are independently selectable. Contact factory for other colors and color combinations.





4-Pin

**Euro-Style**  
Straight connector models listed; for right-angle, add **RA** to the end of the model number (example, **MQDC-406RA**)

**MQDC-406**  
2 m (6.5')  
**MQDC-415**  
5 m (15')  
**MQDC-430**  
9 m (30')

Additional cordset information is available.  
See page 758



**SMB18A**      **SMBAMS18P**      **SMB18FA**      **SMBAMS18RA**

Additional bracket information is available.  
See page 723



S18L Cabled



S18L QD



S18L Field Wired



S22L Cabled





S22L QD



S18L Field Wired

Barrel Mount Specifications

Supply Voltage and Current	10 to 30 V dc @ 25 mA max. per LED color S18DLH and S22DLH: 9 to 30 V dc
Supply Protection Circuitry	Protected against reverse polarity, transient voltages
Construction	Polycarbonate
Environmental Rating	S18L.. and S22L...: IEC IP67 and IP69K
Operating Temperature	S18L and S22L: -40 to +50 °C S18DLH and S22DLH: -40 to +60 °C
Certifications	 

# T8L Series

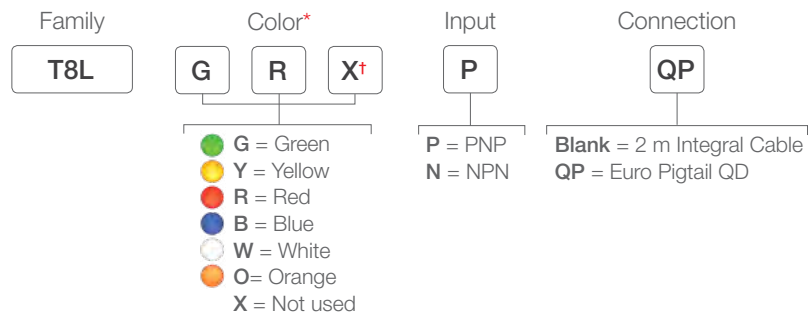
## T-Style Indicator



- T-style mount indicators with a low profile, ideal for simple panel mounting or use on a machine
- Can be easily assembled into a punched hole with the included mounting hardware, no additional hardware needed.
- Up to two colors in one device with an 8 mm threaded nose
- Designed for panel-mount or stand-alone applications
- Right-angle wiring exit for low profile applications
- Ideal for operator guidance and equipment status indication
- Rugged design rated to IP67

### T8L One or Two Color General-Purpose

Example Model Number: T8LGRXP



Connection Option: A model with a QD requires a mating cordset.

\* Single-color models are available. Colors are independently selectable. Contact factory for other colors and color combinations.

† Add 7 after last color option for Sensor Emulators (example, T8LGYX7PQP). Use with discrete output of photoelectric and proximity sensors to duplicate the sensor's Green and Yellow indicator function. When the sensor is powered, the Green LED is ON. When the sensor's output is energized, the Yellow LED is ON.



**4-Pin**

**Euro-Style**  
Straight connector models listed; for right-angle, add **RA** to the end of the model number (example, **MQDC-406RA**)

**MQDC-406**  
2 m (6.5')

**MQDC-415**  
5 m (15')

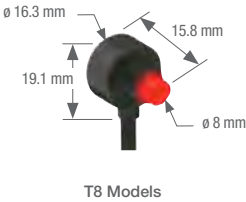
**MQDC-430**  
9 m (30')

Additional cordset information is available.  
See page 758



**SMB8MM**

Additional bracket information is available.  
See page 727










T-Style Mount Specifications

Supply Voltage and Current	10 to 30 V dc @ 20 mA max.
Supply Protection Circuitry	Protected against reverse polarity, transient voltages
Construction	Polycarbonate/ABS housing; Thermoplastic diffuser
Environmental Rating	IEC IP67
Operating Temperature	-40 to +50 °C
Certifications	CE



## Flat Mount Indicators

Flat-mount indicators have large faces for clear indication, even at long distances. Flat-mount indicators come in a variety of styles, including a sleek domed design, daylight visible models for outdoor indication and all models are easy to mount to flat surfaces, such as walls and panels.

Series	Description	Number of Colors	Brightness	Dimensions	Power Supply
	<b>K80L</b> Easy to mount to flat surfaces such as walls and panels page 458	1 to 5	Standard	80 mm housing ø 50 mm light	18 to 30 V dc
	<b>K80 Call Light</b> Portable, battery-powered lights provide operational status indication for personnel and are ideal in locations where power is limited or unavailable page 460	1	Standard	80 mm housing ø 50 mm light	Two 9 V batteries
	<b>K50FL</b> Ideal for operator guidance and equipment status indication page 461	1 to 5	Standard	60 x 40 mm ø 50 mm light	18 to 30 V dc
	<b>K80FL</b> Extremely bright indicator with selectable flash rates page 462	1 to 3	Standard or Daylight Visible	80 mm housing ø 66 mm light	12 to 30 V dc
	<b>K80 Segmented</b> Up to four individual segments that can be lighted separately page 464	1 to 4	Standard	80 mm housing ø 66 mm light	18 to 30 V dc
	<b>SP Signal Lights</b> Rugged and easy-to-install signal lights that provide high visibility outdoors page 465	1 to 3	Daylight Visible	Varies by model	15 to 30 V dc, 85 to 130 V ac
	<b>TL30F</b> A low-profile, flat-mount indicator with multiple color segments can be lit simultaneously page 466	3 or 5	Standard	H (varies) 30 x 19 mm	18 to 30 V dc

## OTHER AVAILABLE MODELS



Base Mount

436



Barrel/T-Style Mount

448

# K80L Flat-Mount Series

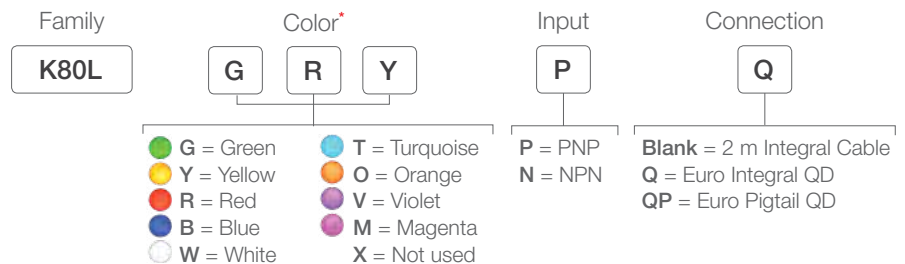
## Domed Indicator



- Rugged, cost-effective, flat-mount indicators that provide easy-to-see operator guidance with a 50 mm dome.
- Easy to mount to flat surfaces such as walls or panels
- High-intensity LEDs give highly visible indication and provide zero-maintenance operation
- Rugged, fully encapsulated design rated to IP67
- Up to five colors in one device to communicate multiple statuses
- Multifunction models available; contact factory

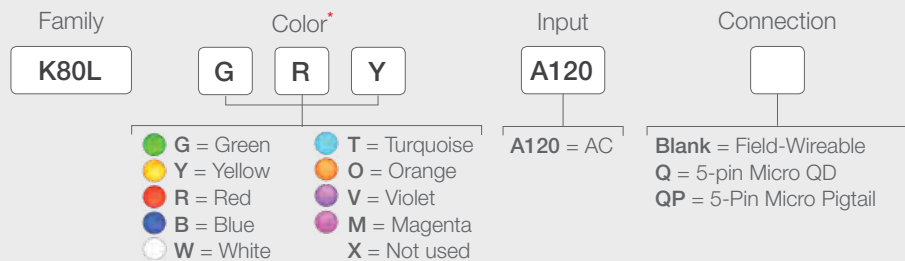
### K80L One, Two or Three Color, 18-30 V DC

Example Model Number: K80LGRYPQ



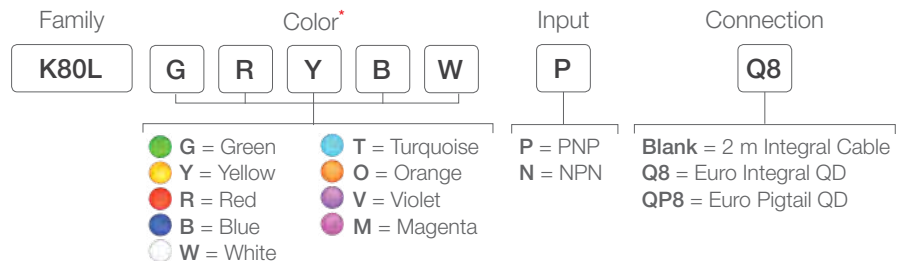
### K80L One, Two or Three Color, 85-130 V AC

Example Model Number: K80LGRYA120



### K80L Four- to Five-Color, 18-30 V DC

Example Model Number: K80LGRYBWQ



For more specifications see page 455.



Connection Option: A model with a QD requires a mating cordset (see page 467).

\* Add 7 after last color option for Sensor Emulators (example, K80LGRY7PQ). Use with discrete output of photoelectric and proximity sensors to duplicate the sensor's Green and Yellow indicator function. When the sensor is powered, the Green LED is ON. When the sensor's output is energized, the Yellow LED is ON.

# K80L Audible Flat-Mount Series

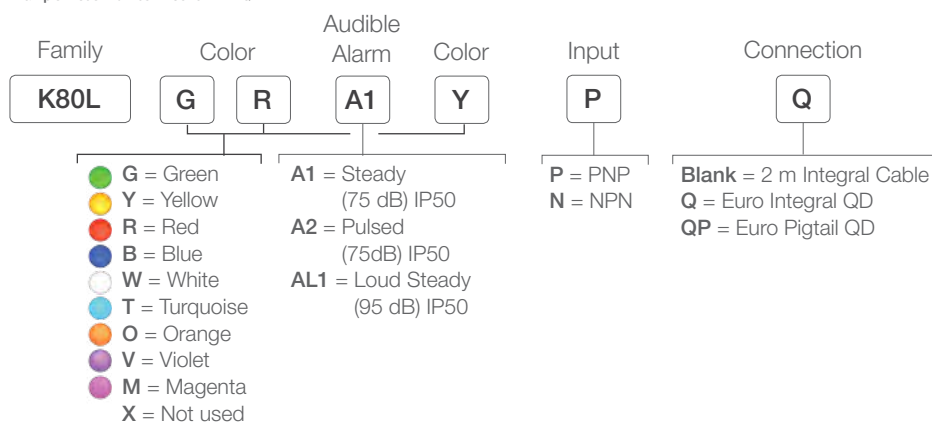
## Domed Indicator



- Rugged, cost-effective, and easy-to-install indicators
- Steady or pulsed sound indication
- Illuminated dome provides a big, easy-to-see job light
- Compact devices are completely self-contained—no controller needed
- Choose NPN or PNP input, depending on model
- Immune to EMI and RFI interference
- Three color LED function

### K80L One, Two or Three Color, 18-30 V DC

Example Model Number: K80LGRA1YPQ



K80L Audible Models

For more specifications see page 467.

Connection Option: A model with a QD requires a mating cordset (see page 467).



# K80CL Call Light

## Battery-Operated Indicator



- Ideal in locations where power is limited or unavailable
- Flashes ON/OFF
- Switch activated
- No assembly required
- Rugged and easy to install
- Long-life LED technology gives up to 100 hours of operation on two 9 V batteries (included)

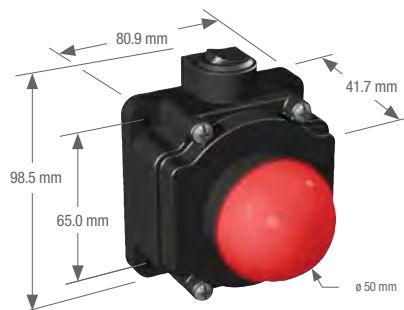
Family

K80CL

Color

R

● G = Green    ● R = Red  
● Y = Yellow    ● B = Blue



K80 Call Light

# K50FL Flat-Mount Series

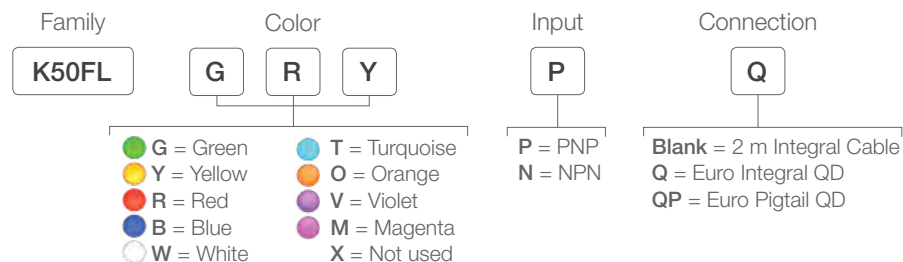
## Domed Indicator



- Bright, highly visible illuminated dome
- Flat-pack mounting allows for indicators to be mounted on any flat surface
- Fully encapsulated indicators with most models rated to IP69K for high-pressure washdown environments
- Display up to five colors in a single device with many colors and color combinations available
- Long-lasting LED technology with low power consumption

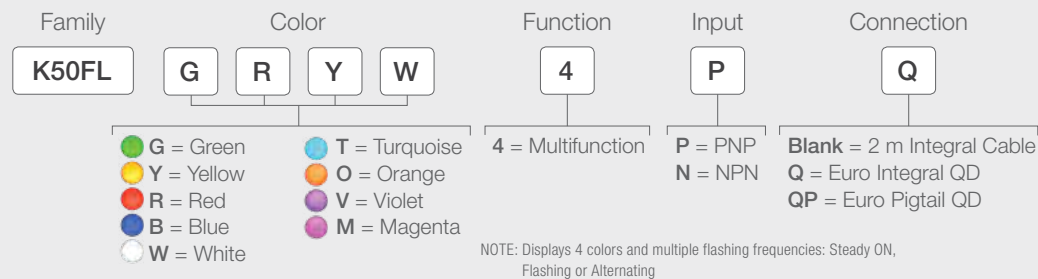
### K50FL One-, Two- or Three-Color

Example Model Number: K50FLGRYPQ



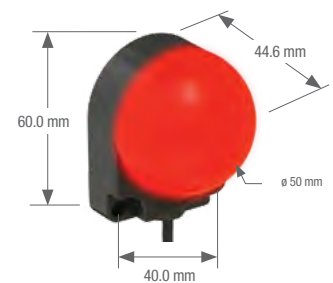
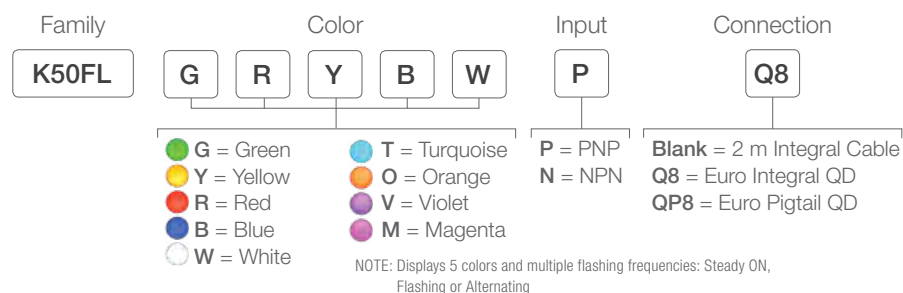
### K50FL Four-Color , Multifunction

Example Model Number: K50FLGRYW4PQ



### K50FL Five-Color

Example Model Number: K50FLGRYBWPQ



K50FL Models

For more specifications see page 467.

