LED Task Lights

Tower Lights

Indicators

Touch Buttons and Pick-to-Light
Light Up the Visual Factory ................................................................. 2

Banner’s Lighting and Indication Solutions

LED Lighting ......................................................................................... 13
Robust, high-quality and energy-efficient LED Lighting products have sleek designs and are ideal for a wide range of industrial and mobile applications.

Signal Tower Lights ........................................................................... 45
Premium LED-based, stylish Signal Tower Lights are completely flexible with preassembled or modular models to suit application needs, and have a wide range of mounting accessories for quick and easy installation.

Indicators ............................................................................................. 63
Rugged Indicators require no additional protective enclosure and are flexible in design, size and mounting for a unique indication solution.

Touch Buttons and Pick-to-Light ...................................................... 97
Touch Buttons come in a variety of options for lighting and touch functions and have unique, rugged packages that require no additional protective enclosure.

Rugged, unique Pick-to-Light products help reduce assembly time and increase quality for online and offline operator guidance processes.

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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
- Increase Worker Safety

Electrical Panel Lighting
Machine Lighting
Workstation Lighting
Visual Inspection Station

Sensor Emulation
Communicate Status

pages 45, 63
- Empower Operators
- Alert Supervisors
- Accelerate Resolution

Increase Efficiency with Light-Guided Part Picking

page 97
- Reduce Cycle Time
- Error-proof Assembly
- Streamline Training
Increase productivity, improve product quality and reduce costs with Banner’s industrial LED lighting products. Banner has a suitable model for the harshest environments – even chemical, extreme temperature and washdown areas.

**Boost Productivity** – Proper light levels increase the speed and accuracy of visual task performance, reducing assembly times and increasing output.

**Enhance Inspection** – White, colored and multicolored options in different form factors allow for control of color, intensity and angle, improving detection of part defects during assembly and inspection.

**Reduce Costs** – Reduce costs by eliminating wastes such as defects, waiting, overproduction, transportation and others in the production environment.
Highly visible indicators with real-time feedback provide guidance and status information for assembly and kitting applications.

**Accelerate Processes** – Colored indicators guide operators quickly to the correct part location and accelerate training procedures.

**Improve Quality** – Integrated feedback drives increased operator accuracy and provides quality control metrics.

**Save Time** – Save Time - easily retrofit existing equipment with new solutions.
Machine status indicators with clear on and off states provide improved communication across the manufacturing floor. Wireless options simplify installation, facilitate remote monitoring and data collection, and allow for rapid status communication in and out of the plant.

**Reduce Downtime** – Immediate attention to problems as they occur reduces downtime, improves quality and reduces safety issues.

**Speed Recognition** – Status is conveyed through color, position, text, symbols or audible alarm. No time is lost deciphering the information.

**Speak Globally** – Products are certified for use around the world and conform with international standards. Rely on Banner’s vast network to support you fully.
Operators and supervisors with clear information when and where they need it react quickly and correctly, resulting in efficient problem resolution. Long term gains in overall equipment effectiveness follow from continued monitoring and data analysis.

**Empower Operators** – Illuminated indicators, touch buttons and E-stops show status clearly, giving workers the ability to act quickly and confidently when problems occur.

**Alert Supervisors** – Tower lights, indicators and advanced lights communicate machine, work cell and inventory status, helping supervisors identify and resolve issues effectively

**Maximize Uptime** - Wireless and standard devices can track machine and operator performance, allowing for effective scheduling of maintenance and changeovers.
Illumination + Indication
Unlock new user benefits throughout the manufacturing floor and help staff meet important management objectives.

Supply Chain Simplification
Standardizing on a single, flexible model simplifies ordering and spare parts without sacrificing functionality.

Customization
Work with Banner on a variety of modifications to get exactly the solution you need.

- Light sections can be permanently laser marked with custom text or images
- Wireless options to avoid costly wiring runs
- Multiple colors in one unit with flexible I/O configuration
- Magnetic mounting options for easy installation and portability
- Cascadeable lights
- Variety of audible options, including programmable
- Color and animation options available
IO-Link

What is IO-Link?

IO-Link (IEC61131-9) is an open standard serial communication protocol that allows for the bi-directional exchange of data from sensors and devices that support IO-Link and are connected to a master. The IO-Link master can transmit this data over various networks, fieldbuses, or backplane buses, making the data accessible for immediate action or long-term analysis via an industrial information system (PLC, HMI, etc.). Each IO-Link sensor has an IODD (IO Device Description) file that describes the device and its IO-Link capabilities.

5 Advantages of IO-Link

1. Standardized and Reduced Wiring
   IO-Link devices do not require any special or complicated wiring, but can be connected using the same cost-effective standard unshielded 3-wire cables as conventional discrete I/O. In addition, IO-Link also eliminates the need for analog sensors and reduces the variety of cord sets required for sensors, which saves inventory costs. IO-Link also supports a master-slave configuration with passive connection points, which further reduces wiring requirements.

2. Increased Data Availability
   Access to sensor-level data helps ensure the smooth operation of system components, streamlines device replacement, and enables optimized machine maintenance schedules—all of which save costs and reduce the risk of machine downtime.

   This wealth of valuable data made available through IO-Link is integral for the Industrial Internet of Things (IIoT) and Industry 4.0 initiatives.

3. Remote Configuration and Monitoring
   With IO-Link, users can read and change device parameters through the control system software, enabling fast configuration and commissioning that saves time and resources. In addition, IO-Link allows operators to dynamically change the sensor parameters from the control system as needed—such as in the case of product changeover—which reduces downtime and allows machines to accommodate greater product diversity.

   In addition, the ability to monitor sensor outputs, receive real-time status alerts, and adjust settings from virtually anywhere allows users to identify and resolve problems that arise on the sensor level in a timely manner. This capability reduces costly downtime and improves overall efficiencies.

4. Simple Device Replacement
   In addition to the ability to remotely adjust sensor settings, IO-Link’s data storage capability also allows for automated parameter reassignment in case of device replacement (also known as Auto-Device Replacement or ADR). Users can import existing sensor parameter values into a replacement sensor for seamless replacement, getting the new device up and running as quickly as possible.

5. Extended Diagnostics
   IO-Link provides users with visibility into errors and health status from each device. This means that users can see not only what the sensor is doing but also how well it is performing—a valuable insight into a machine’s efficiency. In addition, extended diagnostics allow users to easily identify when a sensor is malfunctioning and diagnose the problem without shutting down the line or machine.

   The combination of real-time and historic data not only reduces troubleshooting efforts as issues arise but also allows for optimization of machine maintenance schedules, saving costs and increasing efficiency in the long term.
Wireless monitoring and indication products from Banner Engineering can increase productivity, reduce downtime, and provide data to optimize your operation. Banner’s wireless products eliminate expensive cable runs, are easy to install and set up, and can integrate machines that were not previously network capable.
Node
The Node collects data and wirelessly transmits this data to the Gateway.

Gateway
The Gateway accepts data and interfaces to the control system and plant networks or can be wired directly to discrete I/O devices.

Wireless TL70 Tower Light
A bright 70 mm tower light with wireless networking provides local and remote status information and has inputs for process monitoring.

Wireless Q120 6-Button Pendant
The wireless Q120 6-button pendant is an autonomous node with six independent push button inputs and six sets of LED indicators.

Wireless K70 Touch Button
The K70 touch button is an ergonomic solid state switch with integrated multicolor indication functions. Bidirectional wireless communication provides a simple operator interface for pick-to-light, call button, and general industrial applications.

Wireless Q45U Node
The Q45 universal node works with all Sure Cross® sensors with a 1-wire serial interface.

Wireless K70 Indicator
Bright, multicolor K70 indicators offer status indication and remote monitoring in a compact package for greater versatility in deployment.

Control Your Wireless Networks with the DXM100 Controller
The DXM100 is an industrial wireless controller developed to facilitate Ethernet connectivity and Industrial Internet of Things (IIoT) applications.
LED Lighting

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

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<th>Family Name</th>
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<th>Lumens per Foot (300 mm)</th>
<th>Dual/Multi Color Options</th>
<th>Color Options</th>
<th>IP Rating</th>
<th>Cascadeable</th>
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<td>DC</td>
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<td>DC</td>
<td>650</td>
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<td>IP66, IP67, IP69K</td>
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<tr>
<td>24</td>
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<td>550 and 1100</td>
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<td>Model</td>
<td>Description</td>
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<td>Lumens per Foot (300 mm)</td>
<td>Dual/Multi Color Options</td>
<td>IP Rating</td>
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<tr>
<td>WLC60</td>
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<td>340 and 640</td>
<td>1300</td>
<td>IP68, IP68g, IP69K</td>
<td>IP50 (unsealed)</td>
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<td></td>
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<tr>
<td>WLC90</td>
<td>Internal High Temp</td>
<td>89 x 91</td>
<td>700</td>
<td>IP68, IP68g, IP69K</td>
<td>IP66, IP67, IP69K</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>WLC90</td>
<td>(High Temp)</td>
<td></td>
<td>105 x 180 to 360 x 180</td>
<td>IP67, IP69K</td>
<td>IP66, IP67, IP69K</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WLC90</td>
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<td></td>
<td></td>
<td></td>
<td>IP68, IP68g, IP69K</td>
<td>IP68, IP69K, IP69K</td>
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<td></td>
<td></td>
<td></td>
<td>IP67, IP69K</td>
<td>IP67, IP69K</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
WLS28-2 LED Strip Lights

- Compact, space-saving design
- Rugged, water-resistant IP69K option
- Available in 8 lengths from 145 to 1130 mm
- Lensed models or choice of clear or diffuse window
- Cascade models for connecting multiple lights end-to-end, minimizing wiring
- UV 365 nm and 395 nm wavelength models available for UV fluorescent and non-fluorescent applications
- High/Lo/Off switch and non-switch models available
- Low power consumption less than 9 watts per foot
- Optional snap clips for easy installation and repositioning
- Automatic temperature protection built into the unit. Above 50 °C, the light dims to manage heat and protect product lifetime
### Single-Color

**Family**
- **WLS28-2**

**Cascadable**
- **C**
  - **W**

**Color**
- **W** = Cool White
- **WW** = Warm White
- **R** = Red
- **G** = Green
- **B** = Blue
- **Y** = Yellow

**Lighted Length (mm)**
- 145
  - 145
  - 285
  - 430
  - 570
  - 710
  - 850
  - 990
  - 1130

**Window**
- **Blank**

**Construction**
- **S** = Sealed*
- **X** = Not Sealed

**Control**
- **Blank**
- **PB** = Hi/Lo/OFF Switch

**Connector**
- **Blank** = 2 m Integral Cable
- **Q** = Integral Euro QD

* Sealed models not available with ON/OFF Switch (PB) or Motion Switch (M)

---

### Dual-Color

**Family**
- **WLS28-2**

**Cascadable**
- **C**
  - **W**
  - **R**
  - **B**

**Color (C) / Density (D)**
- **C1**
- **D1**
- **C2**
- **D2**

**Lighted Length (mm)**
- 145
  - 145
  - 285
  - 430
  - 570
  - 710
  - 850
  - 990
  - 1130

**Window**
- **Blank**

**Construction**
- **S** = Sealed*
- **X** = Not Sealed

**Control**
- **Blank**
- **PB** = Hi/Lo/OFF Switch

**Connector**
- **Blank** = 2 m Integral Cable
- **Q** = Integral Euro QD

* Sealed models not available with ON/OFF Switch (PB)

---

### UV Models

**Family**
- **WLS28-2**

**Cascadable**
- **C**
  - **UV395**

**Wavelength**
- **UV365** = 365 nm
- **UV395** = 395 nm

**Lighted Length (mm)**
- 285
  - 285
  - 570
  - 1130

**Window**
- **Blank**

**Construction**
- **S** = Sealed*
- **X** = Not Sealed

**Control**
- **PB** = Hi/Lo/OFF Switch

**Connector**
- **Blank** = 2 m Integral Cable
- **Q** = Integral Euro QD

* Not available in UV365 models
† Sealed models not available with ON/OFF Switch (PB)

Specifications and accessories on next page.
Supply Voltage
12 to 30 V dc

Construction
Housing: Clear anodized aluminum
End Caps: Painted zinc
Window: Polycarbonate.

Environmental Rating
Non-sealed Models: IEC IP50
Sealed Models: IEC IP67/IP69K
per DIN 40050

Operating Temperature
-40 to +70 °C (-40 to +158 °F)

Certifications
Stand-Alone
Cable Models
Sealed
Cascadable
Models
Lensed
Cascadable
Models

Single-Color

<table>
<thead>
<tr>
<th>Length (mm)</th>
<th>Lumens* (Typical @ 25 °C)</th>
<th>Typical Wattage** (Watts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>145</td>
<td>400 (White), 55 (Red), 180 (Green), 40 (Blue), 50 (Yellow)</td>
<td>3.6</td>
</tr>
<tr>
<td>285</td>
<td>800 (White), 110 (Red), 360 (Green), 80 (Blue), 100 (Yellow)</td>
<td>7.2</td>
</tr>
<tr>
<td>430</td>
<td>1200 (White), 165 (Red), 540 (Green), 120 (Blue), 150 (Yellow)</td>
<td>11.0</td>
</tr>
<tr>
<td>570</td>
<td>1600 (White), 220 (Red), 720 (Green), 160 (Blue), 200 (Yellow)</td>
<td>14.6</td>
</tr>
<tr>
<td>710</td>
<td>2000 (White), 275 (Red), 900 (Green), 200 (Blue), 250 (Yellow)</td>
<td>18.5</td>
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<tr>
<td>850</td>
<td>2400 (White), 330 (Red), 1080 (Green), 240 (Blue), 300 (Yellow)</td>
<td>22.1</td>
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<tr>
<td>990</td>
<td>2800 (White), 385 (Red), 1260 (Green), 280 (Blue), 350 (Yellow)</td>
<td>25.9</td>
</tr>
<tr>
<td>1130</td>
<td>3200 (White), 440 (Red), 1440 (Green), 320 (Blue), 400 (Yellow)</td>
<td>29.8</td>
</tr>
</tbody>
</table>

*Lumen values lowered by 25% on diffused window models
**Typical operating wattage is measured at 24 V dc

Dual-Color

<table>
<thead>
<tr>
<th>Length (mm)</th>
<th>Lumens* (Typical @ 25 °C)</th>
<th>Typical Wattage** (Watts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>145</td>
<td>237 (Daylight), 100 (White), 55 (Red), 150 (Green), 75 (Blue), 3.6</td>
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</tr>
<tr>
<td>285</td>
<td>475 (Daylight), 200 (White), 110 (Red), 300 (Green), 150 (Blue), 7.2</td>
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<tr>
<td>430</td>
<td>713 (Daylight), 300 (White), 165 (Red), 450 (Green), 225 (Blue), 10.8</td>
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<tr>
<td>570</td>
<td>950 (Daylight), 400 (White), 220 (Red), 600 (Green), 300 (Blue), 14.8</td>
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<tr>
<td>710</td>
<td>1188 (Daylight), 500 (White), 275 (Red), 750 (Green), 375 (Blue), 18.2</td>
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<tr>
<td>850</td>
<td>1425 (Daylight), 600 (White), 330 (Red), 900 (Green), 450 (Blue), 22.1</td>
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</tr>
<tr>
<td>990</td>
<td>1663 (Daylight), 700 (White), 385 (Red), 1050 (Green), 525 (Blue), 25.7</td>
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</tr>
<tr>
<td>1130</td>
<td>1900 (Daylight), 800 (White), 440 (Red), 1200 (Green), 600 (Blue), 29.8</td>
<td></td>
</tr>
</tbody>
</table>

*Lumen values lowered by 25% on diffused window models
**Typical operating wattage is measured at 24 V dc
WLS15 LED Strip Lights

- Low-profile design for easy installation in tight spaces
- 12 or 24 V dc operation in one model
- Completely sealed with an IP67 rating for use in wet or dusty environments
- The rugged construction and polycarbonate shell resists shock and vibration while remaining lightweight
- LED lighting technology saves energy and minimizes replacement costs
- Brackets and connectors are available to keep installation simple
- Draws half the current of other lights for a low power device and high energy savings
- Offers stability in the presence of line voltage fluctuations
Supply Voltage and Current
12 V dc or 24 V dc nominal

Construction
Clear anodized aluminum inner housing; Polycarbonate outer housing, Polyamide end caps

Environmental Rating
Rated IEC IP66 and IEC IP67
Suitable for wet locations per UL 2108

Operating Conditions
Temperature: -40 to +60 °C
Storage Temperature: -40 to +70 °C

Certifications

<table>
<thead>
<tr>
<th>Length (mm)</th>
<th>Typical Current (A) at 25 °C</th>
<th>Maximum Current (A) at -40 °C</th>
<th>Lumens</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12 V dc</td>
<td>24 V dc</td>
<td>12 V dc</td>
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<tr>
<td>0220</td>
<td>0.19</td>
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<td>0.24</td>
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<tr>
<td>0360</td>
<td>0.38</td>
<td>0.20</td>
<td>0.48</td>
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<tr>
<td>0500</td>
<td>0.57</td>
<td>0.30</td>
<td>0.72</td>
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<td>0640</td>
<td>0.76</td>
<td>0.40</td>
<td>0.96</td>
</tr>
<tr>
<td>0920</td>
<td>1.14</td>
<td>0.60</td>
<td>1.44</td>
</tr>
<tr>
<td>1200</td>
<td>1.52</td>
<td>0.80</td>
<td>1.92</td>
</tr>
</tbody>
</table>

Additional cordset lengths and accessories are available at bannerengineering.com
WLB32 LED Light Bar

• Energy efficient for overall cost savings
• High/Low/Off switch allows users to customize light levels
• Available as cascadable models for a continuous length of lighting, with a minimum of wiring
• Metal housing, shatterproof window
• Easy installation with snap clips, or a choice of magnetic or angle brackets
• Available in AC or DC models
• Available in 285 mm, 570 mm, 850 mm or 1130 mm
• Motion detection models are ideal for locations that cannot use a physical switch or where the placement of the switch is not useful
• Models featuring an eye shield window block direct line of sight to the domed window to increase eye comfort
### Specifications

**Family**
- **WLB32**

**Power**
- **Z**
- **C**

**Lighted Length (mm)**
- **285**
- **570**
- **850**
- **1130**

**Shield**
- **PB**
  - Blank = No Shield
  - M = Motion Switch
  - PB = Hi/Low/Off

**Control**
- **QB**
  - Q = Euro QD (dc)
  - QB = AC

**Connector**
- **QM**
  - Blank = Cable (dc)
  - M = Motion Switch
  - PB = Hi/Low/Off

**Plug Type (AC Models)**
- **B**
  - B = North & Central America, Japan, Taiwan
  - D = India, Sri Lanka, Nepal, Namibia
  - EF = France, Belgium, Slovakia, Tunisia, Germany, Austria, Netherlands, Spain, S. Korea
  - 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 = No power cord

### Additional Information
- **Cascadable Shield**
  - C

### Lighted Length (L)
- **285 mm**
- **570 mm**
- **850 mm**
- **1130 mm**

### Control
- **PB**
  - Hi/Low/Off

### Power Cordset (DC models)
- **LQMAC-306**
- **LQMAC-306B**
- **LQMAC-306D**
- **LQMAC-306EF**
- **LQMAC-306G**
- **LQMAC-306I**
- **LQMAC-306N**

### AC Cascade and Power Cordsets

**Power Cordset**
- **LQMAC-306**
- **LQMAC-306B**
- **LQMAC-306D**
- **LQMAC-306EF**
- **LQMAC-306G**
- **LQMAC-306I**
- **LQMAC-306N**

**Flying Leads**
- **LQMAC-306**

**North & Central America, Japan, Taiwan**
- **LQMAC-306B**

**India, Sri Lanka, Nepal, Namibia**
- **LQMAC-306D**

**France, Belgium, Slovakia, Tunisia, Germany, Austria, Netherlands, Spain, S. Korea**
- **LQMAC-306EF**

**UK, Ireland, Cyprus, Malta, Malaysia, Singapore, Hong Kong, Vietnam**
- **LQMAC-306G**

**Australia, New Zealand, Papua New Guinea, Argentina, China**
- **LQMAC-306I**

**Brazil**
- **LQMAC-306N**

**Double-Ended Cascading Cordset Male straight/Male straight connectors**
- **LQMAC-300SS**
- **LQMAC-301SS**
- **LQMAC-303SS**

**Additional cordset lengths and accessories are available at bannerengineering.com**

---

**Operating Voltage**
- 12 to 30 V dc (dc models)
- 90 to 264 V ac (ac models)

**Lumen Output**
- 650/ft

**LED Lifetime**
- 50,000 hours

**Color Temperature**
- Daylight White — 5000 k

**Switch**
- High = 100% intensity
- Low = 50% intensity

**Environmental Rating**
- IP50 — Dry location only

**Certifications**
- UL, CE

**Lumens (Typical @ 25 °C)**
- **Length**
  - **46 mm**
  - **32 mm**
  - **285 mm**
  - **570 mm**
  - **850 mm**
  - **1130 mm**

**Daylight White**
- **285 mm**
- **570 mm**
- **850 mm**
- **1130 mm**

**Typical Wattage**
- **AC Models**
  - 7.4 W
  - 14.8 W
  - 22.2 W
  - 29.6 W

**DC Models**
- 9 W
- 18 W
- 27 W
- 36 W

*Typical operating wattage is measured at 120 V ac or 24 V dc, depending on model.
WLB92 Industrial 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
- Available in daylight white, warm white, blue, red, yellow and green
- AC models have a five year warranty
DC Models

<table>
<thead>
<tr>
<th>Family</th>
<th>Cascadable</th>
<th>Color</th>
<th>Lighted Length</th>
<th>Control</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLB92</td>
<td>X</td>
<td></td>
<td>550 mm</td>
<td>PB</td>
<td>Q</td>
</tr>
</tbody>
</table>

X = Non-Cascadable

Blank = Daylight White
WW = Warm White
R = Red
G = Green
B = Blue
Y = Yellow

* Models include dimming knob for manual intensity control
** Conduit entry models include dimmability via a 0 to 10 V input circuit

AC Models

<table>
<thead>
<tr>
<th>Family</th>
<th>Voltage</th>
<th>Cascadable</th>
<th>Lighted Length</th>
<th>Control</th>
<th>Connector</th>
<th>Plug Type†</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLB92</td>
<td>Z</td>
<td>C</td>
<td>550 mm</td>
<td>PB</td>
<td>QM</td>
<td>B</td>
</tr>
</tbody>
</table>

Z = AC
G = Cascadable

Blank = Daylight White
WW = Warm White
R = Red
G = Green
B = Blue
Y = Yellow

* Models with a connector include ON/Off switch as well as dimming knob for intensity control
** Conduit entry models include dimmability via a 0 to 10 V input circuit
† Only needed for AC QM models

Operating Voltage
24 V dc (dc models)
100 to 277 V ac (ac models)

Construction
Housing: Anodized aluminum Window: Polycarbonate

LED Lifetime
50,000 hours

Color Temperature
Daylight White — 5000 K
Warm White — 3000 K

Environmental Rating
IEC IP40

Certifications
UL
CE

<table>
<thead>
<tr>
<th>Length (mm)</th>
<th>Daylight White</th>
<th>Warm White</th>
<th>Green</th>
<th>Red</th>
<th>Yellow</th>
<th>Blue</th>
<th>AC Models Typical Wattage* (Watts)</th>
<th>DC Models Typical Wattage* (Watts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>550</td>
<td>3510</td>
<td>3510</td>
<td>1430</td>
<td>745</td>
<td>620</td>
<td>405</td>
<td>34</td>
<td>70</td>
</tr>
<tr>
<td>1100</td>
<td>7150</td>
<td>7150</td>
<td>2975</td>
<td>1545</td>
<td>1295</td>
<td>840</td>
<td>70</td>
<td>70</td>
</tr>
</tbody>
</table>

* Typical operating wattage is measured at 120 V ac or 24 V dc, depending on model

AC Power Cordset 1.8 m (6')
for use with models using QM connector.
Cascadable model cables available on page 19.

LQBAC-0306
LQMDC-406

LQBAC-0306B
LQMDC-415

LQBAC-0306D
LQMDC-430

LQBAC-0306EF

LQBAC-0306G

LQBAC-0306I

LQBAC-0306N

Flying Leads
North & Central America, Japan, Taiwan
India, Sri Lanka, Nepal, Namibia
France, Belgium, Slovakia, Tunisia, Germany, Austria, Netherlands, Spain, S. Korea, Turkey, Poland
UK, Ireland, Cyprus, Malta, Malaysia, Singapore, Hong Kong, Vietnam
Australia, New Zealand, Papua New Guinea, Argentina, China
Brazil, South Africa

For use with DC models
4-Pin M12/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 accessories are available at bannerengineering.com
WLS27 LED Strip Lights

- Cylindrical shape design, ideal for laminar airflow applications
- Rugged, water-resistant IP66, IP67 and IP69K construction
- Chemically resistant copolyester housing
- Available in eight lengths from 145 mm to 1130 mm
- Daisy chain power to multiple lights
- Capability to dim lights using the wiring pinout (Hi/Lo/Off)
- Optional snap clips for easy installation and repositioning
- Automatic temperature protection built into the unit. Above 50 °C, the light dims to manage heat and protect product lifetime
### Single Color

<table>
<thead>
<tr>
<th>Family</th>
<th>Cascadable</th>
<th>Color</th>
<th>Lighted Length (mm)</th>
<th>Window</th>
<th>Construction</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLS27</td>
<td>X</td>
<td>W</td>
<td>285</td>
<td>D</td>
<td>S</td>
<td>Q</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>145</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>285</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>570</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **W** = Cool White
- **W** = Warm White
- **R** = Red
- **G** = Green
- **Y** = Yellow
- **D** = Diffused Plastic
- **S** = Sealed
- **Q** = Integral Euro QD

**Construction**
- Housing: Copolyester

**Environmental Rating**
- IEC IP67, IP66, IP69K per DIN 40050

**Operating Temperature**
- -40 to +70 °C (-40 to +158 °F)

**Supply Voltage**
- 12 to 30 V dc

### Dual-Color

<table>
<thead>
<tr>
<th>Family</th>
<th>Cascadable</th>
<th>Colors (C)</th>
<th>Density (D)</th>
<th>Lighted Length (mm)</th>
<th>Window</th>
<th>Construction</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLS27</td>
<td>X</td>
<td>C1 D1 C2 D2</td>
<td></td>
<td>285</td>
<td>D</td>
<td>S</td>
<td>Q</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>145</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>285</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>570</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **W** = Daylight White
- **B** = Blue
- **R** = Red
- **G** = Green
- **Y** = Yellow
- **D** = Diffused Plastic
- **H** = Heavy Diffuse Plastic
- **S** = Sealed
- **Q** = Integral Euro QD

**Construction**
- Housing: Copolyester

**Environmental Rating**
- IEC IP67, IP66, IP69K per DIN 40050

**Certifications**
- UL, CE, Consulting

- **W** = Cool White
- **W** = Warm White
- **R** = Red
- **G** = Green
- **Y** = Yellow

**Supply Voltage**
- 12 to 30 V dc

### Lumens (Typical @ 25 °C)

<table>
<thead>
<tr>
<th>Length (mm)</th>
<th>Cool &amp; Warm White</th>
<th>Red</th>
<th>Green</th>
<th>Blue</th>
<th>Yellow</th>
</tr>
</thead>
<tbody>
<tr>
<td>145</td>
<td>400</td>
<td>55</td>
<td>180</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td>285</td>
<td>800</td>
<td>110</td>
<td>360</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>430</td>
<td>1200</td>
<td>165</td>
<td>540</td>
<td>120</td>
<td>150</td>
</tr>
<tr>
<td>570</td>
<td>1600</td>
<td>220</td>
<td>720</td>
<td>160</td>
<td>200</td>
</tr>
<tr>
<td>710</td>
<td>2000</td>
<td>275</td>
<td>900</td>
<td>200</td>
<td>250</td>
</tr>
<tr>
<td>850</td>
<td>2400</td>
<td>330</td>
<td>1080</td>
<td>240</td>
<td>300</td>
</tr>
<tr>
<td>990</td>
<td>2800</td>
<td>385</td>
<td>1260</td>
<td>280</td>
<td>350</td>
</tr>
<tr>
<td>1130</td>
<td>3200</td>
<td>440</td>
<td>1440</td>
<td>320</td>
<td>400</td>
</tr>
</tbody>
</table>

- Typical operating wattage is measured at 24 V dc
- Lumen values lowered by 20% on heavy diffused plastic window models

### Additional Information

- **Power Cordsets**
  - 4 pin M12 Euro-style
  - MQDC-406
  - MQDC-406RA
  - 2 m (6.5')

- **Power Cordsets - Washdown**
  - 4 pin M12 Euro-style
  - MQDC-WDSS-0406
  - 2 m (6.5')