Connection Option: A model with a QD requires a mating cordset (see page 467).

† Add 7 after last color option for Sensor Emulators (example, K50FLGYX7PQ). Use with discrete output of photoelectric and proximity sensors to duplicate the sensor's Green and Yellow indicator function. When the sensor is powered, the Green LED is ON. When the sensor's output is energized, the Yellow LED is ON.

# K80FL Series

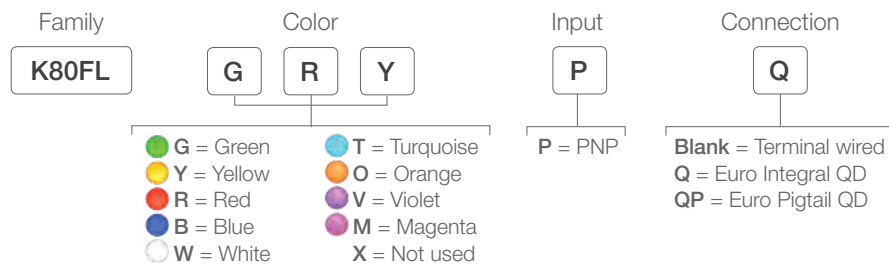
## Flat-Mount Indicator



- Extremely bright indicator with selectable flash rates
- Up to three colors in one device with a choice of many colors or color combinations
- Large flat face allows for clear indication from farther distances
- Easy to mount to flat surfaces such as walls or panels
- Long-lasting LED technology with low power consumption

### K80FL One-, Two- or Three Color

Example Model Number: K80FLGRYPQ



For more specifications see page 467.

Connection Option: A model with a QD requires a mating cordset (see page 467).

# K80FDL Daylight Visible

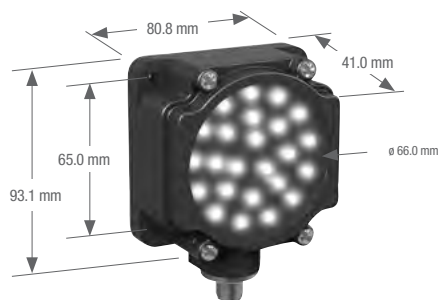
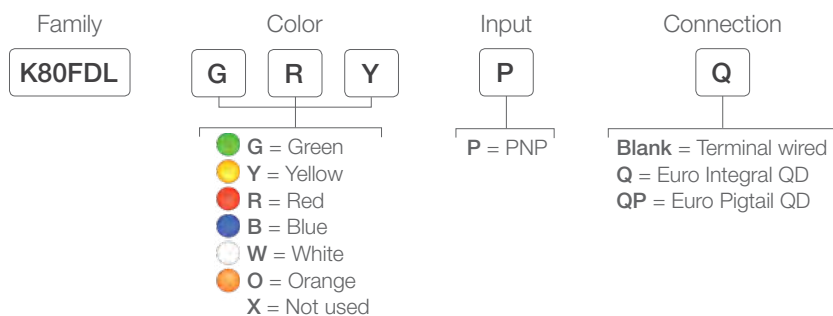
## Flat-Mount Indicator



- Extremely bright indicator for outdoor use
- Up to three colors in one device with a choice of many colors or color combinations
- Large flat face allows for clear indication from farther distances
- Easy to mount to flat surfaces such as walls or panels
- Long-lasting LED technology with low power consumption

### K80FDL One-, Two- or Three Color

Example Model Number: K80FDLGRYPQ



K80FDL  
Daylight Visible Models

For more specifications see page 467.



Connection Option: A model with a QD requires a mating cordset (see page 467).

# K80L Segmented Series

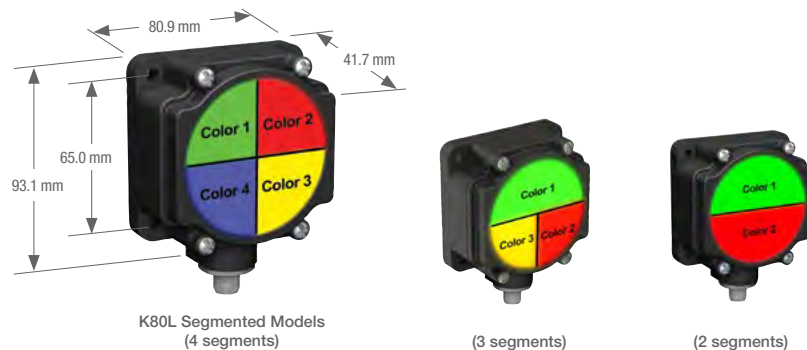
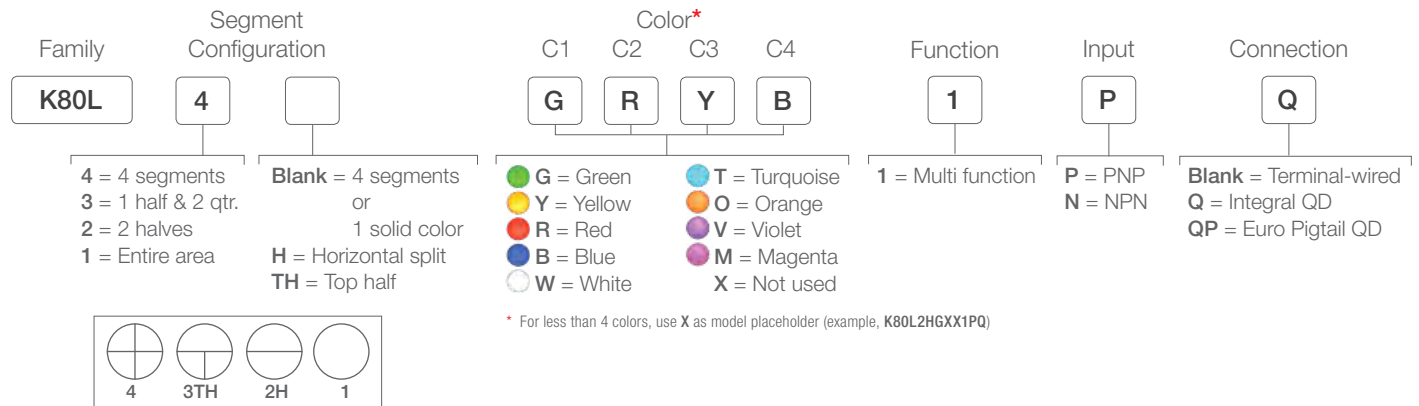
## Flat-Mount Indicator



- Easily mounted on flat surfaces
- Up to four individual color segments can show status of items simultaneously or in combination
- Optional, customizable labels available for enhanced segment identification
- Highly visible color segments allow for quick and easy identification of statuses

### K80L Segmented

Example Model Number: K80L4GRYB1PQ



For more specifications see page 467.

Connection Option: A model with a QD requires a mating cordset (see page 467).

# SP Series Signal Light

## Flat-Mount Indicator



- Preassembled with up to three indicators per unit
- Rugged housing is designed to withstand wet and dirty environments.
- Intense levels of light output for use outdoors or in environments with high levels of ambient light
- Controlled field-of-view for signage and narrow lane use
- Shock, vibration and impact resistant
- Convenient Euro quick-disconnect option for easy installation
- 15 to 30 V dc or 85 to 130 V ac supply voltage, depending on model

### SP Signal Light

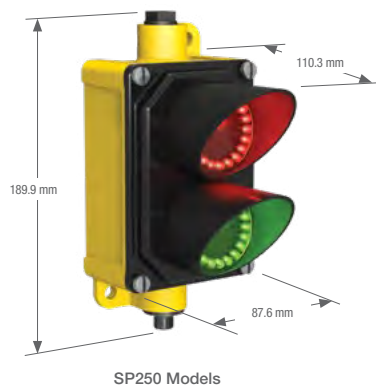
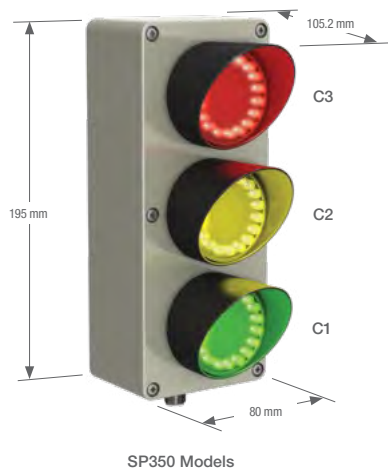
Example Model Number: SP150GYRPQ

Family	Color			Input**	Connection
<b>SP150</b>	<b>C1</b>	<b>C2</b>	<b>C3</b>	<b>P</b>	<b>Q</b>
<b>SP150*</b> <b>SP250</b> <b>SP350</b>	<b>G</b>	<b>Y</b>	<b>R</b>	<b>P</b>	<b>Q</b>
	<b>G</b> = Green <b>Y</b> = Yellow <b>R</b> = Red <b>B</b> = Blue <b>W</b> = White <b>Blank</b> = Not used			<b>P</b> = PNP <b>N</b> = NPN <b>A120</b> = 85-130 V ac	<b>Blank</b> = Terminal wired <b>Q</b> = Euro Integral QD <b>QP</b> = Euro Pigtail QD

\* SP150 only available in 1 or 3 color options.

For 1 color SP150 models input is PNP/NPN selectable

\*\* A120 models are only available with field-wired connection  
SP150 models only available in PNP



For more specifications see page 467.

Connection Option: A model with a QD requires a mating cordset (see page 467).

# TL30F Series

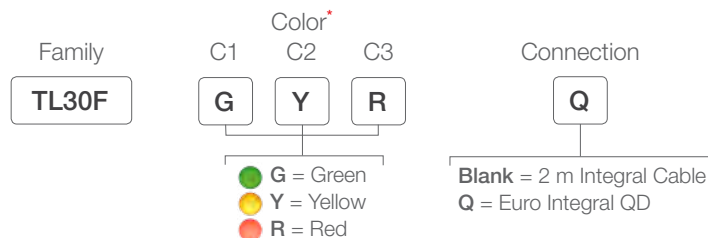
## Segmented Flat-Mount Indicators



- Multiple color segments can be lit simultaneously, making this a useful option for operator guidance or machine indication
- Frequently used with pick-to-light products to give operators additional visual indication such as number of parts to pick or color-coded part picking
- Displays three or five colors in single device
- Durable, rugged metal housing rated to IP65
- Easily mounts on horizontal or vertical work centers or automation machinery
- Compact devices easily fit on work stations
- 18 to 30 V dc bimodal (NPN or PNP) and 21 to 27 V ac inputs

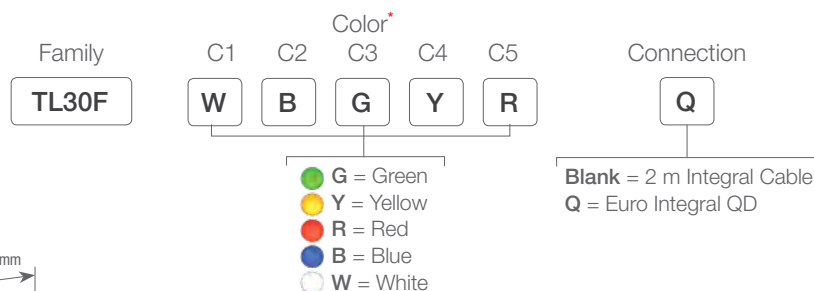
### TL 30F Three-Color

Example Model Number: TL30FGYRQ

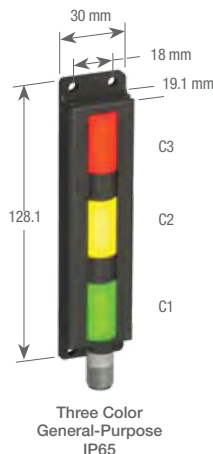
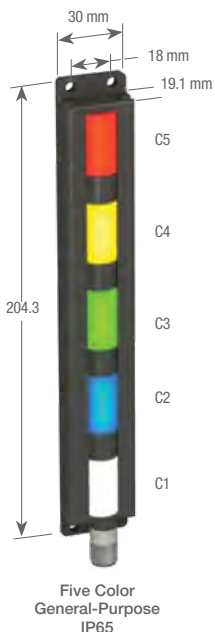


### TL 30F Five-Color

Example Model Number: TL30FWBGYRQ



\* TL30F are pre-configured in three- or five-colors. Positions are set as pictured below(above). For other color combinations, please contact the factory.



Connection Option: A model with a QD requires a mating cordset.

## TOUCH BUTTONS

## PICK-TO-LIGHT

**Euro-Style**

Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number (example,  
**MQDEC2-506RA**)

**4-Pin**

**MQDC-406**  
2 m (6.5')  
**MQDC-415**  
5 m (15')  
**MQDC-430**  
9 m (30')

**5-Pin**

**MQDC1-506**  
2 m (6.5')  
**MQDC1-515**  
5 m (15')  
**MQDC1-530**  
9 m (30')

**8-Pin**

**MQDC2-806**  
2 m (6.5')  
**MQDC2-815**  
5 m (15')  
**MQDC2-830**  
9 m (30')

*Additional cordset information is available.  
See page 758*

**Micro-Style**

Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number (example,  
**MQDC-306RA**)

**3-Pin**

**MQDC-306**  
2 m (6.5')  
**MQDC-315**  
4 m (12')  
**MQDC-330**  
9 m (30')

**5-Pin**

**MQVR3S-506**  
2 m (6.5')  
**MQVR3S-515**  
4 m (12')  
**MQVR3S-530**  
9 m (30')



**SMBDX80DIN**  
use with K80L



**DIN-35...**  
use with K80L



**SMBPVA1**  
use with TL30F



**SMBPVA2**  
use with TL30F



**SMBPVA6**  
use with TL30F

*Additional bracket information is available.  
See page 727*

## Flat-Mount Specifications

Supply Voltage and Current	<b>K80L:</b> 18-30 V dc <b>K80CL:</b> 18 V (two batteries) <b>K80FL:</b> 12-30 V dc <b>K80FDL:</b> 12-30 V dc <b>K80 Segmented displays:</b> 18-30 V dc <b>K80L4:</b> @ 35 mA max. per LED color, @ 90 mA max. with all LEDs ON; <b>K80L3:</b> @ 50 mA max. with color 1 ON, @ 35 mA max. with colors 2 or 3 ON, @ 90 mA max. with all LEDs ON; <b>K80L2:</b> @ 50 mA max. with colors 1 or 2 ON, @ 90 mA max. with all LEDs ON; <b>K80L1:</b> @ 90 mA max <b>SP150, SP250, SP350:</b> 15-30 V dc 1-Color: @ 120 mA max. per LED color; 3-Color: @ 40 mA max. per LED color <b>K50FL:</b> 18-30 V dc <b>TL30F:</b> 18-30 V dc (10% max. ripple) or 21-27 V ac @ 18mA max. per LED color
Supply Protection Circuitry	Protected against reverse polarity, transient voltages
Environmental Rating	<b>K80L:</b> IP67 <b>K80L:</b> Audible: IP50 <b>K80CL:</b> IP50 <b>K80FL:</b> IP67 <b>K80FDL:</b> IP67 <b>K80 Segmented displays:</b> IP67 <b>SP150:</b> IP67 <b>SP250, SP350:</b> IP65 <b>K50FL:</b> IP69K <b>TL30F:</b> IP65
Operating Temperature	-40 to +50 °C <b>Audible models:</b> -20 to 50 °C <b>K80CL:</b> -20 to 50 °C
Certifications	












---

## Touch Buttons

Banner is the leader in ergonomic, visual and sealed operator touch buttons for industrial applications. Since Banner's Touch Buttons can have multiple colors and I/O capabilities, they can replace several conventional buttons, making them ideal in lean manufacturing environments. Buttons have superior immunity to direct water spray and have the ability to be used while wearing gloves.

Series	Description	Number of Colors	Dimensions	Power Supply	Communications
	<b>K30</b> Versatile family that combines a small, bright indicator with solid-state switching capability activated by a simple touch. page 468	1 to 3 (9 color options)	<b>Base:</b> 22 mm <b>Dome:</b> 30 mm	12 to 30 V dc	
	<b>K50</b> Versatile family that combines a large, bright indicator with solid-state switching capability activated by a simple touch. page 472	1 to 3 (9 color options)	<b>Base:</b> 30 mm <b>Dome:</b> 50 mm	12 to 30 V dc	Modbus Option
	<b>K70</b> Large, easy to activate solid state switch and high visibility indicator. Ideal for use in pick-to-light, call button and general industrial applications. page 474	1 to 3 (5 color options)	<b>Base:</b> 30 mm <b>Dome:</b> 70 mm	12 to 30 V dc	Wireless Option
	<b>K30L</b> Features a brightly illuminated base for enhanced visual indication. page 476	1 to 3 (9 color options)	<b>Base:</b> 22 mm <b>Dome:</b> 30 mm	10 to 30 V dc	
	<b>K50L</b> Features a brightly illuminated base for enhanced visual indication. page 476	1 to 3 (9 color options)	<b>Base:</b> 30 mm <b>Dome:</b> 50 mm	12 to 30 V dc	Modbus Option
	<b>OTB/LTB</b> The industry standard for ergonomic touch buttons and are ideal as replacements for mechanical pushbuttons. page 478	—	74.2 x 59.9 x 43.2 mm <b>Base:</b> 30 mm	10 to 30 V dc, 20 to 30 V dc, 105 to 130 V ac, 210 to 250 V ac	
	<b>VTB</b> Features a brightly illuminated base for enhanced visual indication. page 480	2 (3 color options)	73.3 x 59.9 x 43.2 mm <b>Base:</b> 30 mm	12 to 30 V dc	

# K30 Touch Series

## Touch Buttons



- Totally independent of the touch activated output, making these devices flexible for use in countless applications.
- Up to three independent colors in one unit with many color options available
- Momentary versions remain activated as long as touch is present, while latching versions toggle between activated and not activated states on successive touches
- Excellent immunity to false triggering by water spray, detergents, oils, and other foreign materials
- Rugged, water-resistant IP69K design for washdown environments
- Ergonomically designed to eliminate hand, wrist and arm stresses, requiring no physical pressure to operate and can be actuated with bare hands or work gloves

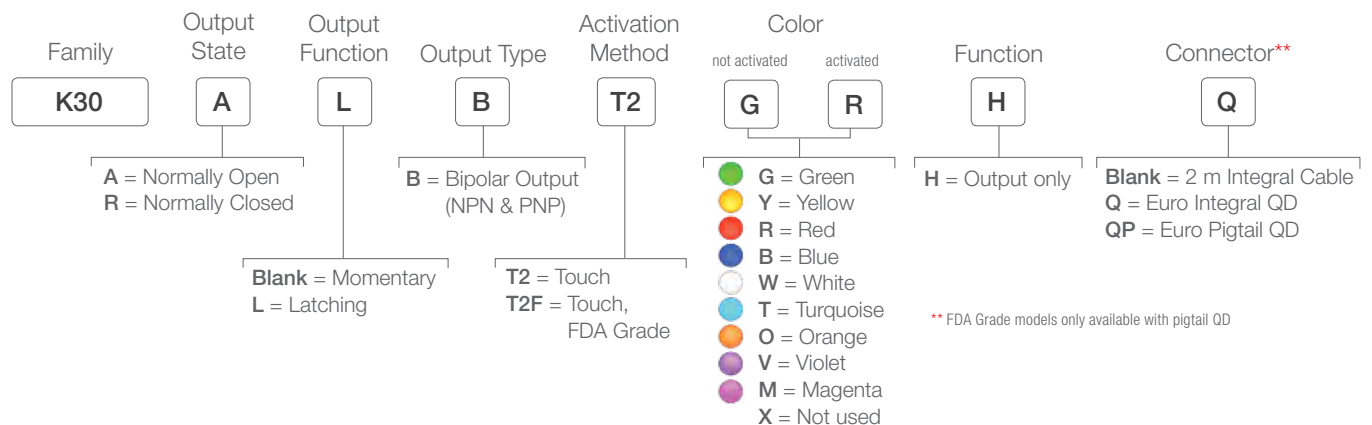
### K30 Multipurpose Touch Button, One-, Two- or Three Color,

Example Model Number: K30APT2GRYF2Q



### K30 Illuminated Touch Button,

Example Model Number: K30ALBT2GRHQ



Connection Option: A model with a QD requires a mating cordset.



**Euro-Style**  
Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number (example,  
**MQDC-406RA**)

**4-Pin**

**MQDC-406**  
2 m (6.5')  
**MQDC-415**  
5 m (15')  
**MQDC-430**  
9 m (30')

Additional cordset information is available.  
See page 758



**SMB22A**



**SMB22FVK**



**SMBAMS22P**



**SMB22RAVK**

Additional bracket information is available.  
See page 727




ø 30 mm  
23.5 mm  
54.5 mm  
ø 22 mm  
**K30**



**K30 with Food-Grade  
Housing**

K30 Touch Specifications

Supply Voltage	12 to 30 V dc
Supply Current	55 mA max current (exclusive of load)
Supply Protection Circuitry	Protected against reverse polarity and transient voltages
Construction	<b>Housing:</b> Polycarbonate or FDA Grade Polycarbonate, depending on model <b>Translucent dome:</b> Polycarbonate or FDA Grade Polycarbonate, depending on model <b>Mounting Nut:</b> PBT
Environmental Rating	<b>Standard:</b> UL Type 4x, 13 <b>FDA Grade:</b> UL Type 4x IEC IP67, IP69K per DIN 40050-9 Cabled models also meet IP69K if the cable and cable entrance are protected from high-pressure spray
Connections	Integral 4-pin Euro style QD, or 2 m PVC integral cable, or 4-pin 150 mm Euro-style PVC pigtail QD
Operating Conditions	<b>Temperature:</b> -40 to +50 °C <b>Max. Relative Humidity:</b> 90% @ +50 °C max. relative humidity (non-condensing) <b>Storage Temperature:</b> -40 to +70 °C
Certifications	

# K50 Touch Series

## Touch Buttons



- Inputs are totally independent of the touch activated output, making these devices flexible for use in countless applications.
- Up to three independent colors in one unit with many color options available
- Momentary versions remain activated as long as touch is present, while latching versions toggle between activated and not activated states on successive touches
- Excellent immunity to false triggering by water spray, detergents, oils, and other foreign materials
- Rugged, water-resistant IP69K design for washdown environments
- Ergonomically designed to eliminate hand, wrist and arm stresses, requiring no physical pressure to operate and can be actuated with bare hands or work gloves

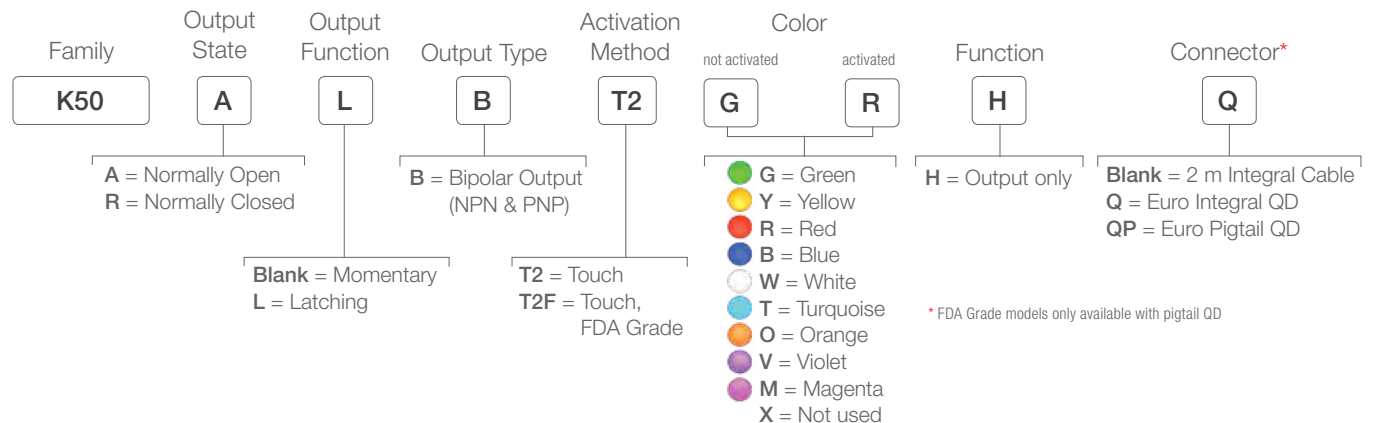
### K50 Multipurpose


Example Model Number: K50APT2GRYF2Q



### K50 Illuminated

Example Model Number: K50ALBT2GRHQ



 Connection Option: A model with a QD requires a mating cordset.

TOUCH BUTTONS

PICK-TO-LIGHT



5-Pin

**Euro-Style**  
Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number (example,  
**MQDC1-506RA**)

**MQDC1-501.5**  
0.5 m (1.6')

**MQDC1-506**  
2 m (6.5')

**MQDC1-515**  
5 m (15')

**MQDC1-530**  
9 m (30')



8-Pin

**Euro-Style**  
Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number (example,  
**MQDC2-806RA**)

**MQDC2-806**  
2 m (6.5')

**MQDC2-815**  
5 m (15')

**MQDC2-830**  
9 m (30')

**MQDC2-850**  
15 m (50')

Additional cordset information is available.  
See page 758



SMB30A



SMB30MM



SMB30SC

Additional bracket information is available.  
See page 727




ø 50 mm

55 mm


66 mm

ø 30 mm

K50





K50 with Food-Grade Housing



Custom laser marking available

K50 Touch Specifications

Supply Voltage	12 to 30 V dc
Supply Current	Less than 75 mA max current at 12 V dc (exclusive of load) Less than 50 mA max current at 30 V dc (exclusive of load)
Supply Protection Circuitry	Protected against reverse polarity and transient voltages (fast transient and over-voltage) and reverse polarity
Construction	<b>Housing:</b> Polycarbonate or FDA Grade Polycarbonate, depending on model <b>Translucent dome:</b> Polycarbonate or FDA Grade Polycarbonate, depending on model <b>Mounting Nut:</b> PBT
Environmental Rating	<b>Standard:</b> UL Type 4x, 13 <b>FDA Grade:</b> UL Type 4x IEC IP67, IP69K per DIN 40050-9. Cabled models also meet IP69K if the cable and cable entrance are protected from high-pressure spray
Connections	Integral 5-pin Euro style QD, or 2 m PVC integral cable, or 5-pin 150 mm Euro-style PVC pigtail QD
Operating Conditions	<b>Temperature:</b> -40 to +50 °C <b>Max. Relative Humidity:</b> 90% @ +50 °C max. relative humidity (non-condensing) <b>Storage Temperature:</b> -40 to +70 °C
Certifications	 

# K70 Touch Series

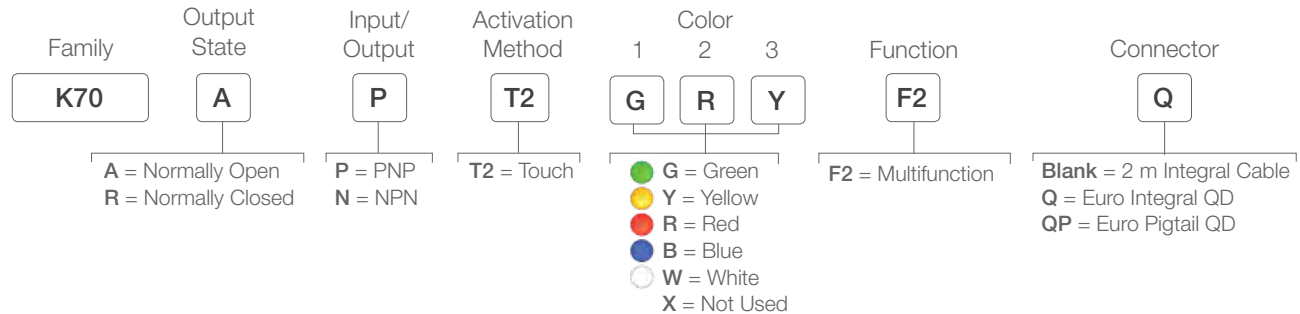
## Illuminated Touch Buttons



- Excellent immunity to false triggering by water spray, detergents, oils, and other foreign materials
- Ergonomically designed to eliminate hand, wrist, and arm stresses associated with repeated switch operation; require no physical force to operate
- Can be actuated with bare hands or in gloves
- Rugged IP65 polycarbonate construction
- Momentary versions remain activated as long as touch is present
- Latching versions start up not activated and toggle between activated and not activated on successive touches
- Available in five color options and one-, two- and three-color models

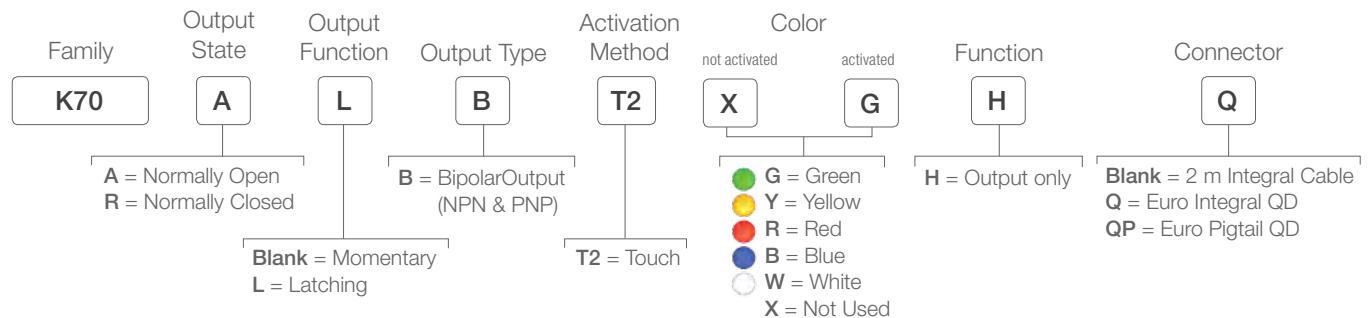
### K70 Multipurpose Touch Button


Example Model Number: K70APT2GRYF2Q



### K70 Illuminated Touch Button

Example Model Number: K70ALBT2XGHQ



 Connection Option: A model with a QD requires a mating cordset.