- **Double-Ended**
  - (straight male/straight female connectors) 4-Pin M12/Euro-Style
  - MQDEC-401SS

- **Splitter**
  - 4-Pin M12/Euro-Style
  - CSB-M1241M1241

  - 0.3 m (1')
  - 2 x 0.3 m (1') female branches

- Additional cordset lengths and accessories are available at bannerengineering.com
WLS27 Multicolor LED Strip Lights

- Three- and five-color models with EZ-STATUS™ combine illumination and indication in one robust light fixture
- Rugged, water-resistant IEC IP69K rating
- Four available lengths from 285 mm to 1130 mm
- Daisy chain power to multiple lights
**Family**

<table>
<thead>
<tr>
<th>Colors 1-5 and Control</th>
<th>WLS27</th>
<th>X</th>
<th>WYRX3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lighted Length (mm)</td>
<td>0285</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Window</td>
<td>D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>S</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage</td>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connector</td>
<td>Q</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **C** = Cascadable
- **X** = Non Cascadable

- **WGRXX3** = White, Green, and Red with override control
- **WYRX3** = White, Yellow, and Red with override control
- **GYRX3** = Green, Yellow, and Red with override control
- **WGRYBS** = White, Green, Red, Yellow, and Blue with binary control
- **WGRXX6** = White, Green, Red with I/O Block control
- **WYRX6** = White, Yellow, and Red with I/O Block control
- **GYRX6** = Green, Yellow, and Red with I/O Block control

**Supply Voltage**
- 24 V dc

**Construction**
- Housing: Copolyester

**LED Lifetime**
- 50,000 hours

**Environmental Rating**
- IEC IP66, IP67, IP69K per DIN 40050

**Operating Temperature**
- -40 to +50 °C (-40 to +122 °F)

**Certifications**
- **UL**, **E**

**Lighted Length** (α 27 mm)

**Lumens (Typical @ 25 °C)**

<table>
<thead>
<tr>
<th>Length (mm)</th>
<th>White</th>
<th>Red</th>
<th>Green</th>
<th>Blue</th>
<th>Yellow</th>
<th>Typical Wattage (Watts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>285</td>
<td>650</td>
<td>185</td>
<td>400</td>
<td>125</td>
<td>570</td>
<td>7</td>
</tr>
<tr>
<td>570</td>
<td>1300</td>
<td>370</td>
<td>800</td>
<td>250</td>
<td>1140</td>
<td>12</td>
</tr>
<tr>
<td>850</td>
<td>1950</td>
<td>555</td>
<td>1200</td>
<td>375</td>
<td>1710</td>
<td>22</td>
</tr>
<tr>
<td>1130</td>
<td>2600</td>
<td>740</td>
<td>1600</td>
<td>500</td>
<td>2280</td>
<td>30</td>
</tr>
</tbody>
</table>

- Lumen values lowered by 20% on heavy diffused plastic window models
- Typical operating wattage is measured at 24 V dc

**Accessories are listed on pages 26**
Heavy-Duty LED Lights

- 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
- Resistant to vibration and shock
- Input voltage of 12–30 V dc
- Models have four discrete intensity level settings
- Available with stainless steel or nickel-plated aluminum housing
- High temperature models now available in a black E-coated aluminum housing
Supply Voltage

WLC60: 12 to 30 V dc
WLH60: 21 to 28 V dc

Construction

WLC60 Housing: Nickel-plated aluminum or 316 Stainless steel
WLH60 Housing: Black electro-coated aluminum
Window: Polycarbonate or Borosilicate Glass

Environmental Rating

Rated IEC IP68, IP68g, IP69K per DIN 40050

Operating Temperature

WLC60: -40 to +70 °C (-40 to +158 °F)
WLH60: -40 to +100 °C (-40 to +212 °F)

Certifications

LMBWLC60F LMBWLC60RA LMBWLC60RAS LMBWLC60MAG* SMBWLSMAGR
4 bracket kit for swivel option. Can mount SMBMAG3 magnet also
Protective cover for magnet sold separately
* Do not use with stainless steel models

Additional accessories are available at bannerengineering.com
WLC90 Heavy-Duty LED Light

- Oil, chemical and water resistant with IP67, IP68g and IP69K ratings
- Vast operating temperature range internal monitoring circuit dims the LEDs to a safe level at extreme temperatures
- Three lens choices to suit many application needs
- Pan-and-tilt brackets for versatile mounting to direct the light in any direction
- Models have three discrete intensity level settings
Supply Voltage
12 to 30 V dc

Construction
Housing: Nickel-plate aluminum
Window: polycarbonate or borosilicate glass

Environmental Rating
Rated IEC IP68, IP68g, IP69K per DIN 40050

Operating Temperature
-40 to +70 °C (-40 to +158 °F)

Certifications

<table>
<thead>
<tr>
<th>Lumens (Typical @ 25 °C)</th>
<th>Typical Wattage* (Watts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cool White</td>
<td></td>
</tr>
<tr>
<td>625</td>
<td>8.1</td>
</tr>
</tbody>
</table>

*Typical operating wattage is measured at 24 V dc

DIMMABLE MODELS— pages 40
WLA LED Area Lights

- High power solid state LED array with cool white, warm white, red, green, blue or yellow light
- Illuminates a large area with an even pattern of light and no shadows
- Available in four sizes
- Designed for area and machine lighting
- Rugged thermoplastic housing rated to IP69K
- Lensed models provide a concentrated, intense light beam
- Cabled and Quick Disconnect models available
**Supply Voltage**
- 12 to 30 V dc

**Construction**
- Housing: PBT
- Window: Acrylic or polyurethane
- Connector: Nickel-plated brass or PVC-jacketed cable

**Environmental Rating**
- Rated IEC IP67 and IP69K, per DIN 40050

**Operating Temperature**
- -20 to +50 °C (-4 to +122 °F)

**Certifications**
- Encapsulated models not UL listed

---

<table>
<thead>
<tr>
<th>Size (mm)</th>
<th>Cool White</th>
<th>Warm White</th>
<th>Red</th>
<th>Green</th>
<th>Blue</th>
<th>Yellow</th>
</tr>
</thead>
<tbody>
<tr>
<td>105x180</td>
<td>550</td>
<td>435</td>
<td>125</td>
<td>325</td>
<td>95</td>
<td>275</td>
</tr>
<tr>
<td>190x180</td>
<td>1100</td>
<td>870</td>
<td>250</td>
<td>650</td>
<td>190</td>
<td>550</td>
</tr>
<tr>
<td>275x180</td>
<td>1650</td>
<td>1305</td>
<td>375</td>
<td>975</td>
<td>285</td>
<td>825</td>
</tr>
<tr>
<td>360x180</td>
<td>2200</td>
<td>1740</td>
<td>500</td>
<td>1300</td>
<td>380</td>
<td>1100</td>
</tr>
</tbody>
</table>

* Lumen values lowered by 35% on diffused window models

**Typical Wattage**

<table>
<thead>
<tr>
<th>Size (mm)</th>
<th>Cool White</th>
<th>Warm White</th>
<th>Red</th>
<th>Green</th>
<th>Blue</th>
<th>Yellow</th>
<th>Typical Wattage</th>
</tr>
</thead>
<tbody>
<tr>
<td>105x180</td>
<td>550</td>
<td>435</td>
<td>125</td>
<td>325</td>
<td>95</td>
<td>275</td>
<td>9.6</td>
</tr>
<tr>
<td>190x180</td>
<td>1100</td>
<td>870</td>
<td>250</td>
<td>650</td>
<td>190</td>
<td>550</td>
<td>19.2</td>
</tr>
<tr>
<td>275x180</td>
<td>1650</td>
<td>1305</td>
<td>375</td>
<td>975</td>
<td>285</td>
<td>825</td>
<td>28.8</td>
</tr>
<tr>
<td>360x180</td>
<td>2200</td>
<td>1740</td>
<td>500</td>
<td>1300</td>
<td>380</td>
<td>1100</td>
<td>38.4</td>
</tr>
</tbody>
</table>

**Magnetic Mount**

- SMBBSSM
- SMBSRA
- SMBWLAMAG — Protective cover for magnet sold separately

**4-Pin M12/Euro-Style**
- MQDC-406 2 m (6.5’)
- MQDC-415 5 m (15’)
- MQDC-430 9 m (30’)

**4-Pin M12/ Euro-Style Washdown**
- MQDC-WDSS-0406 2 m (6.5’)
- MQDC-WDSS-0415 5 m (15’)
- MQDC-WDSS-0430 9 m (30’)

**PSD-24-4 Class 2 Power Supply**
- Input: 90-264 V ac, 1.5A
- Output: 24 V dc, 3.9A
- 2 m (6.5’) 4-Pin Euro Connector

Additional accessories are available at bannerengineering.com
WL50S LED Spot Lights

- Highly concentrated, focused light available in three colors (white, red, or green)
- Lenses come in three angles to cover area of concentration
- Illuminates a large area with an even pattern of light and no shadows
- 12 to 30 V dc operation
- Cabled and quick-disconnect models available
- 56 mm diameter with flat profile and 30 mm mounting base
- Rugged sealed housing rated to IP69K
- Available in a chemically resistant 316 stainless steel housing for use in harsh environments
### Supply Voltage
12 to 30 V dc

### Construction
- **Housing:** Black anodized aluminum or Stainless Steel with FDA-grade silicone gasket and Viton® o-ring seal
- **Window:** Polycarbonate or glass window
- **Connector:** Nickel-plated QD connector or PVC-jacketed cable
- **Mounting Nut:** Black zinc-plated steel or Stainless Steel mounting nut

### Environmental Rating
IEC IP67, IP69K per DIN 40050

### Operating Temperature
-20 to +50 °C (-4 to +122 °F)

### Certifications
*Dimmable Models—pages 40*

<table>
<thead>
<tr>
<th>Lens Angle</th>
<th>Cool White</th>
<th>Green</th>
<th>Red</th>
<th>Typical Wattage* (Watts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>±5°</td>
<td>295</td>
<td>210</td>
<td>110</td>
<td></td>
</tr>
<tr>
<td>±11°</td>
<td>285</td>
<td>200</td>
<td>105</td>
<td></td>
</tr>
<tr>
<td>±20°</td>
<td>270</td>
<td>190</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

*Typical operating wattage is measured at 24 V dc

---

Additional accessories are available at bannerengineering.com

**4-Pin M12/Euro-Style**
- Washdown Straight connector models only
  - MQDC-WDSS-0406 2 m (6.5')
  - MQDC-WDSS-0415 5 m (15')
  - MQDC-WDSS-0430 9 m (30')

**4-Pin M12/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')

**SMBAMS30P**
**SMBAMS30RA**
**FLX18 Flex Arm Mounts**
See page 42 for more information
WL50-2 LED Work Lights

- Designed for enclosure or area lighting use with an optional flex arm mount for adjustable, industrial task lighting
- Standard or push-button models available
- Flat-mount or 30 mm base-mount models available
- Rugged, sealed polycarbonate housing rated to IP69K (standard models) or IP67 (push-button models)
- 12 to 30 V dc operation
- Cabled and quick-disconnect models available
- Low power consumption less than 3 watts
**Family**

- **WL50-2** = 30 mm Mount
- **WL50F-2** = Flat Mount

**Control**

- **Blank** = Standard
- **PB** = ON/OFF Switch

**Connector**

- **Q** = Euro Integral QD
- **Blank** = 2 m Integral Cable

---

**Supply Voltage**

12 to 30 V dc

**Construction**

- Housing: Polycarbonate
- Connector: Nickel-plated brass or PVC-jacketed cable

**Environmental Rating**

- Standard Models: IP69K per DIN 40050
- Push-Button Models: IEC IP67

**Operating Temperature**

-40 to +50 °C (-40 to +122 °F)

**Certifications**

- 4-Pin M12/Euro-Style straight connector models listed; for right-angle models, add RA to the end of the model number (example, MQDC-406RA)

<table>
<thead>
<tr>
<th>Lumens (Typical @ 25 °C)</th>
<th>Typical Wattage* (Watts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cool White</td>
<td>185</td>
</tr>
<tr>
<td></td>
<td>2.4</td>
</tr>
</tbody>
</table>

*Typical operating wattage is measured at 24 V dc

---

**Mounting Options for Flat Mount Models**

- Screw Mount
- VELCRO® Brand
- VELCOIN® Fasteners (included)

**Mounting Options for 30 mm Mount Models**

- FLX18 Flex Arm Mounts
  - See page 42 for more information

---

**4-Pin M12/Euro-Style**

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

Additional accessories are available at bannerengineering.com
LED Dimming Controller & Dimmable LED Lights

- Works with special models of the strip lights, heavy-duty lights, area lights, spot lights and work lights
- High-frequency modulation allows for precise intensity control and flicker-free illumination
- Allows for control of multiple lights with one module
- LED Pulse-Width Modulation (PWM) versions of LED lights can be controlled by other PWM output devices as well as Banner’s controller
- Ability to control intensity from zero to 100 percent to suit the level required for the application
- Helps further increase energy savings, helping to reduce overall energy costs

### WLS27 LED Strip Lights

<table>
<thead>
<tr>
<th>Family</th>
<th>Cascadable</th>
<th>LED Color</th>
<th>Lighted Length (mm)</th>
<th>Window</th>
<th>Construction</th>
<th>Intensity Control</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLS27</td>
<td>C</td>
<td>W</td>
<td>145</td>
<td>D</td>
<td>S</td>
<td>PWM</td>
<td>Q</td>
</tr>
<tr>
<td></td>
<td>C = Cascadable</td>
<td>W = Cool White</td>
<td>145</td>
<td>710</td>
<td>D = Diffused Plastic</td>
<td>S = Sealed*</td>
<td>Q = Integral Euro QD</td>
</tr>
<tr>
<td></td>
<td>X = Non Cascadable</td>
<td></td>
<td>285</td>
<td>850</td>
<td></td>
<td></td>
<td>QD models require mating cordset</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>285</td>
<td>850</td>
<td>opoqderqdpqermop</td>
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<td>990</td>
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<td></td>
<td></td>
<td>570</td>
<td>1130</td>
<td>opqderqdpqermop</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### WLS28-2 LED Strip Lights