K70 Wireless Touch Button

Example Model Number: K70DXN2T2GRYQ

Family

K70

Output State

DXN2

DXN2 = Wireless 2.4 GHz  
DXN9 = Wireless 900 MHz

Activation Method

T2

T2 = Touch

Color

123

G R Y

G = Green  
Y = Yellow  
R = Red  
B = Blue  
W = White  
Blank = None

Connector


Q

Blank = 2 m Integral Cable  
Q = Euro Integral QD  
QP = Euro Pigtail QD



Euro-Style

Straight connector models listed; for right-angle, add RA to the end of the model number (example, MQDC1-506RA)




5-Pin

MQDC1-501.5  
0.5 m (1.6')  
MQDC1-506  
2 m (6.5')  
MQDC1-515  
5 m (15')  
MQDC1-530  
9 m (30')


Additional cordset information is available.  
See page 758



SMB30A



SMB30MM





SMBAMS30P



SSA-MBK-EEC1

Additional bracket information is available.  
See page 727

K70 Touch Specifications

Supply Voltage	12 to 30 V dc
Supply Current	< 220 mA maximum current at 12 V dc < 110 mA maximum current at 30 V dc
Supply Protection Circuitry	Protected against transient voltages
Radio Range* (Wireless Models)	900 MHz, 1 Watt (Internal antenna): Up to 3.2 km (2 miles) 2.4 GHz, 65 mW (Internal antenna): Up to 1000 m (3280 ft) with line of sight
Separation Distance (Wireless Models)	900 MHz, 1 Watt: 4.57 m (15 ft) 2.4 GHz, 65 mW: 0.3 m (1 ft)
Construction	Housing: Polycarbonate Translucent dome: Polycarbonate Mounting Nut: PBT
Environmental Rating	IEC IP65
Connections	Integral 5-pin Euro style QD, or 2 m PVC integral cable, or 5-pin 150 mm Euro-style PVC pigtail QD
Operating Conditions	Temperature: -40 to +50 °C Max. Relative Humidity: 95% @ +50 °C max. relative humidity (non-condensing)
Certifications	 

\* Radio range significantly decreases without line of sight. Always verify your wireless network's range by running a site survey.



# K30L and K50L Series

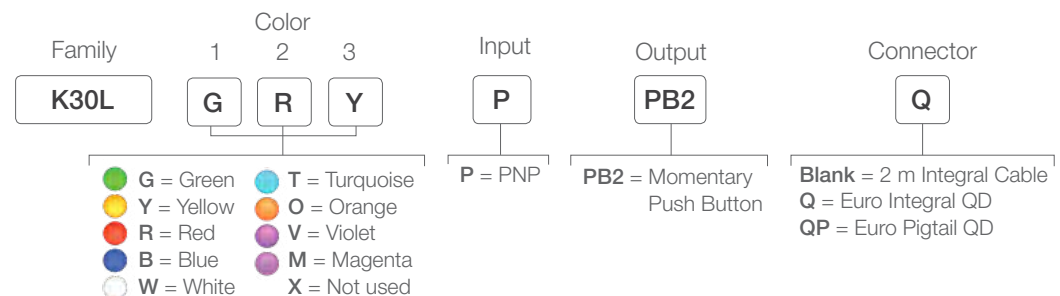
## Illuminated Push Buttons



- Feature sealed push button that can withstand washdown applications
- Extremely bright and can be seen from all directions due to their unique shape
- Rugged, encapsulated construction allows them to be used as stand alone devices without an enclosure
- Up to three colors in one device with a variety of colors for customized indication
- Quick-disconnect models for easy installation
- Dry contact switch output is completely isolated from the LED indicator input
- Designed for panel-mount or stand-alone applications

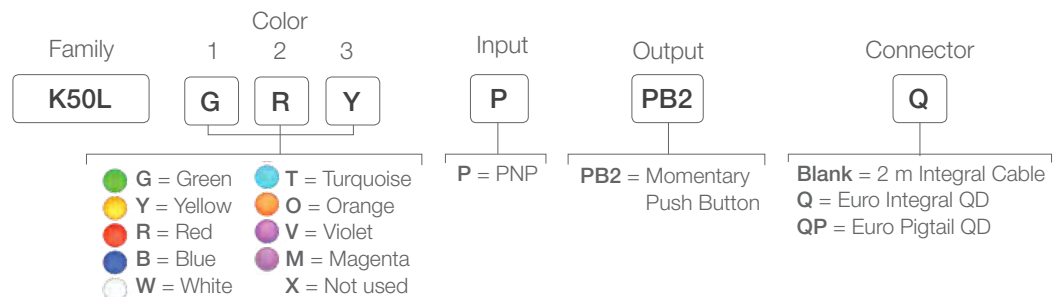
### K30L Push Button

Example Model Number: K30LGRYPB2Q



### K50L Push Button

Example Model Number: K50LGRYPB2Q



Connection Option: A model with a QD requires a mating cordset.



5-Pin

**Euro-Style**  
Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number (example,  
**MQDC1-506RA**)

- MQDC1-501.5**  
0.5 m (1.6')
- MQDC1-506**  
2 m (6.5')
- MQDC1-515**  
5 m (15')
- MQDC1-530**  
9 m (30')



8-Pin

**Euro-Style**  
Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number (example,  
**MQDC2-806RA**)

- MQDC2-806**  
2 m (6.5')
- MQDC2-815**  
5 m (15')
- MQDC2-830**  
9 m (30')
- MQDC2-850**  
15 m (50')

Additional cordset information is available.  
See page 758



**SMB22A**  
for use with K30

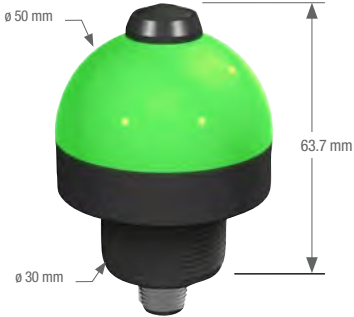


**SMB30A**  
for use with K50

Additional bracket information is available.  
See page 727



K30L Push Models



K50L Push Models

K30L and K50L Illuminated Push Button Specifications

Supply Voltage and Current	<b>K30:</b> 10 to 30 V dc @ 40 mA max. per LED color <b>K50:</b> 12 to 30 V dc 65 mA @ 12 V dc; 35 mA @ 30 Vdc max. per LED color
Supply Protection Circuitry	Protected against reverse polarity and transient voltages (fast transient and over-voltage) and reverse polarity
Output Protection Circuitry	Protected against false pulse on power-up and continuous overload or short circuit of output
Construction	<b>Base:</b> Polycarbonate <b>Translucent dome:</b> Polycarbonate <b>Push button:</b> Thermoplastic
Environmental Rating	IEC IP65
Connections	Integral Euro-style QD fitting, PVC-jacketed 2 m cable or 150 mm PVC pigtail with QD, depending on model
Operating Conditions	<b>Temperature:</b> -40 to +50 °C <b>Max. Relative Humidity:</b> 90% @ +50 °C max. relative humidity (non-condensing) <b>Storage Temperature:</b> -40 to +70 °C
Certifications	

# OTB/LTB Series

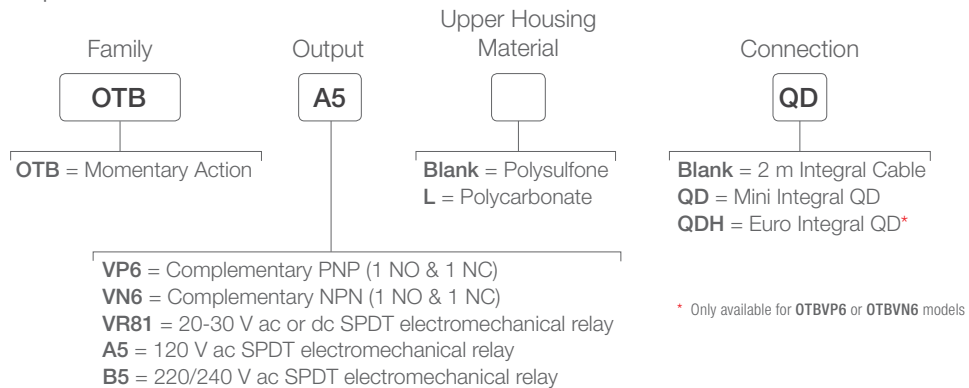
## Optical Touch Buttons



- LED indicators to signal “power on” and “output active” conditions.
- Optimized for easy mounting with 30 mm threaded base
- Ergonomic design eliminates hand, wrist and arm stress
- Momentary and alternate action models available
- Available in a wide variety of voltage ranges and output types to suit any application
- Field covers (black) included to prevent inadvertent activation from loose clothing, debris, etc.

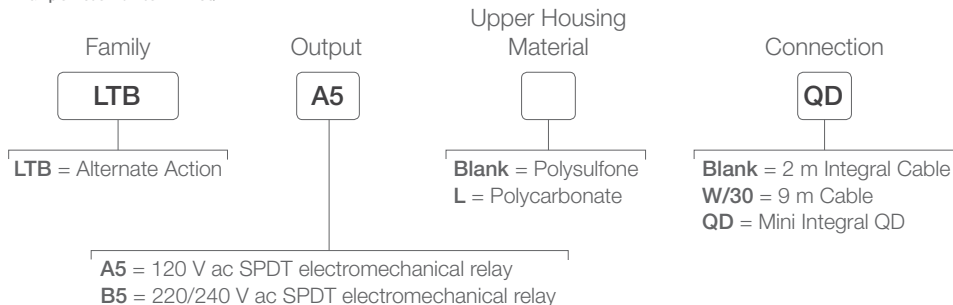
### OTB

Example Model Number: OTBVP6QD



### LTB

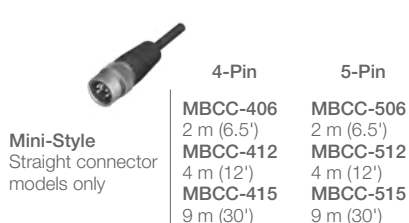
Example Model Number: LTBA5QD



Connection Option: A model with a QD requires a mating cordset.



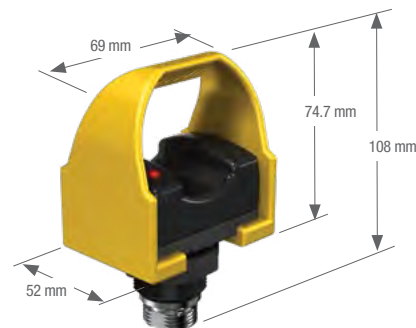
Additional cordset information is available.  
See page 758



Additional bracket information is available.  
See page 728



OTB and LTB Models

OTB and LTB Models  
with cover

## OTB/LTB Specifications

<b>Supply Voltage and Current</b>	<b>OTBVR81 models:</b> 20 to 30 V ac/dc <b>OTBA5 &amp; LTBA5 models:</b> 105 to 130 V ac, 50-60 Hz All models require less than 25 mA (exclusive of load)	
<b>Supply Protection Circuitry</b>	Protected against reverse polarity and transient voltages	
<b>Output Configuration</b>	<b>OTBVR81, OTBA5, OTBB5 and all LTB models:</b> SPDT electromechanical relay <b>OTBVN6 models:</b> Complementary NPN (sinking) open-collector transistor; 1 normally open (NO) and 1 normally closed (NC) <b>OTBVP6 models:</b> Complementary PNP (sourcing) open-collector transistors; 1 normally open (NO) and 1 normally closed (NC)	
<b>Output Rating</b>	<b>Electromechanical relay models:</b> <b>Max. switching current:</b> 7 amps (resistive load), 1 HP max. Min. load: 0.05 watts (dc), 0.05 VA (ac) <b>Mechanical life of relay:</b> 50,000,000 operations (min.) <b>Electrical life of relay:</b> 100,000 operations (min.) at full resistive load Transient suppression is recommended when switching inductive loads	<b>Solid-state output models:</b> 150 mA max. load (each output) <b>ON-state saturation voltage:</b> less than 1 volt at signal levels; less than 1.5 volts at full load <b>OFF-state leakage current:</b> less than 1 µA
<b>Response Time</b>	100 milliseconds ON/OFF	
<b>Output Protection</b>	All models protected against false pulse on power-up; Models with solid-state outputs have overload and short circuit protection	
<b>Indicators</b>	<b>Two Red indicator LEDs:</b> one lights whenever power is applied; the other lights whenever the switch is activated making the normally-open (NO) output conduct	
<b>Construction</b>	Totally encapsulated, non-metallic enclosure. Black polysulfone or red polycarbonate upper housing (see Application Notes below); fiber-reinforced thermoplastic polyester base. Electronics fully epoxy-encapsulated. Supplied with a field cover of polypropylene (TP).	
<b>Environmental Rating</b>	Meets NEMA standards 1, 3, 4, 4X, 12 and 13; IEC IP66	
<b>Ambient Light Immunity</b>	120,000 lux (direct sunlight)	
<b>EMI/RFI Immunity</b>	Immune to both single and mixed EMI and RFI noise sources	
<b>Operating Conditions</b>	<b>Temperature:</b> -20 to +50 °C <b>Relative humidity:</b> 90% at 50 °C (non-condensing)	
<b>Application Notes</b>	<b>Environmental considerations for models with polysulfone upper housings:</b> The polysulfone upper housing will become embrittled with prolonged exposure to outdoor sunlight. Window glass effectively filters longer wavelength ultraviolet light and provides excellent protection from sunlight.  <b>Environmental considerations for models with polycarbonate upper housings:</b> Avoid prolonged exposure to hot water and moist high-temperature environments above 66 °C. Avoid contact with aromatic hydrocarbons (such as xylene and toluene), halogenated hydrocarbons and strong alkalis. Clean periodically using mild soap solution and a soft cloth. Avoid strong alkaline materials.	
<b>Certifications</b>		