<table>
<thead>
<tr>
<th>Family</th>
<th>Cascadable</th>
<th>LED Color</th>
<th>Lighted Length (mm)</th>
<th>Window</th>
<th>Construction</th>
<th>Intensity Control</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLS28-2</td>
<td>C</td>
<td>W</td>
<td>145</td>
<td>X</td>
<td>S</td>
<td>PWM</td>
<td>Q</td>
</tr>
<tr>
<td></td>
<td>C = Cascadable</td>
<td>W = Cool White</td>
<td>145</td>
<td></td>
<td></td>
<td>S = Sealed*</td>
<td>Q = Integral Euro QD</td>
</tr>
<tr>
<td></td>
<td>X = Non Cascadable</td>
<td></td>
<td>285</td>
<td></td>
<td></td>
<td></td>
<td>QD models require mating cordset</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>285</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>430</td>
<td>710</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>570</td>
<td>850</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>710</td>
<td>990</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>990</td>
<td>1130</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### WLB92 DC Models

<table>
<thead>
<tr>
<th>Family</th>
<th>Cascadable</th>
<th>LED Color</th>
<th>Lighted Length (mm)</th>
<th>Control</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLB92</td>
<td>X</td>
<td></td>
<td>550</td>
<td>PWM</td>
<td>Q</td>
</tr>
<tr>
<td></td>
<td>X = Non-Cascadable</td>
<td></td>
<td>550</td>
<td></td>
<td>Q = Integral 4-pin Euro QD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1100</td>
<td></td>
<td>QD models require mating cordset</td>
</tr>
</tbody>
</table>

* Sealed models not available with ON/OFF switch
**WLA LED Area Lights**

<table>
<thead>
<tr>
<th>Family</th>
<th>LED Color</th>
<th>Array Size (mm)</th>
<th>Window</th>
<th>Lensing</th>
<th>Intensity Control</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLA</td>
<td>W</td>
<td>105X180</td>
<td>Blank</td>
<td>L11</td>
<td>PWM</td>
<td>Q</td>
</tr>
</tbody>
</table>

- **Array Size (mm):**
  - 105X180
  - 190X180
  - 275X180
  - 360X180

- **Lens Option:**
  - Blank = No Lenses
  - L11 = ± 11°
  - L22 = ± 22°
  - L30 = ± 30°

- **Blank:**
  - Blank = Clear Plastic
  - D = Diffused Plastic
  - E = Encapsulated in Polyurethane

- **Connector:**
  - Blank = 2 m Integral Cable
  - Q = Euro Integral QD

**WLC90 Heavy-Duty LED Light**

<table>
<thead>
<tr>
<th>Family</th>
<th>LED Color</th>
<th>Window</th>
<th>Lensing</th>
<th>Connector Exit</th>
<th>Intensity Control</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLC90</td>
<td>W</td>
<td>G</td>
<td>L15</td>
<td>Blank = Side Ext</td>
<td>PWM = Dimmable</td>
<td>Q</td>
</tr>
</tbody>
</table>

- **Window:**
  - Blank = Polycarbonate
  - G = Borosilicate Glass

- **Lens Option:**
  - L8 = ± 80°
  - L15 = ± 15°
  - L30 = ± 30°

- **Connector:**
  - Blank = 2 m Integral Cable
  - Q = Euro Integral QD

**WLC60 Heavy-Duty LED Light**

<table>
<thead>
<tr>
<th>Family</th>
<th>Cascadable</th>
<th>LED Color</th>
<th>Lighted Length (mm)</th>
<th>Window</th>
<th>Mounting Type</th>
<th>Construction</th>
<th>Connector Exit</th>
<th>Intensity Control</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLC60</td>
<td>X</td>
<td>W</td>
<td>340</td>
<td>G</td>
<td>Blank = Base Mount</td>
<td>A</td>
<td>Blank = Side Exit</td>
<td>PWM = Dimmable</td>
<td>Q</td>
</tr>
</tbody>
</table>

- **Cascadable:**
  - C = Cascadable
  - X = Non-Cascadable

- **Window:**
  - Blank = Polycarbonate
  - G = Borosilicate Glass

- **Connector:**
  - Blank = 2 m Integral Cable
  - Q = Euro Integral QD

*Flush Mount models only available in 340 mm length

**WLC50S and WL50-2 also have the PWM option available. Contact factory for more information.**
Flex Arm

- 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
- Available for use with spot lights, work lights and vision spot lights
<table>
<thead>
<tr>
<th>Models</th>
<th>Base Connection</th>
<th>Light Connection</th>
<th>Brackets</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLX18-1212</td>
<td>1/2-14 NPSM</td>
<td>1/2-14 NPSM (Male)</td>
<td>SMB22</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Use with:</td>
<td>SMBFLXMXAG</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WL50-2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WL50-2PB</td>
<td></td>
</tr>
<tr>
<td>FLX18-F12</td>
<td>3-Hole Flange</td>
<td>1/2-14 NPSM (Male)</td>
<td>Direct Mount</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Use with:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WL50-2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WL50-2PB</td>
<td></td>
</tr>
<tr>
<td>FLX18-12M30</td>
<td></td>
<td>M30 x 1.5 (Female)</td>
<td>SMB22</td>
</tr>
<tr>
<td></td>
<td>1/2-14 NPSM</td>
<td>Use with:</td>
<td>SMBFLXMXAG</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WL50-2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WL50-2PB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WL50S</td>
<td></td>
</tr>
<tr>
<td>FLX18-DM30</td>
<td>2 x 1/4-20W</td>
<td>M30 x 1.5 (Female)</td>
<td>SMBFLXCLAMPD</td>
</tr>
<tr>
<td></td>
<td>1.375 spacing</td>
<td>Use with:</td>
<td>SMBFLXMAGD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WL50-2</td>
<td></td>
</tr>
<tr>
<td></td>
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<td>WL50-2PB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WL50S</td>
<td></td>
</tr>
<tr>
<td>FLX18-FM30</td>
<td></td>
<td>M30 x 1.5 (Female)</td>
<td>Direct Mount</td>
</tr>
<tr>
<td></td>
<td>3-Hole Flange</td>
<td>Use with:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WL50-2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WL50-2PB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WL50S</td>
<td></td>
</tr>
</tbody>
</table>
Signal Tower Lights

Multi-segment LED tower lights give machines a voice, conveying critical information in a clear, visual manner. AC and DC voltage, fourteen color options, six audible alarm styles, multiple intensity levels, three connection types and optional wireless or IO-Link communication give almost limitless possibilities in both preassembled and field configured units.
## Tower Lights

<table>
<thead>
<tr>
<th>Page</th>
<th>48</th>
<th>52</th>
<th>54</th>
<th>56</th>
<th>58</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Family Name</strong></td>
<td>TL70</td>
<td>TL50</td>
<td>TL50C</td>
<td>TL50BL</td>
<td>CL50</td>
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<tr>
<td><strong>DC or AC Power</strong></td>
<td>AC or DC</td>
<td>AC or DC</td>
<td>AC or DC</td>
<td>AC or DC</td>
<td>AC or DC</td>
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<tr>
<td><strong>Audible Options</strong></td>
<td>📻</td>
<td>📻</td>
<td>📻</td>
<td>📻</td>
<td>📻</td>
</tr>
<tr>
<td><strong>Daylight Visible</strong></td>
<td>☀️</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Segment Diameter (mm)</strong></td>
<td>70</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td><strong>Mounting Hole Diameter (mm)</strong></td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td><strong>Multiple Colors per Light Segment</strong></td>
<td>🌈</td>
<td>🌈</td>
<td>🌈</td>
<td>🌈</td>
<td>🌈</td>
</tr>
<tr>
<td><strong>IP Rating</strong></td>
<td>IP65</td>
<td>IP67</td>
<td>IP67</td>
<td>IP67</td>
<td>IP67</td>
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<tr>
<td><strong>IO-Link</strong></td>
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<td>🌐 IO-Link</td>
<td>🌐 IO-Link</td>
<td>🌐 IO-Link</td>
<td>🌐 IO-Link</td>
</tr>
<tr>
<td><strong>Wireless</strong></td>
<td>📻</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Modular Construction</strong></td>
<td>🏭</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TL70 Tower Lights

- 70 mm diameter with bright, colored LEDs for long range visibility
- Light segments appear gray when off to eliminate false indication from ambient light
- Modular design and simple wiring for fast field configuration; preassembled models also available
- Rugged, water-resistant IP65 housing with UV stabilized material
- Top-mounted audible modules from 75 to 101 dB, including multi-tone and programmable audible models allow for custom alerts or announcements; all work with the same standard bases
- Wireless base and segment models quickly enable remote monitoring and control of status lights; unleash IIOT capability
- Match your machine with a choice of black or gray housing
Build Your Own Tower Light

Standard Base

Housing
B-TL70

Base Segment

Connection
Q5

Housing Color
Blank = Black

C = Gray

Q5 = 5-pin Euro Integral QD (1-4 modules)
Q8 = 8-pin Euro Integral QD (5+6 modules)
QP5 = 5-pin Euro Pigtail (1-4 modules)
QP8 = 8-pin Euro Pigtail (5+6 modules)

AC Base

Housing
B-TL70

Base Segment

Power
Z

Connection
Q5

Housing Color
Blank = Black

C = Gray

5 = 2 m, 5-wire Integral Cable (1-4 modules)
7 = 2 m, 7-wire Integral Cable (5+6 modules)
Q5 = 1/2-20/Micro-style Integral QD (1-4 modules)
QD models require mating cordset

Wireless Base

Housing
B-TL70

Radio
DXN2

Connection
Q5

Base Segment

DXN2 = Node 2.4 GHz
DXN9 = Node 900 MHz
DR2M = MultiHop Data
Radio 2.4 GHz
DR9M = MultiHop Data
Radio 900 MHz

Housing Color
Blank = Black

C = Gray

5 = 2 m, 5-wire Integral Cable
8 = 2 m, 8-wire Integral Cable
T = Terminal
Q5 = 5-pin Euro Integral QD (1-4 modules)
Q8 = 8-pin Euro Integral QD (5+6 modules)
QP5 = 5-pin Euro Pigtail (1-4 modules)
QP8 = 8-pin Euro Pigtail (5+6 modules)

Single-Color Light Segments

Housing
SG-TL70

Color
G

Housing Color
Blank = Black

G = Green
Y = Yellow
R = Red
B = Blue
W = White
O = Orange
RGB14 = 14-color option

Multicolor Light Segments

Housing
SG-TL70

Color
G

Housing Color
Blank = Black

G = Green
B = Blue
Y = Yellow
R = Red
W = White
O = Orange

Wireless Communication Segment

Housing
SG-TL70

Radio
DXN9

Radio
DXN2

Radio 2.4 GHz

Blank = Black

C = Gray

DXN2 = Node 2.4 GHz
DXN9 = Node 900 MHz

**  To have color name etched on a segment, add -L to the end of the model number

**  Green, Yellow, Red, Blue, White, Cyan, Magenta, Orange, Amber, Lime Green, Spring Green, Sky Blue, Violet and Rose

The wireless communication segment quickly twists onto any TL70 base, enabling remote monitoring and control without requiring constant power or expensive wiring.
**Order a Preassemble Tower Light**

### Preassembled TL70

<table>
<thead>
<tr>
<th>Housing</th>
<th>Color**/Position</th>
<th>Audible*</th>
<th>Housing Color</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>TL70</td>
<td>G Y R B W O</td>
<td></td>
<td></td>
<td>Q</td>
</tr>
</tbody>
</table>

- **Color**
  - G = Green
  - Y = Yellow
  - R = Red
  - B = Blue
  - W = White
  - O = Orange

- **Audible**
  - Blank = None
  - A = Audible (92 dB)
  - AL = Louder Audible (85 - 101 dB)
  - ALM = Multi-tone Audible** (75 - 101 dB)
  - AP = Programmable Audible

* For audible only, leave colors blank
** Not available with 6 light models

### Preassembled TL70 AC

<table>
<thead>
<tr>
<th>Housing</th>
<th>Color**/Position</th>
<th>Audible*</th>
<th>Housing Color</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>TL70Z</td>
<td>G Y R B W O</td>
<td></td>
<td></td>
<td>Q</td>
</tr>
</tbody>
</table>

- **Color**
  - G = Green
  - Y = Yellow
  - R = Red
  - B = Blue
  - W = White
  - O = Orange

- **Audible**
  - Blank = None
  - A = Audible (92 dB)
  - AL = Louder Audible (85 - 101 dB)
  - ALM = Multi-tone Audible** (75 - 101 dB)
  - AP = Programmable Audible

* For audible only, leave colors blank
** Not available with 6 light models

### Preassembled TL70 Wireless

<table>
<thead>
<tr>
<th>Housing</th>
<th>Radio</th>
<th>Color**/Position</th>
<th>Audible*</th>
<th>Housing Color</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>TL70</td>
<td>DXN2</td>
<td>G Y R B W O</td>
<td></td>
<td></td>
<td>Q</td>
</tr>
</tbody>
</table>

- **Radio**
  - DXN2 = Node 2.4 GHz
  - DXN9 = Node 900 MHz
  - DR2M = MultiHop Data Radio 2.4 GHz
  - DR9M = MultiHop Data Radio 900 MHz

- **Color**
  - G = Green
  - Y = Yellow
  - R = Red
  - B = Blue
  - W = White

- **Audible**
  - Blank = None
  - A = Audible (92 dB)
  - AL = Louder Audible (85 - 101 dB)
  - ALM = Multi-tone Audible** (75 - 101 dB)
  - AP = Programmable Audible

* For audible only, leave colors blank
** Not available with 6 light models

**Not available with 6 light models**
Supply Voltage
12 to 30 V dc
100 to 240 V ac

Construction
Bases and Covers: Polycarbonate
Light Segment: Polycarbonate

Environmental Rating
IP65

Operating Temperature
−40 to +50 °C (−40 to +122 °F)

Certifications

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

Accessories are listed on page 61

Laser Marking Available
TL50 Tower Lights

- Available in models featuring IO-Link communication for easy integration into most industrial networks and remote control and monitoring of light and audible segments in the fixture
- Built-to-order configure your model today using our online tool
- Installs directly on machine quickly and easily with pre-wired or quick-disconnect options no assembly required
- Features a completely self-contained design no controller needed
- Displays up to 7 colors in a single tower choice of 10 colors in standard brightness and 5 colors in high brightness tower lights
- Allows multiple lights to be on simultaneously
- Eliminates false indication from ambient light; indicators appear gray when off
- Available in Universal AC Voltage models
**Standard and High-Brightness**

### Housing

- **Blank** = Standard
- **H** = High Brightness

### Supply Voltage

- Blank (1 to 5 colors) = 18 to 30 V dc or 21 to 27 V ac
- Blank (6 or 7 colors) = 12 to 30 V dc or 21 to 26 V ac
- **Z** = 100 to 240 V ac