# VTB Series

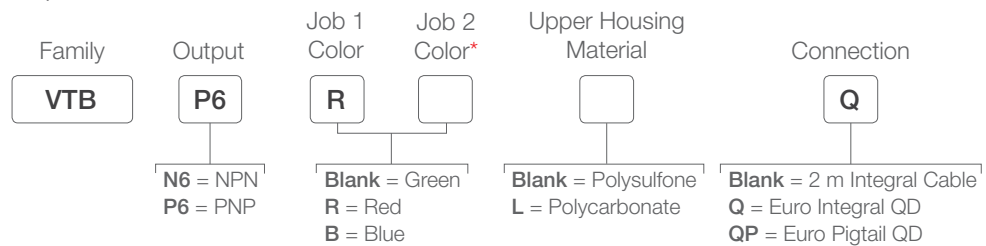
## Optical Touch Buttons



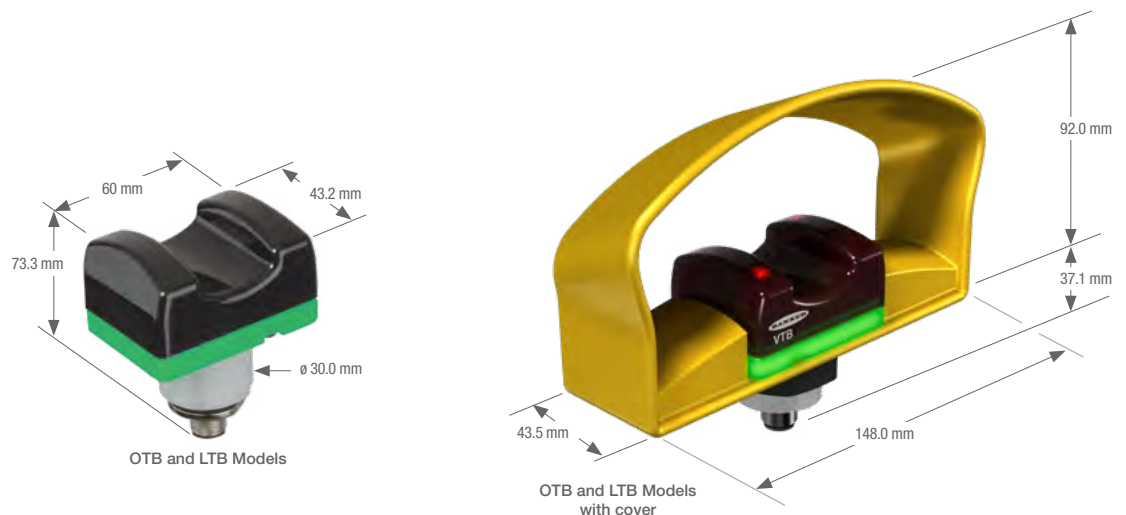
- Illuminated version of the Optical Touch Button
- Ergonomic design eliminates hand, wrist and arm stress
- Provides bright, easy-to-see status indication that can be seen in almost any environment
- One- and two-color models available
- 30 mm threaded base for convenient mounting

### VTB One- or Two Color


Example Model Number: VTBP6RQ



\* Leave Job Color 2 blank for one-color model



Connection Option: A model with a QD requires a mating cordset.



**Euro-Style**  
Straight connector models listed; for right-angle, add **RA** to the end of the model number (example, **MQDC-406RA**)

**4-Pin**

**MQDC-406**  
2 m (6.5')  
**MQDC-415**  
5 m (15')  
**MQDC-430**  
9 m (30')

Additional cordset information is available.  
See page 758



**SMB30FA**



**SMB30MM**



**SMB30SC**

Additional bracket information is available.  
See page 728





**Field Covers**

**OTC-1-BK**  
Black  
**OTC-1-GN**  
Green  
**OTC-1-RD**  
Red  
**OTC-1-YW**  
Yellow

**OTCL-1-BK**  
Black  
**OTCL-1-GN**  
Green  
**OTCL-1-RD**  
Red  
**OTCL-1-YW**  
Yellow

VTB Specifications

Supply Voltage and Current	12 to 30 V dc (10% max. ripple) <b>Single-color models:</b> Less than 120 mA max. current @ 12 V dc (exclusive of load) Less than 70 mA max. current @ 30 V dc (exclusive of load) <b>Two-color models:</b> Less than 67 mA max. current @ 12 V dc (exclusive of load) Less than 40 mA max. current @ 24 V dc (exclusive of load) Less than 35 mA max. current @ 30 V dc (exclusive of load)
Supply Protection Circuitry	Protected against transient voltages (fast-transient and over-voltage) and reverse polarity
Output Configuration	Choose 1 current sinking (NPN) open collector transistor or 1 current sourcing (PNP) open collector transistor, depending on model
Output Rating	<b>Max. load:</b> 150 mA <b>ON-state saturation voltage:</b> less than 1.5 V @ 150 mA <b>OFF-state leakage current:</b> less than 10 µA
Output Protection	All models protected against false pulse on power-up (outputs held OFF for 1 second at power-up). Models with solid-state outputs have overload and short-circuit protection.
Response Time	100 milliseconds ON/OFF
Indicators	<b>2 Red LED indicators:</b> Power ON and Output Conducting <b>Base:</b> Lights green, red, blue, or green and red as a job light when input line is enabled. One-color models may be wired for flashing rather than solid color operation.
Construction	Totally encapsulated, non-metallic enclosure. Black polysulfone or red polycarbonate upper housing (see Application Note); translucent white polycarbonate base. Electronics fully epoxy-encapsulated.
Environmental Rating	IEC IP66 ; NEMA 1, 3, 4, 4X, 12
Connections	2 m or 9 m attached cable, or 4-pin (single color) or 5-pin (two color) Euro-style QD fitting. QD cordsets are ordered separately.
Ambient Light Immunity	Up to 120,000 lux (direct sunlight)
EMI/RFI Immunity	Immune to EMI and RFI noise sources, per IEC 947-5-2.
Operating Conditions	<b>Temperature:</b> -20° to +50° C <b>Relative humidity:</b> 90% @ +50° C (non-condensing)
Certifications	 



---

## Pick-to-Light

Banner offers the most extensive line of light-guided assembly solutions. Pick-to-Light products have unique, rugged packages with a choice of verification functions and are easy to mount for quick installation.

Series	Description	Number of Colors	Dimensions H x W x D	Power Supply	Communication
	<b>K30</b> A versatile family that combines a small, bright indicator with solid-state switching capability activated by a simple touch. page 484	1 to 3 (9 color options)	ø 22 mm base with ø 30 mm light	12 to 30 V dc	NA
	<b>K50</b> A versatile family that combines a large, bright indicator with solid-state switching capability activated by a simple touch. page 486	1 to 3 (9 color options)	ø 30 mm base with ø 50 mm light	12 to 30 V dc	Modbus Option
	<b>K70</b> A versatile family that combines a large, bright indicator with solid-state switching capability activated by a simple touch. page 488	1 to 3 (5 color options)	ø 30 mm base with ø 70 mm light	12 to 30 V dc	Wireless Option
	<b>K50</b> A reliable photoelectric sensing for non-contact part-picking applications. page 490	1 or 3 (9 color options)	ø 30 mm base with ø 50 mm light	12 to 30 V dc	Modbus Option
	<b>K30, K50 &amp; K80 Push Buttons</b> 30 or 50 mm translucent dome containing one to three colored lights and a push button. page 492	1 to 3 (9 color options)	<b>K30:</b> ø 22 mm base with ø 30 mm light <b>K50:</b> ø 30 mm base with ø 50 mm light <b>K80:</b> 80 mm housing with ø 50 mm light	12 to 30 V dc	NA
	<b>VTB</b> Features a brightly illuminated base for enhanced visual indication. page 494	1 (3 color options)	57 x 60 43 mm	12 to 30 V dc	NA
	<b>PVD</b> A compact, one-piece solutions useful in many part assembly, pick-to-light and error-proofing applications. page 496	2	H (137.8 or 266.4) 30 x 16.4 mm	12 to 30 V dc	NA
	<b>PVL</b> A retroreflective sensor that offers a reliable, cost-effective solution for bin-picking processes. page 498	2	H (225 or 500) 32.9 x 37.3 mm	12 to 30 V dc	NA
	<b>PVA</b> Helps reduce missed and misassembled parts for increased quality and reduced production costs. page 500	1	H (varies by model) 30 x 15 mm	12 to 30 V dc	NA



# K30 Touch Series

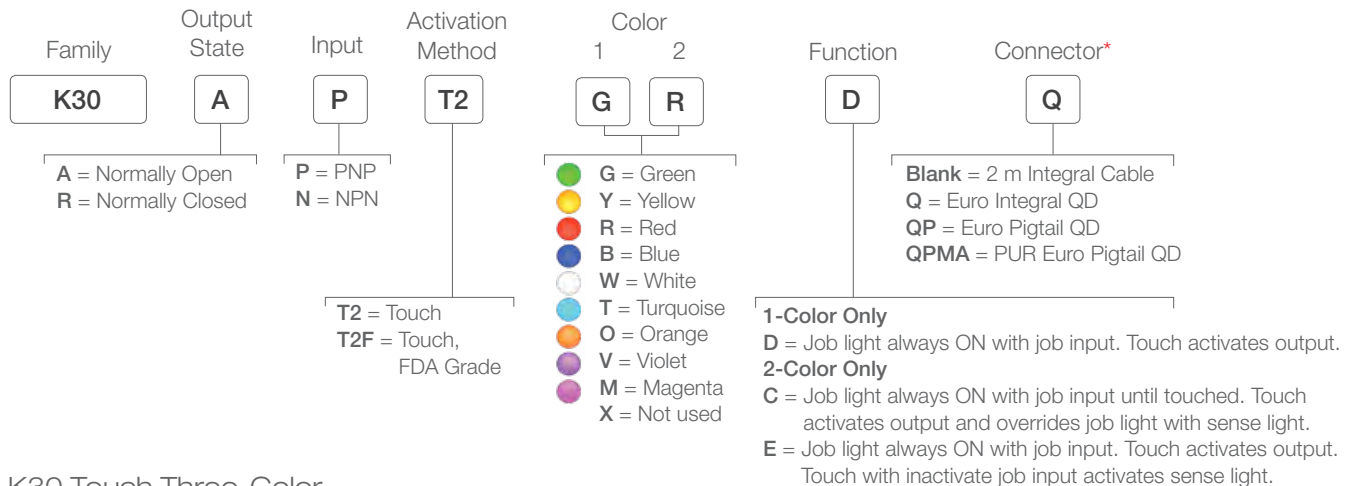
## Pick-to-Light Sensor



- Ergonomic design requires no physical pressure to operate, preventing stress on hands and wrists
- Rugged indicator with 22 mm threaded base to fit into industry standard punched holes making it ideal for error proofing of bin-picking and parts-verification applications
- Simple operation with the touch of a finger, hand or whole palm with or without gloves
- One- and two-color models available with a variety of colors and option of custom laser surface marking
- Rugged, water-resistant IP69K housing
- Excellent immunity to false triggering by water spray, detergents, oils, and other foreign materials

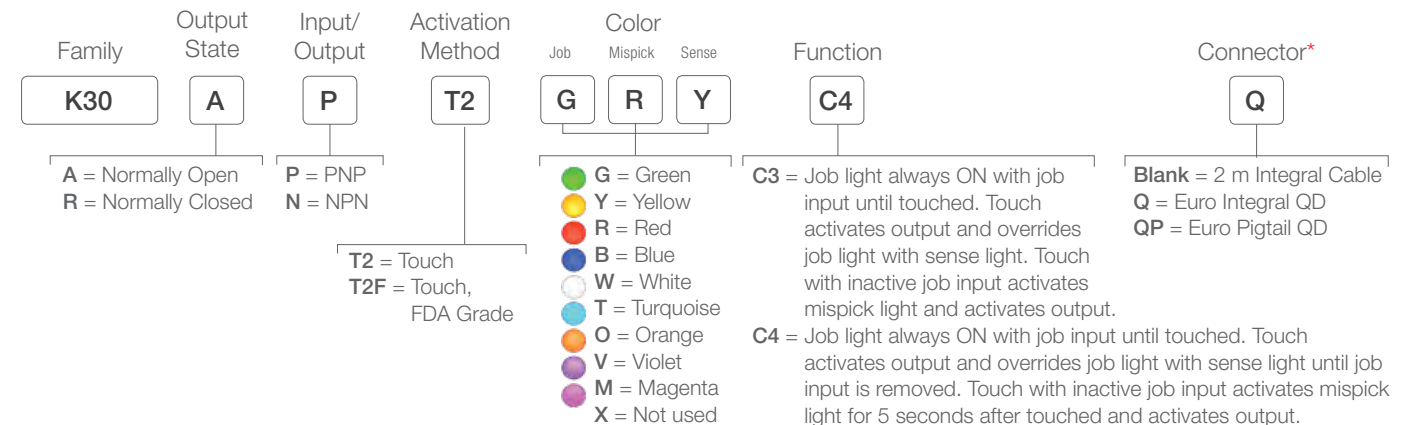
### K30 Touch One or Two Color,

Example Model Number: K30APT2GRDQ



### K30 Touch Three-Color

Example Model Number: K30APTGRYC4Q



\* FDA Grade models only available with pigtail QD

\* FDA Grade models only available with pigtail QD

Connection options: A model with a QD requires a mating cordset.