### Color Position

- **G** = Green
- **Y** = Yellow
- **R** = Red
- **W** = White

### Audible Alarm

- **A** = Audible (IP67)
- **ALS** = Sealed Audible Continuous Tone
- **AL53** = Sealed Audible Pulsed Tone
- **ALS4** = Sealed Audible Staccato Tone
- **AOS** = Omni-Directional Sealed Audible Continuous Tone
- **AOS3** = Omni-Directional Sealed Audible Pulsed Tone
- **ALS3** = Sealed Audible Pulsed Tone with Intensity Adjust
- **AL54** = Sealed Audible Staccato Tone
- **AOS4** = Omni-Directional Sealed Audible Staccato Tone
- **AOS4I** = Omni-Directional Sealed Audible Staccato Tone with Intensity Adjust

### Housing Color

- **Blank** = Black
- **A** = Audible Only
- **ALS** = Sealed Audible
- **ALS3** = Sealed Audible Pulsed Tone
- **ALS4** = Sealed Audible Staccato Tone
- **AOS** = Omni-Directional Sealed Audible Continuous Tone
- **AOS3** = Omni-Directional Sealed Audible Pulsed Tone
- **AOS4** = Omni-Directional Sealed Audible Staccato Tone
- **AOS4I** = Omni-Directional Sealed Audible Staccato Tone with Intensity Adjust

### Connection

- **Q** = Euro Integral QD (dc only)
- **QP** = Euro Pigtail QD (Available with Micro Pigtail QD for ac models if 4 segments or less)

### Tower Height (H)

<table>
<thead>
<tr>
<th>Position</th>
<th>General-Purpose</th>
<th>Audible</th>
<th>Sealed Audible</th>
<th>Sealed Omni-Directional</th>
<th>100 to 240 V AC</th>
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<td>481.4 mm</td>
<td>495.4 mm</td>
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</tr>
</tbody>
</table>

Accessories are listed on pages 61

---

**Standard with IO-Link**

### Housing

- **TL50**

### Number of Segments

- **1** = 1 Segment
- **2** = 2 Segments
- **3** = 3 Segments
- **4** = 4 Segments
- **5** = 5 Segments

### Audible Alarm

- **A** = Audible (IP67)
- **ALS** = Sealed Audible Continuous Tone
- **ALS3** = Sealed Audible Pulsed Tone
- **ALS4** = Sealed Audible Staccato Tone
- **AOS** = Omni-Directional Sealed Audible Continuous Tone
- **AOS3** = Omni-Directional Sealed Audible Pulsed Tone
- **AOSI** = Omni-Directional Sealed Audible Continuous Tone with Intensity Adjust

### Control

- **K** = IO-Link

### Housing Color

- **Blank** = Black
- **A** = Audible Only
- **ALS** = Sealed Audible
- **ALS3** = Sealed Audible Pulsed Tone
- **ALS4** = Sealed Audible Staccato Tone
- **AOS** = Omni-Directional Sealed Audible Continuous Tone
- **AOS3** = Omni-Directional Sealed Audible Pulsed Tone
- **AOS4** = Omni-Directional Sealed Audible Staccato Tone
- **AOS4I** = Omni-Directional Sealed Audible Staccato Tone with Intensity Adjust

### Connection

- **Q** = Euro Integral QD
- **QP** = Euro Pigtail QD

---

**Supply Voltage**

- 18 to 30 V dc or 21 to 27 V ac; 100 to 240 V ac

**Construction**

- Bases and Covers: ABS
- Light Segment: Polycarbonate

**Environmental Rating**

- General-Purpose and Sealed Audible: IEC IP67
- Standard Audible: IEC IP50

**Operating Temperature**

- General-Purpose: −40 to +50 °C (−40 to +122 °F)
- Standard and Sealed Audible: −20 to +50 °C (−4 to +122 °F)

**Certifications**

- UL/CUL Listed

---

**Accessories are listed on pages 61**

---

* Positions 6 and 7 not available in high brightness or AC models

Position 7 not available with audible

---

**Position 10**

**Position 9**

**Position 8**

**Position 7**

**Position 6**

**Position 5**

**Position 4**

**Position 3**

**Position 2**

**Position 1**

---

**Laser Marking Available**

---

**Add 69 mm to any of these heights to get total height**

---

**Area in gray are IO-Link models only.**

**Not available in AC.**

---

**53**
TL50C Compact Tower Lights

- Ideal for status indication on small to mid-size pieces of equipment
- Displays up to five stacked colors in one tower with universal ac voltage and up to seven stacked colors in one tower with standard dc voltage
- 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

IO-Link®
## Standard Compact

<table>
<thead>
<tr>
<th>Housing</th>
<th>Supply Voltage</th>
<th>Color Position</th>
<th>Audible Alarm</th>
<th>Housing Color</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>TL50C</td>
<td>12 to 30 V dc or 21 to 26 V ac</td>
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</table>

### Supply Voltage
12 to 30 V dc or 21 to 26 V ac; 100 to 240 V ac

### Construction
Bases and Covers: ABS
Light Segment: Polycarbonate

### Environmental Rating
General-Purpose and Sealed Audible:
- IEC IP67
- Standard Audible:
  - IEC IP50

### Operating Temperature
General-Purpose:
- −40 to +50 °C (−40 to +122 °F)
Standard and Sealed Audible:
- −20 to +50 °C (−4 to +122 °F)

### Certifications
- CE
- UL

## Compact with IO-Link

<table>
<thead>
<tr>
<th>Housing</th>
<th>Number of Segments</th>
<th>Audible Alarm</th>
<th>Control</th>
<th>Housing Color</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>TL50C</td>
<td>1 Segment</td>
<td>A</td>
<td>K</td>
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<td>Q</td>
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</table>

### Supply Voltage
12 to 30 V dc or 21-27 V ac; 100 to 240 V ac

### Construction
Bases and Covers: ABS
Light Segment: Polycarbonate

### Environmental Rating
General-Purpose and Sealed Audible:
- IEC IP67
- Standard Audible:
  - IEC IP50

### Operating Temperature
General-Purpose:
- −40 to +50 °C (−40 to +122 °F)
Standard and Sealed Audible:
- −20 to +50 °C (−4 to +122 °F)

### Certifications
- CE
- UL

## Accessories
- Laser Marking Available
- Blank = None (IP67)
- A = Audible (IP50)
- ALS = Sealed Audible Continuous Tone
- ALS3 = Sealed Audible Pulsed Tone
- ALS4 = Sealed Audible Staccato Tone
- AOS = Omni-Directional Sealed Audible Continuous Tone
- AOSI = Omni-Directional Sealed Audible Continuous Tone with Intensity Adjust

### Tower Height (H)

<table>
<thead>
<tr>
<th>Position</th>
<th>General-Purpose IP67</th>
<th>Sealed Audible IP67</th>
<th>Sealed Omni-Directional AC</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>46.2 mm</td>
<td>77.1 mm</td>
<td>100.2 mm</td>
</tr>
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<td>2</td>
<td>72.0 mm</td>
<td>102.9 mm</td>
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<td>3</td>
<td>97.8 mm</td>
<td>128.7 mm</td>
<td>151.8 mm</td>
</tr>
<tr>
<td>4</td>
<td>123.6 mm</td>
<td>154.5 mm</td>
<td>177.6 mm</td>
</tr>
<tr>
<td>5</td>
<td>149.4 mm</td>
<td>180.3 mm</td>
<td>203.4 mm</td>
</tr>
<tr>
<td>6</td>
<td>175.2 mm</td>
<td>206.1 mm</td>
<td>229.2 mm</td>
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<tr>
<td>7</td>
<td>201.0 mm</td>
<td>231.9 mm</td>
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<tr>
<td>8</td>
<td>226.8 mm</td>
<td>257.7 mm</td>
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<tr>
<td>9</td>
<td>252.6 mm</td>
<td>283.5 mm</td>
<td>306.6 mm</td>
</tr>
<tr>
<td>10</td>
<td>278.4 mm</td>
<td>309.3 mm</td>
<td>332.4 mm</td>
</tr>
</tbody>
</table>

Accessories are listed on pages 61

Add 69 mm to any of these heights to get total height.
TL50BL Beacon Tower Lights

- Housing is UV stabilized, making it suitable for use in outdoor environments
- 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

IO-Link®
Supply Voltage
12 to 30 V dc or 21-27 V ac
100 to 240 V ac

Construction
Bases and Covers: ABS
Light Segment: Polycarbonate

Environmental Rating
General-Purpose and Sealed Audible: IEC IP67
Standard Audible: IEC IP50

Operating Temperature
General-Purpose: −40° to +50° C (−40° to +122° F)
Standard and Sealed Audible: −20° to +50° C (−4° to +122° F)

Certifications

Colors (C) /Function (F)
Blank = 12 to 30 V dc
Z = 100 to 240 V ac

Supply Voltage

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

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

Sealed Omni-Directional Audible
Standard: max. intensity 99 db @ 1 meter (typical)
Intensity Adjust: max. intensity 95 db @ 1 meter (typical)

Colors
G = Green
Y = Yellow
R = Red
B = Blue
W = White
Blank = Not Used

Function
Blank = ON Solid
1 = Rotating
2 = Flashing

BLANK = None (IP67)
A = Audible (IP50)
ALS = Sealed Audible Continuous Tone
ALS3 = Sealed Audible Pulsed Tone
AOS = Omni-Directional Sealed Audible Continuous Tone
AOSI = Omni-Directional Sealed Audible Continuous Tone with Intensity Adjust
AOS3 = Omni-Directional Sealed Audible Pulsed Tone
AOS3I = Omni-Directional Sealed Audible Pulsed Tone with Intensity Adjust
AOS4 = Omni-Directional Sealed Audible Staccato Tone
AOS4I = Omni-Directional Sealed Audible Staccato Tone with Intensity Adjust

Position 1
Position 2
Position 3
Position 4
Position 5

Tower Height (H)
100 to 240 V AC

Color Count
1 46.2 mm 77.1 mm 100.2 mm 114.2 mm
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 — — —

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

Accessories are listed on pages 61
CL50 Column Lights

- Rugged, cost-effective, and easy-to-install multicolor indicators
- Illumination provides easy-to-see operator guidance and equipment status indication at long distances
- One-, two-, or three-color models available
- The LED light sources provide long life with low power consumption
- 100 to 240 V ac operation or 18 to 30 V dc operation
- Compact devices are completely self-contained—no controller needed—and IEC IP67 rated
- Immune to EMI and RFI interference
- No assembly required
Supply Voltage
12 to 30 V dc or 21 to 27 V ac
100 to 240 V ac

Construction
Bases and Covers: ABS
Light Segment: Polycarbonate

Environmental Rating
General-Purpose and Sealed Audible: IEC IP67
Standard Audible: IEC IP50

Operating Temperature
General-Purpose:
−40° to +50° C (−40° to +122° F)
Standard and Sealed Audible:
−20° to +60° C (−4° to +140° F)

Certifications

Supply Voltage

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<th>Supply Voltage</th>
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<td>100 to 240 V ac</td>
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Construction

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Operating Temperature

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<td>Standard and Sealed Audible:</td>
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<tr>
<td></td>
<td>−20° to +60° C (−4° to +140° F)</td>
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</tbody>
</table>

Certifications

Accessories are listed on pages 61
Cordsets for DC Models

4-Pin M12/Euro-Style
use with 3-color models
Straight connector models listed; for right-angle models, add RA to the end of model number (example, MQDC-406RA)

5-Pin M12/Euro-Style
use with 4-color models
Straight connector models listed; for right-angle models, add RA to the end of model number (example, MQDC1-506RA)

8-Pin M12/Euro-Style
use with 5+ -color models
Straight connector models listed; for right-angle models, add RA to the end of model number (example, MQDC2S-806RA)

Cordsets for AC Models

4-Pin Micro-Style
Straight connector models listed; for right-angle models, add RA to the end of model number (example, MQAC2-406RA)

5-Pin Micro-Style
Straight connector models

Mounting Brackets

Sealed Right-Angle Brackets

Controller

Laser Marking
Light sections can be permanently marked with custom text or images
## Accessories

### Elevated Mount System
**for TL70**

- **SA-M30**
  - Black polycarbonate adapter/cover
- **SA-M30C**
  - Gray polycarbonate adapter/cover
- **SOP-E12-150A (150 mm)**
- **SOP-E12-300A (300 mm)**
- **SOP-E12-900A (900 mm)**
  - Black anodized aluminum pipe
- **SOP-E12-150AC (150 mm)**
- **SOP-E12-300AC (300 mm)**
- **SOP-E12-900AC (900 mm)**
  - Clear anodized aluminum pipe
- **SOP-E12-150SS (150 mm)**
- **SOP-E12-300SS (300 mm)**
- **SOP-E12-900SS (900 mm)**
  - 304 stainless steel pipe
- **SA-E12M30**
  - Black Acetal mounting base
- **SA-E12M30C**
  - White UHMW mounting base
- **SA-F12**
  - Black Zinc mounting base

### Elevated Mount System
**for other models**

- **SA-M30TE12**
  - Black Acetal adapter/cover
- **SA-M30TE12C**
  - White UHMW adapter/cover
- **SOP-E12-150A (150 mm)**
- **SOP-E12-300A (300 mm)**
- **SOP-E12-900A (900 mm)**
  - Black anodized aluminum pipe
- **SOP-E12-150AC (150 mm)**
- **SOP-E12-300AC (300 mm)**
- **SOP-E12-900AC (900 mm)**
  - Clear anodized aluminum pipe
- **SOP-E12-150SS (150 mm)**
- **SOP-E12-300SS (300 mm)**
- **SOP-E12-900SS (900 mm)**
  - 304 stainless steel pipe
- **SA-E12M30**
  - Black Acetal mounting base
- **SA-E12M30C**
  - White UHMW mounting base
- **SA-F12**
  - Black Zinc mounting base

### Flush Foldable Bracket
**for use with elevated mount systems**

- **SA-FFB12**
  - Black
- **SA-FFB12C**
  - Gray

1. Remove screws & pull out
2. Adjust angle
3. Push in & replace screws
4. Complete

Additional accessories are available at bannerengineering.com
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.
## Selection Guide

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<tr>
<th>Page</th>
<th>66</th>
<th>68</th>
<th>72</th>
<th>74</th>
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<tbody>
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<td>K30L</td>
<td>K70L</td>
<td>K90L</td>
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<td>K30: 1-3</td>
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<td>Daylight Visible</td>
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<td>Multiple Colors per Light Segment</td>
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</table>
K50L2 and K30L2 Domed Indicators

• Bright, even indication in red, green, blue, yellow, cyan, magenta, and white
• Rugged IP66, IP67, and IP69K polycarbonate housing protects against impact and withstands high-pressure, high-temperature washdown to ensure reliable performance in challenging environments
• Models constructed from FDA-grade materials available for use in food and beverage applications
• Simple wiring plan enables quick installation and allows users to consolidate controller outputs
• An optional audible alarm provides a distinct, loud notification of status (K50L2 models only)
• IO-Link enables full control of color, flashing, dimming, and advanced animations like rotation, strobing, 2-color display, 2-color rotation, 2-color flashing, and chase
K50L and K30L Domed Indicators

- Rugged, cost-effective and easy-to-install indicators
- Illuminated dome provides easy-to-see operator guidance and indication of equipment status
- Compact devices are completely self-contained — no controller needed
- Displays up to five colors
- Immune to EMI and RFI interference
One-, Two- or Three-Color Indicators
18 to 30 V dc

<table>
<thead>
<tr>
<th>Family</th>
<th>Color</th>
<th>Input</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>K50L</td>
<td>G</td>
<td>P</td>
<td>Q</td>
</tr>
<tr>
<td>K30L</td>
<td>R</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

G = Green
Y = Yellow
R = Red
B = Blue
W = White
X = Not Used

P = PNP
N = NPN

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

QD models require mating cordset

One-, Two- or Three-Color Indicators
85 to 120 V ac

<table>
<thead>
<tr>
<th>Family</th>
<th>Color</th>
<th>Voltage</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>K50L</td>
<td>G</td>
<td>A120</td>
<td>Q</td>
</tr>
<tr>
<td></td>
<td>R</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

G = Green
Y = Yellow
R = Red
B = Blue
W = White
X = Not Used

A120 = 120 V ac

Q = Euro Integral QD
QP = Euro Pigtail QD

QD models require mating cordset

One-, Two- or Three-Color Audible Indicators

<table>
<thead>
<tr>
<th>Family</th>
<th>Color/Audible</th>
<th>Input</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>K50L</td>
<td>G</td>
<td>P</td>
<td>Q</td>
</tr>
</tbody>
</table>

G = Green
Y = Yellow
R = Red
B = Blue
W = White
X = Not Used

P = PNP
N = NPN

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

QD models require mating cordset

Three-Color Multifunction Indicators

<table>
<thead>
<tr>
<th>Family</th>
<th>Color*</th>
<th>Function</th>
<th>Input</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>K50L</td>
<td>G</td>
<td>2</td>
<td>P</td>
<td>Q</td>
</tr>
</tbody>
</table>

G = Green
B = Blue
Y = Yellow
R = Red
W = White
X = Not Used

2 = Multifunction

P = PNP
N = NPN

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

QD models require mating cordset

* Displays 3 colors and multiple flashing frequencies:
  - Steady ON, Flashing, or Alternating

Four-Color Multifunction Indicators

<table>
<thead>
<tr>
<th>Family</th>
<th>Color*</th>
<th>Function</th>
<th>Input</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>K50L</td>
<td>G</td>
<td>4</td>
<td>P</td>
<td>Q</td>
</tr>
</tbody>
</table>

G = Green
B = Blue
Y = Yellow
R = Red
W = White
X = Not Used

4 = Multifunction

P = PNP
N = NPN

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

QD models require mating cordset

* Displays 4 colors and multiple flashing frequencies:
  - Steady ON, Flashing, or Alternating

Five-Color Multifunction Indicators

<table>
<thead>
<tr>
<th>Family</th>
<th>Color*</th>
<th>Input</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>K50L</td>
<td>G</td>
<td>P</td>
<td>Q</td>
</tr>
</tbody>
</table>

G = Green
B = Blue
Y = Yellow
R = Red
W = White
X = Not Used

P = PNP
N = NPN

Blank = 2 m Integral Cable
Q8 = Euro Integral QD
QP8 = Euro Pigtail QD

QD models require mating cordset

* Displays 5 colors and multiple flashing frequencies:
  - Steady ON, Flashing, or Alternating

Accessories and specifications are on page 71
### K50L/K30L Specifications

| **Supply Voltage** | K50L Sealed Audible: 12 to 30 V dc  
K50L AC: 85 to 130 V ac  
K50L standard: 18 to 30 V dc  
K30L: 10 to 30 V dc |
|-------------------|---------------------------------------------------------------|
| **Construction**  | Base: polycarbonate  
Translucent Dome: polycarbonate |
| **Environmental Rating** | Standard Models:  
IEC IP67 Integral QD models meet  
DIN 40050 (IP69K)  
Standard Audible Models (A1, A2, AL1):  
IP50  
Fixed Audible Sealed Models (AS):  
IEC IP67/IP69K per DIN 40050  
Adjustable Loud Audible Sealed Models (ALS, ALS4):  
IEC IP67/IP69K per DIN 40050 |
| **Operating Temperature** | Sealed Audible: −20 to +50 °C (−4 to +122 °F)  
All Other Models: −40 to +50 °C (−40 to +122 °F) |
| **Certifications** | Audible: |

---

### K50L2/K30L2 Specifications

| **Power** | K50L2: 10 to 30 V dc; 220mA Max. at 10 V dc; 100mA Max. at 30 V dc  
K30L2: 10 to 30 V dc; 60mA Max. at 10 V dc; 30mA Max. at 30 V dc |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating Conditions</strong></td>
<td>−40 to +60 °C (−40 to +122 °F)</td>
</tr>
</tbody>
</table>
| **Construction** | Base: polycarbonate  
Translucent Dome: polycarbonate |
| **Environmental Rating** | K50L2: Standard: IEC IP66/IP67/IP69K  
Standard Audible: IEC IP50  
Sealed Audible: IEC IP66/IP67/IP69K  
K30L2: IEC IP66/IP67/IP69K |
| **Certifications** | |
Cordsets for DC Models

4-Pin M12/Euro-Style
use with 3-color models
Straight connector models listed; for right-angle models, add RA to the end of model number (example, MQDC-406RA)

5-Pin M12/Euro-Style
use with 4-color models
Straight connector models listed; for right-angle models, add RA to the end of model number (example, MQDC1-506RA)

8-Pin M12/Euro-Style
use with 5+ color models
Straight connector models listed; for right-angle models, add RA to the end of model number (example, MQDC2S-806RA)

Cordsets for AC Models

4-Pin Micro-Style
Straight connector models listed; for right-angle models, add RA to the end of model number (example, MQAC2-406RA)

5-Pin Micro-Style
Straight connector models

MQAC2-406 2 m (6.5’)
MQAC2-415 5 m (15’)
MQAC2-430 9 m (30’)

MQAC2-506 2 m (6.5’)
MQAC2-515 5 m (15’)
MQAC2-530 9 m (30’)

SA-M30TE12 Black Acetal adapter/cover
SA-M30TE12C White UHMW adapter/cover
SOP-E12-150A (150 mm) SOP-E12-300A (300 mm) SOP-E12-900A (900 mm)
Black anodized aluminum pipe
SOP-E12-150AC (150 mm) SOP-E12-300AC (300 mm) SOP-E12-900AC (900 mm)
Clear anodized aluminum pipe
SOP-E12-150SS (150 mm) SOP-E12-300SS (300 mm) SOP-E12-900SS (900 mm)
304 stainless steel pipe
SA-E12M30 Black Acetal mounting base
SA-E12M30C White UHMW mounting base

SA-FFB12 Black flush foldable bracket for use with elevated mount systems
SA-FFB12C Gray flush foldable bracket for use with elevated mount systems

see page 61 for additional information on this bracket

Additional accessories are available at bannerengineering.com
K70L 70 mm Domed Indicators

- Bright, uniform indicator light
- All models have flashing input control
- Models are available with up to five colors in one device
- Rugged IP65-rated design
- 12 V to 30 V dc operation
- Wireless models simplify installation and provide a simple operator interface for pick-to-light, call button and general industrial applications
Standard and Wireless

Family  Model  Color  Input  Connection
K70  L  W B G Y R  P  Q
L = Standard
DXN2 = Wireless 2.4 GHz
DXN9 = Wireless 900 MHz
G = Green
Y = Yellow
R = Red
B = Blue
W = White
P = PNP
N = NPN
Blank = Wireless
Blank = 2 m Integral Cable
Q = Euro Integral QD
QP = Euro Pigtail QD
QD models require mating cordset

Supply Voltage and Current
12 V to 30 V dc; 200 mA Max. at 12 V dc;
90 mA Max. at 30 V dc

Supply Protection Circuitry
Protected against reverse polarity, transient voltages

Construction
Base: polycarbonate
Translucent Dome: polycarbonate

Environmental Rating
IEC IP65

Operating Temperature
–40 to 50 ºC

Certifications

Elevated Mount System

SA-M30  Black polycarbonate adapter/cover
SA-M30C  Gray polycarbonate adapter/cover
SOP-E12-150A (150 mm)
SOP-E12-300A (300 mm)
SOP-E12-900A (900 mm)
Black anodized aluminum pipe
SOP-E12-150AC (150 mm)
SOP-E12-300AC (300 mm)
SOP-E12-900AC (900 mm)
Clear anodized aluminum pipe
SOP-E12-150SS (150 mm)
SOP-E12-300SS (300 mm)
SOP-E12-900SS (900 mm)
304 stainless steel pipe
SA-E12M30  Black Acetal mounting base
SA-E12M30C  White UHMW mounting base

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

SMBAMS30P  SSA-MBK-EEC1

SA-FFB12  Black flush foldable bracket for use with elevated mount systems
SA-FFB12C  Gray flush foldable bracket for use with elevated mount systems

See page 61 for additional information on this bracket

Additional accessories are available at bannerengineering.com
K90L 90 mm Domed Indicators

- Bright, uniform indicator light
- Models are available with up to five colors in one device
- Rugged IP67-rated design
- 12 to 30 V dc operation
- Illuminated dome provides easy-to-see operator guidance
- K90TL models alternate between colors when multiple inputs are active
- K90L models have an auxiliary input line for flashing an active input
Supply Voltage 12 to 30 V dc
Construction Base: polycarbonate Translucent Dome: polycarbonate
Environmental Rating IP67
Operating Temperature −40 to +50°C (−40 to +122°F)
Certifications

Elevated Mount System

SA-M30 Black polycarbonate adapter/cover
SA-M30C Gray polycarbonate adapter/cover
SOP-E12-150A (150 mm) SOP-E12-300A (300 mm) SOP-E12-900A (900 mm) Black anodized aluminum pipe
SOP-E12-150AC (150 mm) SOP-E12-300AC (300 mm) SOP-E12-900AC (900 mm) Clear anodized aluminum pipe
SOP-E12-150SS (150 mm) SOP-E12-300SS (300 mm) SOP-E12-900SS (900 mm) 304 stainless steel pipe
SA-E12M30 Black Acetal mounting base
SA-E12M30C White UHMW mounting base

K90L and K90TL

K90FDL and K90TFDL Daylight Visible

5-Pin M12/Euro-Style use with 4-color models
Straight connector models listed; for right-angle models, add RA to the end of model number (example, MQDC1-506RA)

8-Pin M12/Euro-Style use with 5+ -color models
Straight connector models listed; for right-angle models, add RA to the end of model number (example, MQDC2S-806RA)

Additional accessories are available at bannerengineering.com
K50 Beacon
Omni-Directional High-Intensity Indicators

- Continuous, strob ing and rotating models available
- Intense levels of light output for outdoor applications
- 12-30 V dc models are ideal for battery-powered mobile applications
- LED lighting emits from the perimeter and top view on some models
- Rugged, sealed thermoplastic housing rated for IP67 and IP69K
- Cabled and quick-disconnect models available
One-, Two-, or Three-Color DC

**Function**

<table>
<thead>
<tr>
<th>Family</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>K50BL</td>
<td>R1 = Rotating*</td>
</tr>
<tr>
<td>K50BCL</td>
<td>S1 = Strobing**</td>
</tr>
<tr>
<td></td>
<td>Blank = None</td>
</tr>
</tbody>
</table>

**Color**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

**Supply Voltage**

- DC: 12 to 30 V
- AC: 85 to 130 V, 100 to 250 V

**Construction**

Base and covers: polycarbonate

**Environmental Rating**

IEC IP67 and IP69K, per DIN 40050

**Operating Temperature**

-40 to +50 °C (-40 to +122 °F)

**Certifications**

SMB30A SMB30FA

SA-M30E12 Black Acetal adapter/cover
SA-M30E12C White UHMW adapter/cover

SOP-E12-150A (150 mm)
SOP-E12-300A (300 mm)
SOP-E12-900A (900 mm)

Black anodized aluminum pipe

SOP-E12-150SS (150 mm)
SOP-E12-300SS (300 mm)
SOP-E12-900SS (900 mm)

304 stainless steel pipe

SA-E12M30 Black Acetal mounting base
SA-E12M30C White UHMW mounting base

4-Pin M12/ Euro-Style

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

3-Pin M12/Micro-Style

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

**Connector**

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

MQDC-306 2 m (6.5')
MQDC-315 5 m (15')
MQDC-330 9 m (30')

SA-E12M30 Black Acetal mounting base
SA-E12M30C White UHMW mounting base

4-Pin M12/ Euro-Style

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

3-Pin M12/Micro-Style

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

**LED Color**

- G = Green
- B = Blue
- Y = Yellow
- W = White
- R = Red

**Input**

- P = PNP
- N = NPN

**Blank**

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

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

MQDC-306 2 m (6.5')
MQDC-315 5 m (15')
MQDC-330 9 m (30')

See page 61 for additional information on this folding bracket.