**Euro-Style**  
Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number (example,  
**MQDC-406RA**)

**4-Pin**

**MQDC-406**  
2 m (6.5')

**MQDC-415**  
5 m (15')

**MQDC-430**  
9 m (30')

Additional cordset information is available.  
See page 758



**SMB22A**



**SMB22FVK**



**SMBAMS22P**





**SMB22RAVK**

Additional bracket information is available.  
See page 727



K30 Touch Specifications

Supply Voltage	12 to 30 V dc
Supply Current	55 mA max current (exclusive of load)
Supply Protection Circuitry	Protected against reverse polarity and transient voltages
Construction	<b>Housing:</b> Polycarbonate or FDA Grade Polycarbonate, depending on model <b>Translucent dome:</b> Polycarbonate or FDA Grade Polycarbonate, depending on model <b>Mounting Nut:</b> PBT
Environmental Rating	<b>Standard:</b> UL Type 4x, 13 <b>FDA Grade:</b> UL Type 4x IEC IP67, IP69K per DIN 40050-9 Cabled models also meet IP69K if the cable and cable entrance are protected from high-pressure spray
Connections	Integral 4-pin Euro style QD, or 2m PVC integral cable
Operating Conditions	<b>Temperature:</b> -40 to +50 °C <b>Max. Relative Humidity:</b> 90% @ +50 °C max. relative humidity (non-condensing) <b>Storage Temperature:</b> -40 to +70 °C
Certifications	 

# K50 Touch

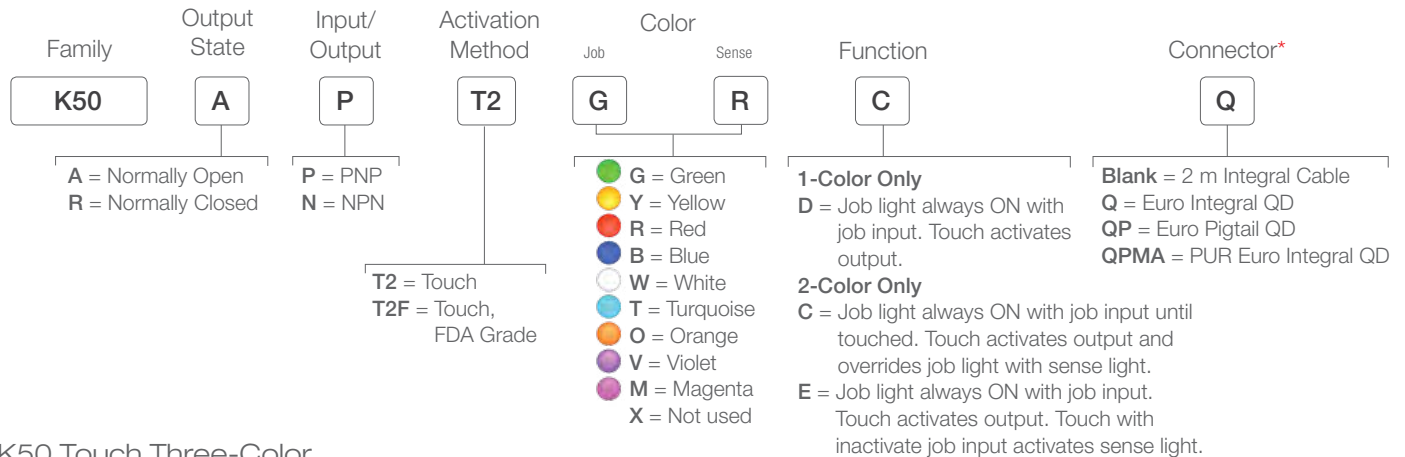
## Pick-to-Light Sensor



- Easy-to-use lighted touch button indicators allow for increased productivity with highly visible indication.
- Ergonomic design requires no physical pressure to operate, preventing stress on hands and wrists
- Ideal for efficient pick-to-light applications where a rugged device is needed
- Simple operation with the touch of a finger, hand or whole palm with or without gloves
- Excellent immunity to false triggering by water spray, detergents, oils, and other foreign materials
- One-, two- and three-color models available with a variety of colors and option of custom laser surface marking
- Rugged, water-resistant IP69K housing

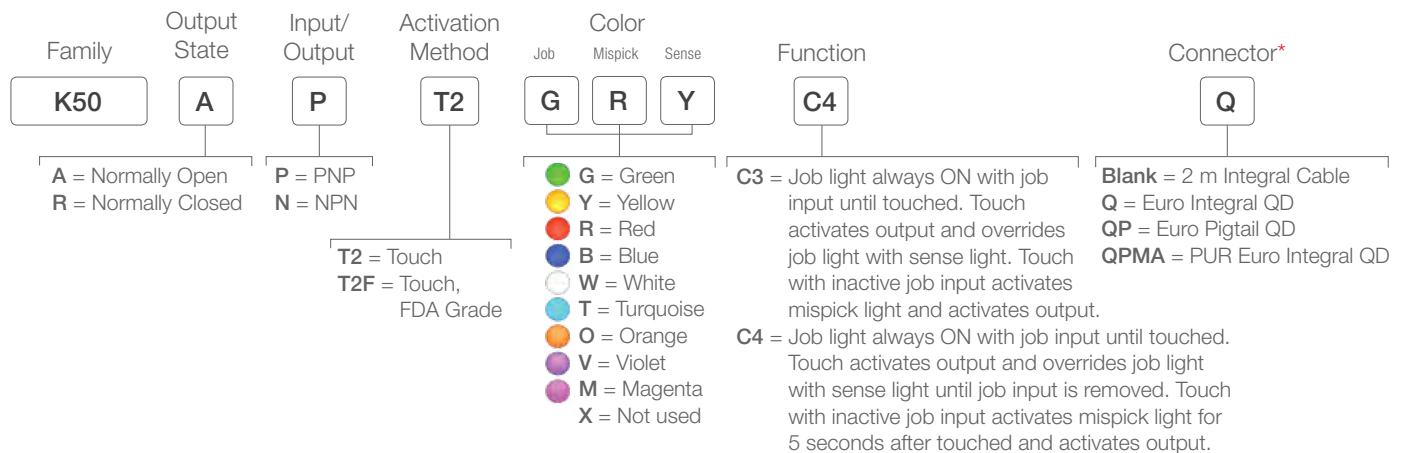
### K50 Touch One- or Two-Color

Example Model Number: K50APT2GRCQ



### K50 Touch Three-Color


Example Model Number: K50APT2GRYC4Q



\* FDA Grade models only available with pigtail QD

\* FDA Grade models only available with pigtail QD

Connection options: A model with a QD requires a mating cordset.



**Euro-Style**  
Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number (example,  
**MQDC1-506RA**)

**5-Pin**

**MQDC1-506**  
2 m (6.5')

**MQDC1-515**  
5 m (15')

**MQDC1-530**  
9 m (30')

Additional cordset information is available.  
See page 758



**SMB30A**

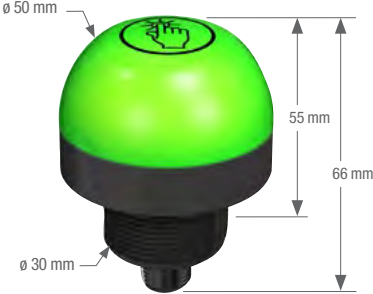


**SMB30MM**



**SMB30SC**

Additional bracket information is available.  
See page 727




ø 50 mm

55 mm


66 mm

ø 30 mm

**K50**





**K50 with Food-Grade Housing**



**Custom laser marking available**

K50 Touch Specifications

Supply Voltage	12 to 30 V dc
Supply Current	Less than 75 mA max current at 12 V dc (exclusive of load) Less than 50 mA max current at 30 V dc (exclusive of load)
Supply Protection Circuitry	Protected against reverse polarity and transient voltages (fast transient and over-voltage) and reverse polarity
Construction	<b>Housing:</b> Polycarbonate or FDA Grade Polycarbonate, depending on model <b>Translucent dome:</b> Polycarbonate or FDA Grade Polycarbonate, depending on model <b>Mounting Nut:</b> PBT
Environmental Rating	<b>Standard:</b> UL Type 4x, 13 <b>FDA Grade:</b> UL Type 4x IEC IP67, IP69K per DIN 40050-9 Cabled models also meet IP69K if the cable and cable entrance are protected from high-pressure spray
Connections	Integral 5-pin Euro style QD, or 2 m PVC integral cable, or 5-pin 150 mm Euro-style PVC pigtail QD
Operating Conditions	<b>Temperature:</b> -40 to +50 °C <b>Max. Relative Humidity:</b> 90% @ +50 °C max. relative humidity (non-condensing) <b>Storage Temperature:</b> -40 to +70 °C
Certifications	 

# K70 Touch Series

## Pick-to-Light Sensor



- Excellent immunity to false triggering by water spray, detergents, oils, and other foreign materials
- Ergonomically designed to eliminate hand, wrist, and arm stresses associated with repeated switch operation; require no physical force to operate
- Can be actuated with bare hands or in gloves
- Rugged IP65 polycarbonate construction
- Momentary versions remain activated as long as touch is present
- Latching versions start up not activated and toggle between activated and not activated on successive touches
- Available in nine color options and one-, two- and three-color models

### K70 Pick-to-Light

Example Model Number: K70APT2GXDQ



### K70 Specialty Pick-to-Light

Example Model Number: K70APT2GRYC4Q



 Connection Option: A model with a QD requires a mating cordset.



**4-Pin**

**Euro-Style**  
Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number (example,  
**MQDC-406RA**)

**MQDC-406**  
2 m (6.5')

**MQDC-415**  
5 m (15')

**MQDC-430**  
9 m (30')

Additional cordset information is available.  
See page 758



**SMB30A**



**SMB30MM**



**SMBAMS30P**





**SSA-MBK-EEC1**

Additional bracket information is available.  
See page 727



K70 Touch Specifications

Supply Voltage	12 to 30 V dc
Supply Current	< 220 mA maximum current at 12 V dc < 110 mA maximum current at 30 V dc
Supply Protection Circuitry	Protected against reverse polarity and transient voltages
Construction	<b>Housing:</b> Polycarbonate <b>Translucent dome:</b> Polycarbonate <b>Mounting Nut:</b> PBT
Environmental Rating	IEC IP65
Connections	Integral 5-pin Euro style QD, or 2 m PVC integral cable, or 5-pin 150 mm Euro-style PVC pigtail QD
Operating Conditions	<b>Temperature:</b> -40 to +50 °C <b>Max. Relative Humidity:</b> 95% @ +50 °C max. relative humidity (non-condensing)
Certifications	 

# K50 Optical Series

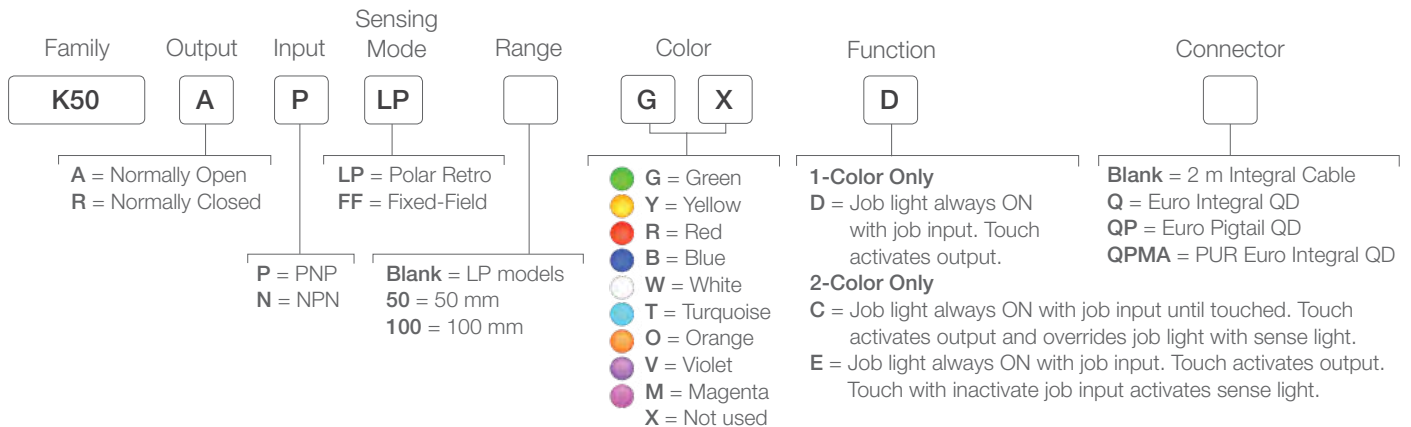
## Pick-to-Light Sensor



- The K50FF and K50LP use reliable photoelectric sensing for non-contact part-picking applications.
- Photoelectric pick acknowledgment
- Fixed-field or polarized retroreflective depending on model
- Simple, one-piece, cost-effective installations
- Easily mounted on any type of tube rack or shelving
- Several logic functions available to customize the operation of the application and control system

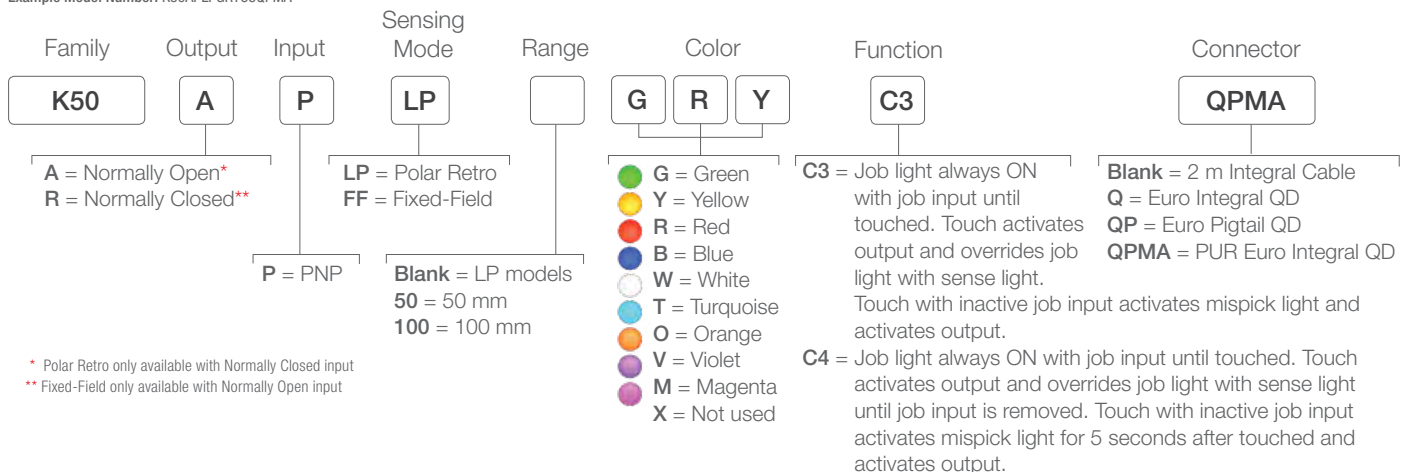
### K50 One- or Two-Color

Example Model Number: K50APLPGXD



### K50 Three-Color

Example Model Number: K50APLPGRYC3QPMA



\* Polar Retro only available with Normally Closed input

\*\* Fixed-Field only available with Normally Open input

Connection options: A model with a QD requires a mating cordset.