* Rotating only available on K50BL 1-color models
** Strobing only available on K50BCL 1-color models
K50L Daylight Visible Directional Indicators

- Intense levels of light output for outdoor applications
- Rugged, cost-effective and easy-to-install
- Compact devices are completely self-contained — no controller needed
- Up to three colors in one housing
- Immune to ambient light, EMI and RFI interference
- 50 mm diameter with flat profile and 30 mm mounting base
- Available in both 18 to 30 V dc and 85 to 130 V ac power options
One- or Three- Color Indicators, 15 to 30 V dc

<table>
<thead>
<tr>
<th>Family</th>
<th>LED Color</th>
<th>Input</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>K50LD</td>
<td>X</td>
<td>G</td>
<td>Q</td>
</tr>
</tbody>
</table>

- **Family**: K50LD
- **LED Color**: X = Not Used, G = Green, B = Blue, Y = Yellow, R = Red
- **Input**: P = PNP, N = NPN
- **Connector**: Q = Euro Integral QD, QP = Euro Pigtail QD

One- Color Indicators, 85 to 130 V ac

<table>
<thead>
<tr>
<th>Family</th>
<th>LED Color</th>
<th>Input</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>K50LD</td>
<td>G</td>
<td>A120</td>
<td>Q</td>
</tr>
</tbody>
</table>

- **Family**: K50LD
- **LED Color**: G = Green, B = Blue, Y = Yellow, R = Red, W = White
- **Input**: A120 = 85-130 V ac
- **Connector**: Q = Euro Integral QD, QP = Euro Pigtail QD

Supply Voltage
- 15 to 30 V dc
- 85 to 130 V ac

Construction
- Polycarbonate; fully encapsulated

Environmental Rating
- IEC IP67

Operating Temperature
- −40 to +50 °C (−40 to +122 °F)

Certifications
- CE

Additional accessories are available at bannerengineering.com

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

MQC-306 2 m (6.5')
MQC-315 5 m (15')
MQC-330 9 m (30')
K50 Modbus Indicators

- Rugged, compact multi-color indicators in several package types
- Built-in flashing and strobing capability
- High intensity models for outdoor applications
- Fully encapsulated IP67/IP69K construction
- Modbus RTU communication minimizes the cabling requirements
Supply Voltage
12 to 30 V dc

Construction
Base: Polycarbonate
Covers: Polycarbonate
LEDs on LD Models: Acrylic

Environmental Rating
IEC IP67/IP69K per DIN 40050

Operating Temperature
−40 to +50 °C (−40 to +122 °F)

Certifications

<table>
<thead>
<tr>
<th>Family</th>
<th>LED Color</th>
<th>Bus Indicator</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>K50L</td>
<td>G = Green</td>
<td>S1 = Modbus RS-485</td>
<td>Q</td>
</tr>
<tr>
<td>K50LD</td>
<td>Y = Yellow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K50BL</td>
<td>R = Red</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B = Blue</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>W = White</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Blank = 2 m Integral Cable
Q = Euro Integral QD
QP = Euro Pigtail QD
QD models require mating cordset

K50L Models

K50LD Models

K50BL Models

SA-M30E12
Black Acetal adapter/cover
SA-M30E12C
White UHMW adapter/cover
SOP-E12-150A (150 mm)
SOP-E12-300A (300 mm)
SOP-E12-900A (900 mm)
Black anodized aluminum pipe
SOP-E12-150SS (150 mm)
SOP-E12-300SS (300 mm)
SOP-E12-900SS (900 mm)
304 stainless steel pipe
SA-E12M30
Black Acetal mounting base
SA-E12M30C
White UHMW mounting base

Additional accessories are available at bannerengineering.com

see page 61 for additional information on this folding bracket
K50 and K30 Hazardous Indicators

- Up to three colors in one device and five colors to choose from
- Models rated to IP67 and IP69K for use in harsh environments
- Unique design appears gray when off, eliminating false indication from ambient light
- Easy mounting and configuration
- Extensive approvals ensure indicator lights are safe to use in most classified zones or areas.
- Worldwide IECEx approval for quicker access into countries outside Europe and North America
**Supply Voltage**  
Ex ia: 8 to 30 V dc  
Ex mb/Ex ta and Ex nA/Ex tc: 10 to 30 V dc

**Construction**  
Base: polycarbonate  
Translucent Dome: polycarbonate

**Environmental Rating**  
IP67, IP69K

**Operating Temperature**  
−40 to +50 °C (−40 to +122 °F)

**Certifications**

---

### Indicator Family

<table>
<thead>
<tr>
<th>Protection Method</th>
<th>Suitable for ATEX</th>
<th>Suitable for NEC &amp; CEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ex ia Intrinsically Safe</td>
<td>Gas Zones: 0, 1, &amp; 2 Dust Zones: 20, 21, &amp; 22 Mines</td>
<td>Gas zones: 0, 1, &amp; 2 Class I Division 1 &amp; 2 Class II/III Division 1 &amp; 2</td>
</tr>
<tr>
<td>Ex mb/Ex ta Encapsulation/Enclosure</td>
<td>Gas Zones: 1 &amp; 2 Dust Zones: 20, 21 &amp; 22</td>
<td>Gas zones: 1 &amp; 2 Class I Division 2 Class II/III Division 1 &amp; 2**</td>
</tr>
<tr>
<td>Ex nA/Ex tc Non-Sparking/Enclosure</td>
<td>Gas Zones: 2 Dust Zones: 22</td>
<td>Gas zones: 2 Class I Division 2 Class II/III Division 2**</td>
</tr>
</tbody>
</table>

**Notes:**
- **Available on K50L models only**
- **Not available on Ex mb models**

---

**4-Pin M12/Euro-Style**  
Straight connector models listed; for right-angle models, add RA to the end of model number (example, MQDC-406RA)

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

Additional accessories are available at bannerengineering.com
S18L & S22L Barrel Indicators

- Gasketed face flange for sealing to enclosures
- IP69K rated to withstand harsh wash-down environments
- Daylight visible models are also available for areas with high levels of ambient light
- M12 Euro connector models available for plug-and-play indication
- 10 to 30 V dc operating range allows for use in battery-powered mobile applications
- Terminal-wired models available to simplify panel wiring
- Up to three independent colors in one unit
- Translucent face appears gray when off to avoid false indication
- Multiple colors available, including green, red, yellow, blue, white, orange
- Available with PNP or NPN input, depending on model
## Supply Voltage
- **General Purpose:** 10 to 30 V dc
- **High-Intensity Models:** 9 to 30 V dc

## Construction
- Housing: UV stabilized polycarbonate
- Mounting Nut: PBT
- Sealing Washer: Nitrile

## Environmental Rating
- **IEC IP67, IP69K, per DIN 40050**

## Operating Temperature
- **General Purpose:** −40 to +50 °C (−40 to +122 °F)
- **Other Models:** −40 to +60 °C (−40 to +140 °F)

## Certifications
- **CE**
- **UL**

### Family

<table>
<thead>
<tr>
<th>S18L</th>
<th>S22L</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Color</strong></td>
<td><strong>Input</strong></td>
</tr>
<tr>
<td>G = Green</td>
<td>P = PNP</td>
</tr>
<tr>
<td>Y = Yellow</td>
<td>N = NPN</td>
</tr>
<tr>
<td>R = Red</td>
<td></td>
</tr>
<tr>
<td>B = Blue</td>
<td></td>
</tr>
<tr>
<td>W = White</td>
<td></td>
</tr>
<tr>
<td>X = Not Used</td>
<td></td>
</tr>
</tbody>
</table>

### Daylight Visible

<table>
<thead>
<tr>
<th>S18DL</th>
<th>S22DL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Color</strong></td>
<td><strong>Input</strong></td>
</tr>
<tr>
<td>G = Green</td>
<td>P = PNP</td>
</tr>
<tr>
<td>Y = Yellow</td>
<td>N = NPN</td>
</tr>
<tr>
<td>R = Red</td>
<td></td>
</tr>
<tr>
<td>B = Blue</td>
<td></td>
</tr>
<tr>
<td>W = White</td>
<td></td>
</tr>
<tr>
<td>O = Orange</td>
<td></td>
</tr>
<tr>
<td>X = Not Used</td>
<td></td>
</tr>
</tbody>
</table>

### Daylight Visible High-Intensity

<table>
<thead>
<tr>
<th>S18DLH</th>
<th>S22DLH</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Color</strong></td>
<td><strong>Input</strong></td>
</tr>
<tr>
<td>G = Green</td>
<td>P = PNP</td>
</tr>
<tr>
<td>Y = Yellow</td>
<td>N = NPN</td>
</tr>
<tr>
<td>R = Red</td>
<td></td>
</tr>
<tr>
<td>B = Blue</td>
<td></td>
</tr>
<tr>
<td>W = White</td>
<td></td>
</tr>
<tr>
<td>O = Orange</td>
<td></td>
</tr>
<tr>
<td>X = Not Used</td>
<td></td>
</tr>
</tbody>
</table>

### Additional Accessories
- **SMB18A** use with S18L
- **SMB18FA** use with S18L
- **SMBAMS18RA** use with S18L
- **SMBC18** for use with S18L on 28 mm pipe
- **SMBAMS22RA** use with S22L
- **MQDC-406** 2 m (6.5')
- **MQDC-415** 3 m (10')
- **MQDC-430** 9 m (30')

Additional accessories are available at bannerengineering.com
S22L2 Flush Mount Indicator

- Bright, even indication in red, green, blue, yellow, cyan, magenta, and white
- Models constructed from FDA-grade materials available for use in food and beverage applications
- Terminal connector options for fast, economical installation in panels
- Flush design matches S22 Touch buttons, see page 102
### Family | Material | Color* | Connection
---|---|---|---
S22L2 | S | RGB7 | Q
*S = Standard, F = FDA Grade

- **RGB7** = RGB Multicolor (7 colors)
- **RGB14** = RGB Multicolor (14 colors)

* 7 colors = Green, Yellow, Red, Blue, White, Cyan, Magenta with flash input
14 colors = Above colors, plus, Orange, Amber, Lime Green, Spring Green, Sky Blue, Violet and Rose

---

### Supply Voltage

10 to 30 V dc

### Construction

- Housing: Polycarbonate or FDA grade plastic, depending on model
- Translucent dome: Polycarbonate or FDA grade plastic, depending on model
- Mounting Nut: PBT or FDA food grade plastic

### Environmental Rating

- Standard: UL Type 4x, 13
- FDA Grade: UL Type 4x (Indoor)
- Cable, Pigtail, QD models: IEC IP66, IP67, IP69K per DIN 40050-9
- Terminal models: IEC IP66, IP69K per DIN 40050-9 on front only

### Operating Conditions

- Temperature: −40 to +50 °C
- Storage Temperature: −40 to +70 °C

### Certifications

- CE
- UL LISTED

---

**Laser Marking Available**

### Cabled Models

<table>
<thead>
<tr>
<th>Model</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>MQDC1-506</td>
<td>2 m (6.5')</td>
</tr>
<tr>
<td>MQDC1-515</td>
<td>5 m (15')</td>
</tr>
<tr>
<td>MQDC1-530</td>
<td>9 m (30')</td>
</tr>
</tbody>
</table>

### Field-Wired Models (Terminals)

<table>
<thead>
<tr>
<th>Model</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>MQDC-WDSS-0506</td>
<td>2 m (6.5')</td>
</tr>
<tr>
<td>MQDC-WDSS-0515</td>
<td>5 m (15')</td>
</tr>
<tr>
<td>MQDC-WDSS-0530</td>
<td>9 m (30')</td>
</tr>
</tbody>
</table>

### Additional accessories are available at bannerengineering.com
K50FL Flat-Mount Domed Indicators

- Rugged, cost-effective and easy-to-install indicators
- Low power consumption LED design will provide years of reliable service
- Fully encapsulated IP67, IP69K
- Illuminated dome provides easy-to-see operator guidance and indication of equipment status
- Compact devices are completely self-contained — no controller needed
- 18 to 30 V dc operation
- Displays up to five colors
- Immune to EMI and RFI interference
One-, Two- or Three-Color, 18 to 30 V dc

Supply Voltage
18 to 30 V dc

Construction
Base: ABS
Dome: Polycarbonate

Environmental Rating
IP67, IP69K

Operating Temperature
–40 to +50 °C
(–40 to +122 °F)

Certifications

Four-Color Multifunction

Five-Color Multifunction

Three-Color Multifunction

* Displays 3 colors and multiple flashing frequencies:
  Steady ON, Flashing, or Alternating

* Displays 4 colors and multiple flashing frequencies:
  Steady ON, Flashing, or Alternating

* Displays 5 colors and multiple flashing frequencies:
  Steady ON, Flashing, or Alternating

4-Pin M12/Euro-Style
Straight connector models listed; for right-angle models, add RA
to the end of model number (example, MQDC-406RA)

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MQDC-406</td>
<td>2 m (6.5')</td>
</tr>
<tr>
<td>MQDC-415</td>
<td>5 m (15')</td>
</tr>
<tr>
<td>MQDC-430</td>
<td>9 m (30')</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MQDC1-506</td>
<td>2 m (6.5')</td>
</tr>
<tr>
<td>MQDC1-515</td>
<td>5 m (15')</td>
</tr>
<tr>
<td>MQDC1-530</td>
<td>9 m (30')</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MQDC2-806</td>
<td>2 m (6.5')</td>
</tr>
<tr>
<td>MQDC2-815</td>
<td>5 m (15')</td>
</tr>
<tr>
<td>MQDC2-830</td>
<td>9 m (30')</td>
</tr>
</tbody>
</table>
K80FL and K80FDL Flat-Mount Indicators

- Selection of solid or flashing light operation with internal DIP Switch
- Multicolor, single segment
- Bright, even LED light gray when OFF
- Unique shape for use in various indication applications
- Sealed to IP67 for durability in many environments
- Large, flat face allows for clear indication from greater distances
- Transparent self-adhesive cover labels can be printed for easy identification
- Daylight visible models available
**Supply Voltage**
12 to 30 V dc

**Construction**
- Base: Polycarbonate
- Translucent Face: Acrylic

**Environmental Rating**
IEC IP67

**Operating Conditions**
−40 to +50 °C (−40 to +122 °F)

**Certifications**
- K80FL = Standard
- K80FDL = Daylight Visible

**Family**
- K80FL = Standard
- K80FDL = Daylight Visible

**Color**
- G = Green
- R = Red
- Y = Yellow
- B = Blue
- W = White
- X = Not Used

**Input**
- P = PNP

**Connector**
- Blank = Terminal-wired
- Q = Euro Integral QD
- QP = Euro Pigtail QD

QD models require mating cordset

---

4-Pin M12/Euro-Style
- Straight connector models listed; for right-angle models, add RA to the end of model number (example, MQDC-406RA)
- MQDC-406
  - 2 m (6.5')
- MQDC-415
  - 5 m (15')
- MQDC-430
  - 9 m (30')

Additional accessories are available at bannerengineering.com

---

SMBDX80DIN
for mounting to 35 mm DIN Rail
K80 Segmented Indicators

- Individual color quadrants can be lighted separately or in combination
- For error-proofing and “Andon” applications
- Provides operator guidance, even for those with limited color recognition ability
- Optional labels for enhanced segment identification
- Mounts easily on flat surface or pipe for elevated use
- PNP (sourcing) or NPN (sinking) input type, depending on model
- Flash functionality available on one-color models
**Supply Voltage**
18 to 30 V dc