**Euro-Style**

Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number (example,  
**MQDC-406RA**)

**4-Pin**

**MQDC-406**  
2 m (6.5')  
**MQDC-415**  
5 m (15')  
**MQDC-430**  
9 m (30')

**5-Pin**

**MQDC-506**  
2 m (6.5')  
**MQDC-515**  
5 m (15')  
**MQDC-530**  
9 m (30')

Additional cordset information is available.  
See page 758

**Reflectors**

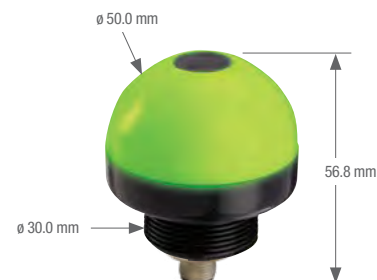
Additional information is available  
See page 790

**SMB30A****SMB30FA..****SMB30RAVK**

Additional bracket information is available.  
See page 727

**Andon Rope Pull Brackets**

**SMBARPL30**  
(Left Side)  
**SMBARPR30**  
(Right Side)  
**SMBARPB30**  
(Both Sides)

**K50 Specifications**

<b>Supply Voltage and Current</b>	12 to 30 V dc, (10% max. ripple)
<b>Supply Protection Circuitry</b>	Protected against reverse polarity and transient voltages (fast transient and over-voltage) and reverse polarity
<b>Output Configuration</b>	PNP or NPN (depending on model)
<b>Output Rating</b>	150 mA max. <b>C3 and C4 models: ON-state saturation voltage: PNP models:</b> Less than 2 V @ 10 mA dc; less than 2.5 V @ 150 mA dc <b>NPN models:</b> Less than 1.5 V @ 10 mA dc; less than 2 V @ 150 mA dc <b>OFF-state leakage current:</b> Less than 10 µA @ 30 V dc <b>All others: OFF-state leakage current:</b> Less than 10 µA @ 30 V dc <b>ON-state voltage:</b> less than 2 V @ 10 mA dc; less than 2.5 V @ 150 mA dc
<b>Output Protection Circuitry</b>	Protected against false pulse on power-up and continuous overload or short circuit of output
<b>Output Response Time</b>	<b>C3 and C4 models:</b> 5 milliseconds ON/OFF <b>All others:</b> 3 milliseconds ON/OFF
<b>Indicators</b>	<b>C3 models:</b> Entire translucent dome provides indicator light. Job ("Pick") indicator–Green      Pick Sensed indicator–Yellow      Mispick indicator–Red  <b>All others:</b> Entire translucent dome provides indicator light; either Job or Pick Sensed indicator inhibits the other light, depending on model. Job ("Pick") indicator–Green      Pick Sensed indicator–Red or OFF, depending on model
<b>Job Light Enable Input</b>	Input impedance: 8000Ω Sinking–Input low less than 1.5 V    Sourcing–Input high greater than 7 V
<b>Construction</b>	<b>Base and translucent dome:</b> Polycarbonate <b>Lens:</b> Polycarbonate or acrylic <b>Push Button:</b> Thermoplastic
<b>Environmental Rating</b>	Fully encapsulated; IEC IP67 <b>Integral QD models:</b> IP69K when using IP69K-rated cordsets <b>Pigtail and cable models:</b> IP69K when mounted with conduit
<b>Connections</b>	<b>C3 and C4 models:</b> 5-pin 150 mm PUR pigtail Euro-style QD (QPMA). QD cordsets are ordered separately. <b>All others:</b> 2 m or 9 m 4-wire attached cable, 4-pin integral Euro-style QD (Q) or 4-pin 150 mm PVC pigtail Euro-style QD (QP), depending on model QD cordsets are ordered separately.
<b>Ambient Light Immunity</b>	Up to 5,000 lux
<b>EMI/RFI Immunity</b>	Immunity to EMI and RFI noise sources per IEC 947-5-2
<b>Operating Conditions</b>	<b>Temperature:</b> –40 to +50 °C <b>Relative Humidity:</b> 90% at 50 °C (non-condensing)
<b>Certifications</b>	CE    cULus LISTED



# K30, K50 & K80

## Pick-to-Light Push Button

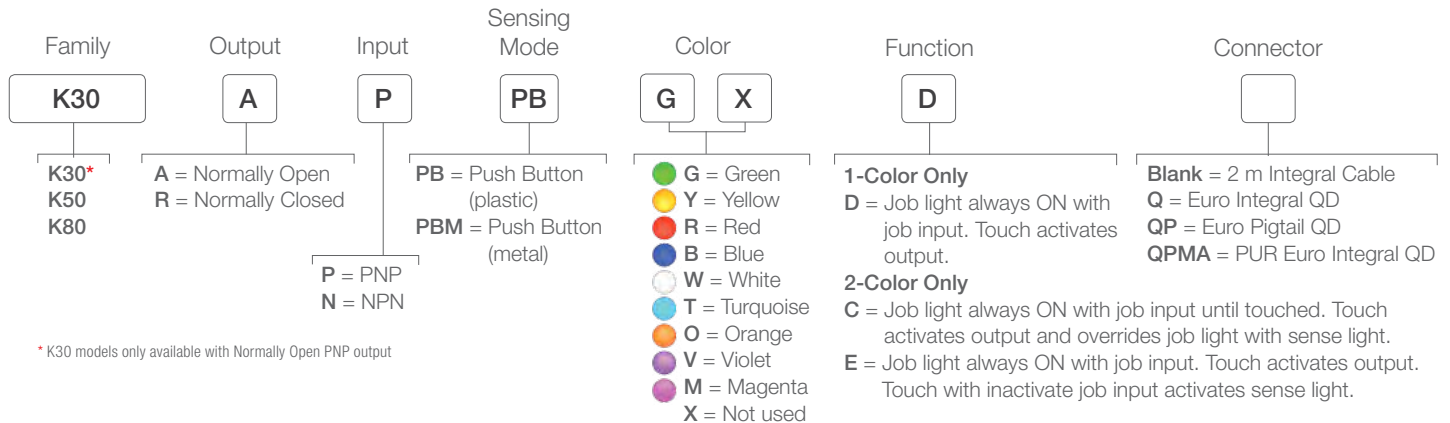


- Requires no external controller to operate; completely self-contained
- Indicates job pick status with 30 & 50 mm translucent dome containing one, two or three colored lights
- Shows correct order for selecting parts using a green job light in all models
- Models available with a red light to indicate detection of operator action or mispick
- Models available with 30 mm, Flat or DIN-rail mounting
- Ideal for use in abusive environments—fully encapsulated IP67 construction; some models rated to IP69K depending on installation
- QPMA model options also available

### K30, K50, K80 One- or Two-Color

Example Model Number: K30APBQXD

- Job light is ON at all times while job input is active.
- Pressing push button initiates output change of state.



### K50 and K80 Three-Color C-Series

Example Model Number: K50APLPGRYC#QPMA

- Job light is ON at all times while job input is active (unless hand is present)
- Presence of hand (or pressing button) activates output and turns job light Yellow for visual verification that action was sensed
- Presence of hand (or pressing button) while job input is not active turns light Red signaling mispick



 Connection options: A model with a QD requires a mating cordset.

**Euro-Style**

Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number (example,  
**MQDC-406RA**)

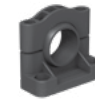
**4-Pin**

**MQDC-406**  
2 m (6.5')  
**MQDC-415**  
5 m (15')  
**MQDC-430**  
9 m (30')

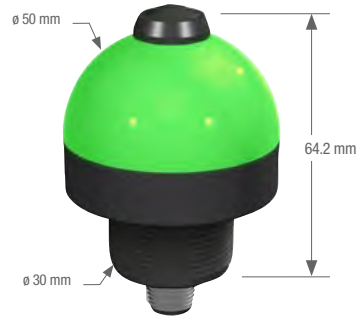
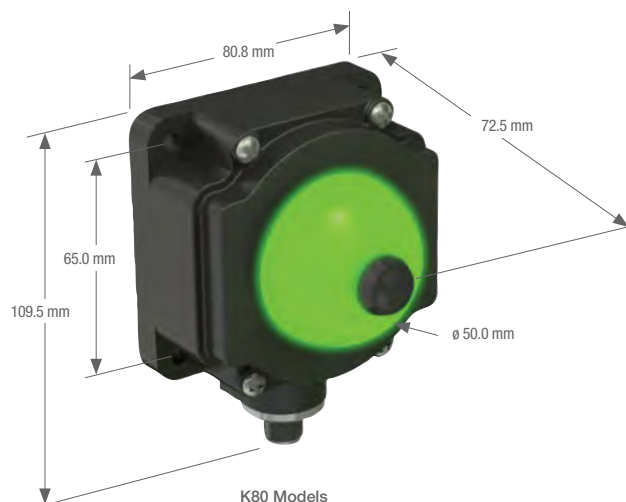
**5-Pin**

**MQDC-506**  
2 m (6.5')  
**MQDC-515**  
5 m (15')  
**MQDC-530**  
9 m (30')

Additional cordset information is available.  
See page 758

**K50****K30****SMB30A****SMB30FA..****SMB30SC****SMB22A**

Additional bracket information is available.  
See page 727

**K30 Push Models****K50 Push Models****K80 Models****K30, K50 & K80 Specifications**

<b>Supply Voltage and Current</b>	12 to 30 V dc, (10% max. ripple)
<b>Supply Protection Circuitry</b>	Protected against reverse polarity and transient voltages (fast transient and over-voltage) and reverse polarity
<b>Output Configuration</b>	PNP or NPN (depending on model)
<b>Output Rating</b>	150 mA max.  <b>C3 models:</b> <b>ON-state saturation voltage:</b> <b>PNP models:</b> Less than 2 V @ 10 mA dc; less than 2.5 V @ 150 mA dc <b>NPN models:</b> Less than 1.5 V @ 10 mA dc; less than 2 V @ 150 mA dc <b>OFF-state leakage current:</b> Less than 10 µA @ 30 V dc  <b>All others:</b> <b>OFF-state leakage current:</b> Less than 10 µA @ 30 V dc <b>ON-state voltage:</b> less than 2 V @ 10 mA dc; less than 2.5 V @ 150 mA dc
<b>Output Protection Circuitry</b>	Protected against false pulse on power-up and continuous overload or short circuit of output
<b>Output Response Time</b>	<b>C3 and C4 models:</b> 5 milliseconds ON/OFF <b>All others:</b> 3 milliseconds ON/OFF
<b>Indicators</b>	<b>C3 and C4 models:</b> Entire translucent dome provides indicator light. Job ("Pick") indicator-Green    Pick Sensed indicator-Yellow    Mispick indicator-Red  <b>All others:</b> Entire translucent dome provides indicator light; either Job or Pick Sensed indicator inhibits the other light, depending on model. Job ("Pick") indicator-Green    Pick Sensed indicator-Red or OFF, depending on model
<b>Job Light Enable Input</b>	<b>Input impedance:</b> 8000Ω    Sinking-Input low less than 1.5 V    Sourcing-Input high greater than 7 V
<b>Construction</b>	<b>Base and translucent dome:</b> polycarbonate <b>Lens:</b> polycarbonate or acrylic <b>Push Button:</b> thermoplastic or stainless steel
<b>Environmental Rating</b>	Fully encapsulated; IEC IP67 <b>Integral QD models:</b> IP69K when using IP69K-rated cordsets <b>Pigtail and cable models:</b> IP69K when mounted with conduit
<b>Connections</b>	<b>C3 and C4 models:</b> Integral 5-pin Euro style QD, or 2 m PVC integral cable, 5-pin 150 mm Euro-style PVC pigtail QD, or 150 mm PUR pigtail Euro-style QD (QPMA). <b>All others:</b> 2 m or 9 m 4-wire attached cable, 4-pin integral Euro-style QD (Q) or 4-pin 150 mm PVC pigtail Euro-style QD (QP), depending on model.
<b>Ambient Light Immunity</b>	Up to 5,000 lux
<b>EMI/RFI Immunity</b>	Immunity to EMI and RFI noise sources per IEC 947-5-2
<b>Operating Conditions</b>	<b>Temperature:</b> -40 to +50 °C <b>Relative Humidity:</b> 90% at 50 °C (non-condensing)
<b>Certifications</b>	

# VTB Series

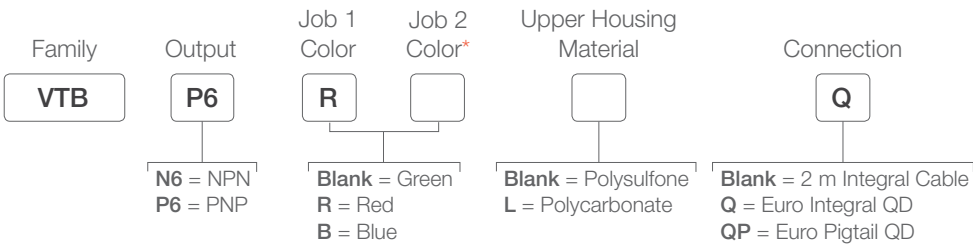
## Optical Touch Buttons



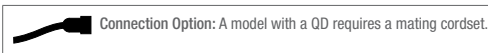
- Illuminated version of the Optical Touch Button
- Ergonomic design eliminates hand, wrist and arm stress
- Provides bright, easy-to-see status indication that can be seen in almost any environment
- One- and two-color models available
- 30 mm threaded base for convenient mounting

### VTB One- or Two Color


Example Model Number: VTBP6RQ



\* Leave Job 2 color box empty for a one color model



Connection Option: A model with a QD requires a mating cordset.



**Euro-Style**  
Straight connector models listed; for right-angle, add **RA** to the end of the model number (example, **MQDC-406RA**)


**4-Pin**

**MQDC-406**  
2 m (6.5')  
**MQDC-415**  
5 m (15')  
**MQDC-430**  
9 m (30')

Additional cordset information is available.  
See page 758



**OTC-1-BK**  
Black  
**OTC-1-GN**  
Green  
**OTC-1-RD**  
Red  
**OTC-1-YW**  
Yellow



**OTCL-1-BK**  
Black  
**OTCL-1-GN**  
Green  
**OTCL-1-RD**  
Red  
**OTCL-1-YW**  
Yellow

Field Covers



**SMB30FA**

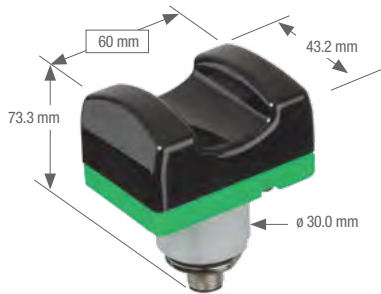


**SMB30MM**





**SMB30SC**

Additional bracket information is available.  
See page 728



VTB Specifications

Supply Voltage and Current	12 to 30 V dc (10% max. ripple) <b>Single-color models:</b> Less than 120 mA max. current @ 12 V dc (exclusive of load) Less than 70 mA max. current @ 30 V dc (exclusive of load) <b>Two-color models:</b> Less than 67 mA max. current @ 12 V dc (exclusive of load) Less than 40 mA max. current @ 24 V dc (exclusive of load) Less than 35 mA max. current @ 30 V dc (exclusive of load)
Supply Protection Circuitry	Protected against transient voltages (fast-transient and over-voltage) and reverse polarity
Output Configuration	Choose 1 current sinking (NPN) open collector transistor or 1 current sourcing (PNP) open collector transistor, depending on model
Output Rating	<b>Max. load:</b> 150 mA <b>ON-state saturation voltage:</b> less than 1.5 V @ 150 mA <b>OFF-state leakage current:</b> less than 10 µA
Output Protection	All models protected against false pulse on power-up (outputs held OFF for 1 second at power-up). Models with solid-state outputs have overload and short-circuit protection.
Response Time	100 milliseconds ON/OFF
Indicators	<b>2 Red LED indicators:</b> Power ON and Output Conducting <b>Base:</b> Lights green, red, blue, or green and red as a job light when input line is enabled. One-color models may be wired for flashing rather than solid color operation.
Construction	Totally encapsulated, non-metallic enclosure. Black polysulfone or red polycarbonate upper housing (see Application Note); translucent white polycarbonate base. Electronics fully epoxy-encapsulated.
Environmental Rating	IEC IP66 ; NEMA 1, 3, 4, 4X, 12
Connections	2 m or 9 m attached cable, or 4-pin (single color) or 5-pin (two color) Euro-style QD fitting. QD cordsets are ordered separately.
Ambient Light Immunity	Up to 120,000 lux (direct sunlight)
EMI/RFI Immunity	Immune to EMI and RFI noise sources, per IEC 947-5-2.
Operating Conditions	<b>Temperature:</b> -20 to +50 °C <b>Relative humidity:</b> 90% @ +50 °C (non-condensing)
Certifications	 

# PVD Series

## Parts Verification Array



- Compact, one-piece solution useful in many part assembly, pick-to-light and error-proofing applications
- Innovative, low-profile design with auto-configuration feature for diffuse or retroreflective modes
- Ideal for bin picking in tube rack or shelving applications
- Green light for pick and red light for mispick with selectable control features
- Rugged housing for high durability
- Protective mounting brackets available

### PVD

Example Model Number: PVD100Q

Family	Sensing Length	Connection
PVD	100	Q
	100 = 100 mm 225 = 225 mm	Blank = 2 m Integral Cable W/30 = 9 m Integral Cable Q = 2 m Euro Pigtail QD

NOTE: Green job light to indicate user action



Length (L)	Models
137.8 mm	PVD100
266.4 mm	PVD225

 Connection options: A model with a QD requires a mating cordset.



## 5-Pin

## Euro-Style

Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number (example,  
**MQDC1-506RA**)

**MQDC1-506**  
2 m (6.5')  
**MQDC1-515**  
5 m (15')  
**MQDC1-530**  
9 m (30')

Additional cordset information is available.  
See page 758



SMBPVD...



SMBPVA..C



SMBPVA6



Additional bracket information is available.  
See page 728

## Reflectors



Additional information is available  
See page 790

## PVD Specifications

Sensing Range	<b>Retroreflective applications:</b> 2 m, using 25 mm wide retroreflective tape <b>Diffuse applications:</b> 400 mm, with 18% reflectivity gray card target
Sensing Beam	630 nm, Visible red
Beam Spacing	28.6 mm
Sensing Height	<b>4-channel models:</b> 111 mm <b>8-channel models:</b> 240 mm
Supply Voltage and Current	<b>Input Voltage:</b> 12 to 30 V dc (10% max. ripple @ 10% duty cycle) <b>Input Current:</b> less than 40 mA @ 24 V dc and less than 70 mA @ 12 V dc (exclusive of load)
Supply Protection Circuitry	Protected against reverse polarity and transient over-voltage
Sensing Resolution	<b>Retroreflective:</b> 51 mm at 406 mm range, 100 mm at 2 m <b>Diffuse:</b> 55 mm dia. at 400 mm range
Output Configuration	<b>User-selectable via DIP switch:</b> 1 open-collector PNP (current sourcing) or 1 open-collector NPN (current sinking)
Output Rating	150 mA max. <b>OFF-state leakage current:</b> less than 10 µA <b>ON-state saturation voltage:</b> <b>NPN:</b> less than 1.0 V dc at 150 mA <b>PNP:</b> less than 2.0 V dc at 150 mA
Output Protection Circuitry	Protected against false pulse at power-up and short circuit of outputs
Output Response Time	400 milliseconds (Includes standard 100 milliseconds ON-delay and 100 milliseconds OFF-delay)
Delay at Power-Up	Less than 1.0 second
Indicators	<b>Green:</b> LED to indicate power ON/OFF <b>Yellow:</b> LED to indicate output ON/OFF <b>Job Light:</b> (Diffused Green LED) Turned ON and OFF by applying an external signal to the Job input (white wire). The job lights will be active high or active low, depending on user selection of DIP switch 4. <b>Error Light:</b> (Diffused Red LED) Turned ON and OFF by detection of an output event when job light is not ON.
Adjustments	4 DIP switches, located behind access panel (*denotes default setting): 1. PNP*/NPN output 2. Normally Open operation†/Normally Closed 3. Job light ON solid*/Job light flashing 4. Job light input high†/Job light input low
Construction	Black painted aluminum housing; acrylic lenses; thermoplastic polyester end caps; thermoplastic elastomer programming switch cover; stainless steel mounting brackets and hardware
Environmental Rating	NEMA 2; IEC IP62
Connections	5-conductor PVC-jacketed 2 m cable which is either unterminated or terminated with a 5-pin Euro-style quick-disconnect connector, depending on model. Cable diameter is 3.3 mm. QD cordsets are ordered separately.
Operating Conditions	<b>Temperature:</b> 0° to +50° C <b>Relative humidity:</b> 90% relative humidity @ 50° C (non-condensing)
Certifications	 

# PVL Series

## Parts Verification Array

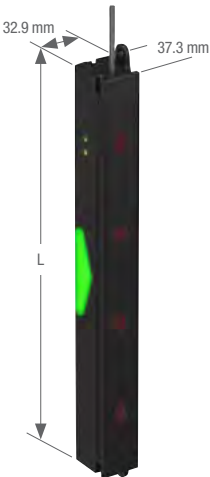


- Compact, one-piece solution useful in many part assembly, pick-to-light and error-proofing applications
- Innovative, low-profile design with auto-configuration feature for diffuse or retroreflective modes
- Ideal for bin picking in tube rack or shelving applications
- Green light for pick and red light for misspick with selectable control features
- Rugged housing for high durability
- Protective mounting brackets available

### PVL

Example Model Number: PVL225PQ

Family	Sensing Length	Output	Connection
PVL	225	P	Q
	225 = 250 mm 500 = 500 mm	P = PNP N = NPN	Blank = 2 m Integral Cable W/30 = 9 m Integral Cable Q = 2 m Euro Pigtail QD



Length (L)	Models
327.5 mm	PVL225
608 mm	PVL500

 Connection options: A model with a QD requires a mating cordset.

**Euro-Style**  
Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number (example,  
**MQDC-406RA**)



4-Pin

**MQDC-406**  
2 m (6.5')  
**MQDC-415**  
5 m (15')  
**MQDC-430**  
9 m (30')

Additional cordset information is available.  
See page 758



**SMBPVL1    SMBPVL2-(225 or 500)    SMBPVL3-(225 or 500)    SMBPVL4    SMBPVL5**

Additional bracket information is available.  
See page 728

**Reflectors**



Additional information is available  
See page 790

PVL Specifications

Sensing Range	1.5 m, using 25 mm wide retroreflective tape		
Sensing Beam	630 nm, Visible red		
Beam Spacing	70 mm		
Supply Voltage and Current	<b>Input Voltage:</b> 12 to 30 V dc (10% max. ripple) PLV225; Input Current: less than 140 mA @ 12 V dc and less than 70 mA @ 30 V dc (exclusive of load) PVL500; Input Current: less than 220 mA @ 12 V dc and less than 100 mA @ 30 V dc (exclusive of load)		
Supply Protection Circuitry	Protected against reverse polarity and transient over-voltage		
Output Rating	150 mA max. <b>OFF-state leakage current:</b> less than 10 µA <b>ON-state saturation voltage:</b> <b>NPN:</b> less than 1.5 V at 10 mA dc <b>PNP:</b> less than 2.0 V dc at 10 mA <b>NPN:</b> less than 2.0 V at 150 mA dc <b>PNP:</b> less than 2.5 V dc at 150 mA		
Output Response Time	Less than 2 milliseconds ON and OFF		
Delay at Power-Up	Less than 1.0 second		
Indicators	<b>Green:</b> LED to indicate power ON/OFF <b>Yellow:</b> LED to indicate output ON/OFF <b>Job Light:</b> (Diffused Green LED) Turned ON and OFF by applying an external signal to the Job input (white wire). The job lights will be active high or active low, depending on user selection of DIP switch 4. <b>Error Light:</b> (Diffused Red LED) Turned ON and OFF by detection of an output event when job light is not ON.		
Construction	Black anodized aluminum housing, painted zinc end caps, thermoplastic front face and lenses		
Environmental Rating	IEC IP50		
Connections	2 m PVC-jacketed cable which is either unterminated or terminated, depending on model. QD cordsets are ordered separately.		
Operating Conditions	<b>Temperature:</b> 0 to +50 °C <b>Relative humidity:</b> 90% relative humidity @ 50 °C (non-condensing)		
Certifications			



# PVA Series

## Parts Verification Array

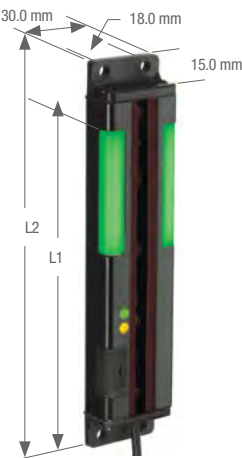


- Help reduce missed and misassembled parts for increased quality and reduced production costs
- Highly visible job lights provides the most reliable solution for error proofing
- Emitter/receiver arrays for high resolution sensing
- Four lengths to cover a variety of openings and applications
- Highly reliable sensing over a long operating range
- Wide field-of-view makes alignment easy
- Protective mounting brackets available

### PVA

Example Model Number: PVA100P6EQ

Family	Sensing Length	Output	Emitter/Receiver	Connection
<b>PVA</b>	<b>225</b>	<b>P6</b>		<b>Q</b>
	100 = 100 mm 225 = 225 mm	P6 = PNP N6 = NPN	E = Emitter R = Receiver Blank = E/R Pair	Blank = 2 m Integral Cable W/30 = 9 m Integral Cable Q = 2 m Euro Pigtail QD



Models	No. of Beams	Length (L1)	Length (L2)
PVA100	5	100	137.8 mm
PVA225	10	225	266.4 mm
PVA300	13	300	341.4 mm
PVA375	16	375	416.6 mm

Connection options: A model with a QD requires a mating cordset.



4-Pin

**Euro-Style**

Straight connector models listed;  
for right-angle, add **RA** to the end  
of the model number (example,  
**MQDC-406RA**)

**MQDC-406**

2 m (6.5')

**MQDC-415**

5 m (15')

**MQDC-430**

9 m (30')



SMBPVA...



SMBPVA..C



SMBPVA2



SMBPVA6

Additional cordset information is available.  
See page 758

Additional bracket information is available.  
See page 728

## PVA Specifications

Beam Spacing	25.0 mm		
Sensing Height	100, 225, 300 or 375 mm, depending on emitter and receiver models		
Supply Voltage and Current	12 to 30 V dc (10% max. ripple) at less than 62 mA for the emitter and 50 mA for the receiver (exclusive of load)		
Supply Protection Circuitry	Protected against reverse polarity		
Output Configuration	<b>Receivers have one solid-state dc output, programmable for Light or Dark Operate:</b> Models PVA...N6R have current sinking (NPN) open-collector transistor Models PVA...P6R have current sourcing (PNP) open-collector transistor		
Output Rating	150 mA max. <b>OFF-state leakage current:</b> less than 2 $\mu$ A <b>ON-state saturation voltage:</b> less than 1 V dc at 10 mA and less than 1.5 V dc at 100 mA		
Output Response Time	<b>Sensor Size</b> 100 mm 225 mm 300 mm 375 mm	<b>Standard</b> 20 milliseconds 40 milliseconds 52 milliseconds 64 milliseconds	<b>With Crosstalk from Adjacent Units</b> 30 milliseconds max. 60 milliseconds max. 78 milliseconds max. 96 milliseconds max.
Output Protection Circuitry	Protected against false pulse at power-up and continuous overload or short circuit of outputs		
Sensing Resolution	35 mm min. diameter		
Status Indicators	<b>Emitter:</b> One Green LED to indicate power ON/OFF One Red LED to indicate frequency selected <b>Receiver:</b> One Green LED to indicate power ON/OFF One Yellow LED to indicate output state  <b>Emitter &amp; Receiver:</b> Both have two highly visible "job lights" which are turned ON/OFF by applying an external signal to the white wire. The job lights may be programmed for steady or flashing green.		
Construction	Black painted aluminum housing; acrylic lenses; PBT polyester end caps; thermoplastic elastomer programming switch cover; stainless steel mounting brackets and hardware		
Environmental Rating	IEC IP62; NEMA 2		
Connections	<b>Emitter:</b> 3-conductor PVC-jacketed 2 m cable which is either unterminated or terminated with a 4-pin Euro-style quick-disconnect connector, depending on model. Cable diameter is 3.3 mm. <b>Receiver:</b> 4-conductor PVC-jacketed 2 m cable which is either unterminated or terminated with a 4-pin Euro-style quick-disconnect connector, depending on model. Cable diameter is 3.3 mm.		
Operating Temperature	0 to +50 °C		
Certifications	