**Construction**
Base: ABS/Polycarbonate
Translucent Face: Acrylic

**Environmental Rating**
IEC IP67

**Operating Temperature**
-40 to +50 °C (-40 to +122 °F)

**Certifications**

---

**Family**

<table>
<thead>
<tr>
<th>Configuration</th>
<th>K80L</th>
</tr>
</thead>
</table>

| 4 | 4 Segments |
| 3 | 1 Half & 2 Qtr. |
| 2 | 2 Halves |
| 1 | Entire Area |

**LED Color**

- G = Green
- Y = Yellow
- R = Red
- B = Blue
- X = Not Used

**Function**

1 = Multifunction

**Input**

- P = PNP
- N = NPN

**Connector**

- Blank = Terminal-wired
- Q = Euro Integral QD
- QP = Euro Pigtail QD

* For less than 4 colors, use X as model placeholder (example, K80L2HGRXX1PQ)

---

**Segmented Indicator Label Kits**

- **SALK-K80L4**
  - 4-segment transparent laser label (includes 30 labels and 1 protective cover labels)

- **SALK-K804-0**
  - 1-segment transparent laser label (includes 30 labels)

**5-Pin M12/Euro-Style**
Straight connector models listed; for right-angle models, add RA to the end of model number (example, MQDC1-506RA)

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

---

Additional accessories are available at bannerengineering.com

---

**SMBDX80DIN**
for mounting to 35 mm DIN Rail

---

93
SP Series Signal Lights

- Intense levels of light output for outdoor applications
- Controlled field of view for signage and narrow lane use
- Rugged, cost-effective and easy-to-install
- Compact devices are completely self-contained — no controller needed
- Immune to EMI and RFI interference
- Choose NPN or PNP input, and 15 to 30 V dc or 85-130 V ac operation, depending on model
## Family

<table>
<thead>
<tr>
<th>SP150</th>
<th>SP250</th>
<th>SP350</th>
</tr>
</thead>
</table>

## Color Sequence

1. G = Green  
2. Y = Yellow  
3. R = Red  
4. B = Blue  
5. W = White  
6. Blank = Not Used

## Input

- **P** = PNP  
- **N** = NPN  
- **A120** = 85 to 130 V ac (Terminal-wired only)

## Connector

- **Q** = Euro Integral QD  
- **QP** = Euro Pigtail QD  
- **QP** models require mating cordset

## Supply Voltage

- 15 to 30 V dc  
- 85 to 130 V ac

## Construction

Flat or DIN-mount polycarbonate

## Environmental Rating

- SP150: IEC IP67  
- SP250: IEC IP65  
- SP350: IEC IP65

## Operating Conditions

- −40 to +50 °C (−40 to +122 °F)

## Certifications

- CE

---

### Additional accessories are available at bannerengineering.com

- 4-Pin M12/Euro-Style straight connector models listed; for right-angle models, add RA to the end of model number (example: MQDC-406RA)
- MQDC-406 2 m (6.5')  
- MQDC-415 5 m (16')  
- MQDC-430 9 m (30')

---

**SMBDX80DIN**

for mounting to 35 mm DIN Rail

**SMBSP350 (Tabs only)**

**SOP-E12-150A (150 mm)**  
**SOP-E12-300A (300 mm)**  
**SOP-E12-900A (900 mm)**  
Black anodized aluminum pipe

**SOP-E12-150AC (150 mm)**  
**SOP-E12-300AC (300 mm)**  
**SOP-E12-900AC (900 mm)**  
Clear anodized aluminum pipe

**SOP-E12-150SS (150 mm)**  
**SOP-E12-300SS (300 mm)**  
**SOP-E12-900SS (800 mm)**  
304 stainless steel pipe

**SA-E12M30**  
Black acetal mounting base

---

*SMBSP350 (Tabs only)*
Touch Buttons and Pick-to-Light

Banner is the leader in ergonomic, visual and sealed operator touch buttons for industrial applications. Since Banner Touch Buttons can have multiple colors and I/O capabilities, they can replace several conventional buttons, making them ideal in lean manufacturing environments.

Pick-to-light sensors help industrial automation manufacturers reduce the risk of error in the assembly process, boosting product quality and reducing cost.
## Selection Guide

### Touch Buttons

<table>
<thead>
<tr>
<th>Page</th>
<th>102</th>
<th>104</th>
<th>106</th>
<th>108</th>
<th>110</th>
<th>112</th>
<th>114</th>
<th>116</th>
<th>118</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Family Name</strong></td>
<td>S22</td>
<td>K30</td>
<td>K50</td>
<td>K70</td>
<td>K30L/K50L Push Button</td>
<td>OTB</td>
<td>VTB</td>
<td>Illuminated E-Stops</td>
<td>Flush-Mount Illuminated E-Stops</td>
</tr>
<tr>
<td><strong>Size (mm)</strong></td>
<td>20 mm surface</td>
<td>30 mm dome</td>
<td>50 mm dome</td>
<td>70 mm dome</td>
<td>30/50 mm dome</td>
<td>74.2 x 59.9 x 43.2</td>
<td>73.3 x 43.2 x 43.2</td>
<td>119.8 x ø 80</td>
<td>102.1 x 80.8 x 80.3</td>
</tr>
<tr>
<td><strong>Actuation Method</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Color Available</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Multicolor Option</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Logic Function</strong></td>
<td>F2, H</td>
<td>F2, H</td>
<td>F2, H</td>
<td>F2, H</td>
<td>F2, H</td>
<td>F2, H</td>
<td>F2, H</td>
<td>F2, H</td>
<td>F2, H</td>
</tr>
</tbody>
</table>
## Pick-to-Light

<table>
<thead>
<tr>
<th>S22</th>
<th>K30</th>
<th>K50</th>
<th>K70L</th>
<th>K50 Optical</th>
<th>K50 Modbus</th>
<th>K30/K50/K80 Push Button</th>
<th>PVD</th>
<th>PVL</th>
<th>PVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 mm surface</td>
<td>30 mm dome</td>
<td>50 mm dome</td>
<td>70 mm dome</td>
<td>50 mm dome</td>
<td>50 mm dome</td>
<td>30/50/50 mm dome</td>
<td>137.8 or 266.4</td>
<td>327.5 or 608</td>
<td>137.8 to 416.6</td>
</tr>
</tbody>
</table>

- **Color Available**: Multicolor
- **IP Rating**: IP66, IP67, IP69K
- **Logic Function**: F2, H, C, E, C3, C4

### Dimensions

- **Size (mm)**: 20 mm surface, 30 mm dome, 50 mm dome, 70 mm dome, 30/50 mm dome, 74.2 x 59.9 x 43.2, 73.3 x 43.2 x 43.2, 119.8 x ø 80, 102.1 x ø 80.8

### Actuation Method

- **Pushbutton**: Touch
- **Fixed-Field**: Retro, Diffuse, Retroreflective
- **Optical**: Retroreflective
- **Mechanical**: Contact
- **Capacitive**: Capacitive

### Options

- **Touch Buttons**: Pick-to-Light
Illuminated buttons are available with different logic options to solve a variety of applications with optimized wiring. Multicolor models provide clear operator guidance to improve speed and accuracy.

**Logic Functions**

**PICK-TO-LIGHT:** Two-color logic options for error-proofing, picking, putting and verification

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>C</strong></td>
<td>Input activates Color 1. Touch activates Color 2 and Output.</td>
</tr>
<tr>
<td><strong>D</strong></td>
<td>Input activates Color 1. Touch activates Output.</td>
</tr>
<tr>
<td><strong>E</strong></td>
<td>Input activates Color 1. Touch activates Output. Touch with inactive input activates Color 2.</td>
</tr>
</tbody>
</table>

**MULTIPURPOSE:** Full color control via three inputs independent of button; momentary output follows button

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>F2</strong></td>
<td>Three inputs activate three colors. Color 3 overrides Colors 1 and 2, and Color 2 overrides Color 1. Touch changes output state.</td>
</tr>
</tbody>
</table>

**ILLUMINATED BUTTONS:** One or two colors with momentary or latching bipolar outputs that follow button

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>H</strong></td>
<td>Power activates Color 1. Touch changes bipolar output state and activates Color 2. Latch and momentary options.</td>
</tr>
</tbody>
</table>

**SPECIALTY PICK-TO-LIGHT:** Three-color logic options for error-proofing, picking, putting and verification

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>C3</strong></td>
<td>Input activates Color 1. Touch with active input activates Color 3 and Output. Touch with inactive input activates Color 2 and Output.</td>
</tr>
<tr>
<td><strong>C4</strong></td>
<td>Input activates Color 1. Touch with active input activates Color 3 and Output. Touch with inactive input activates Color 2 and Output for 5 seconds.</td>
</tr>
</tbody>
</table>

**MODBUS:** Color control and input monitoring via Modbus RTU

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>S1</strong></td>
<td>Modbus commands activate Colors. Touch activates Modbus output.</td>
</tr>
</tbody>
</table>
Actuation Methods

The actuation method is the means by which an operator’s actions are sensed. Banner’s Pick-to-Light line includes a variety of actuation methods, including contact and non-contact sensors covering a single point on a small bin or a wide opening on a large bin. These actuation methods enable error proofing in a large variety of assembly and kitting applications. Below is a description of each actuation method offered to help you select the best solution for your specific application.

**Push Buttons**
Push buttons take physical force to press and actuate the button.

**Touch Buttons**
Touch buttons can be actuated with no force, just contact with the surface. The contact can be made with a whole hand, palm or finger.

**Fixed-Field Mode**
Background suppression sensors have a definite limit to their sensing range, ignoring objects that lie beyond their range.

Fixed-field sensors compare the amount of reflected light that is seen by two differently aimed receiver elements. If the light reaching the second receiver element is equal to or greater than the light reaching the first receiver element, then the object will be recognized.

**Emitter/Receiver**
In opposed-mode sensing, the sensor’s emitter and receiver are housed in two separate units. The emitter is placed opposite the receiver, so that the light beam goes directly from the emitter to the receiver.

**Retroreflective Mode**
Retroreflective sensors contain both the emitter and receiver elements. The beam(s) is(are) established between the emitter, the retroreflector and the receiver. An object is sensed when it interrupts or "breaks" the effective beam.

**Diffuse**
With a diffuse-mode sensor, the object is detected when the object reflects the sensor’s transmitted light energy back to the sensor.
S22 Flush-Mount Touch Buttons

- Large, bright illuminated area for clear visibility of input and touch status
- Flush mount design sits tight against panel, machine and bracket surfaces
- Independent color control or preconfigured models to suit your indication needs
- 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
## Supply Voltage

10 to 30 V dc

## Supply Current

80 mA max current (exclusive of load)

## Supply Protection Circuitry

Protected against reverse polarity and transient voltages

## Construction

Housing: Polycarbonate or FDA grade plastic, depending on model
Translucent dome: Polycarbonate or FDA grade plastic, depending on model
Mounting Nut: PBT or FDA grade plastic

## Environmental Rating

Standard: UL Type 4x, 13
FDA Grade: UL Type 4x (indoor)
Cable, Pigtail, QD models: IEC IP66, IP67, IP69K per DIN 40050-9 on front and back
Terminal models: IEC IP66, IP67, IP69K per DIN 40050-9 on front only

## Connections

2 m PVC integral cable, integral Euro-style QD or terminal screws

## Operating Conditions

Temperature: −40 to +50 °C
Storage Temperature: −40 to +70 °C

## Certifications

Additional accessories are available at bannerengineering.com
K30 Illuminated Touch Buttons

- Ergonomic design requires no physical pressure to operate, preventing stress on hands and wrists
- Simple operation with the touch of a finger
- Easily actuated with bare hands or work gloves
- Rugged, fully encapsulated IP69K construction for high-pressure wash-down environments
- Models with either latching or momentary outputs
- 1-, 2-, or 3- color models available to solve a variety of applications
Independent Input/Output Models with up to Three Indicator Colors Controlled by Separate Inputs

The output is activated by touching the device and is totally independent of the indicator inputs.

<table>
<thead>
<tr>
<th>Family</th>
<th>Output State</th>
<th>Input/Output</th>
<th>Activation Method</th>
<th>Color 1</th>
<th>Color 2</th>
<th>Color 3</th>
<th>Function</th>
<th>Connection*</th>
</tr>
</thead>
<tbody>
<tr>
<td>K30</td>
<td>A</td>
<td>P</td>
<td>T2</td>
<td>G</td>
<td>R</td>
<td>Y</td>
<td>F2</td>
<td>Q</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| A = Normally Open  
R = Normally Closed  
P = PNP  
N = NPN |
| T2 = Touch, FDA Grade |
| G = Green  
Y = Yellow  
B = Blue  
R = Red  
W = White  
X = Not Used |
| F2 = Multipurpose  
see page 100 |
| Blank = 2 m Integral Cable  
Q = Euro Integral QD  
QP = Euro Pigtail QD  
T = 5-Screw Terminal |

One- or Two-Color Momentary or Latching Bipolar (1 NPN and 1 PNP) Output Models

These models do not have inputs to control the indicator. The color of the indicator is determined by the non-activated or activated condition.

<table>
<thead>
<tr>
<th>Family</th>
<th>Output State</th>
<th>Output Function</th>
<th>Output Type</th>
<th>Activation Method</th>
<th>Color (not activated)</th>
<th>Color (activated)</th>
<th>Function</th>
<th>Connection*</th>
</tr>
</thead>
<tbody>
<tr>
<td>K30</td>
<td>A</td>
<td>L</td>
<td>B</td>
<td>T2</td>
<td>G</td>
<td>R</td>
<td>H</td>
<td>Q</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| A = Normally Open  
R = Normally Closed |
| B = Bipolar Output  
(NPN & PNP) |
| T2 = Touch, FDA Grade |
| G = Green  
Y = Yellow  
B = Blue  
R = Red  
W = White  
X = Not Used |
| H = Illuminated Buttons  
see page 100 |
| Blank = 2 m Integral Cable  
Q = Euro Integral QD  
QP = Euro Pigtail QD  
T = 5-Screw Terminal |

* FDA Grade models only available with pigtail QD

Supply Voltage 12 to 30 V dc
Construction
Housing: Polycarbonate
Translucent dome: Polycarbonate
Mounting Nut: PBT
Environmental Rating
IEC IP67, IP69K per DIN 40050
Operating Temperature
−40 to +50 °C (−40 to +122 °F)
Certifications
UL Listed
Additional accessories are available at bannerengineering.com
K50 Illuminated Touch Buttons

- Ergonomic design requires no physical pressure to operate, preventing stress on hands and wrists
- Simple operation with the touch of a finger, hand or whole palm
- Easily actuated with bare hands or work gloves
- Rugged, fully encapsulated IP69K construction for high-pressure wash-down environments
- Models with either latching or momentary outputs
- One-, two- and three-color models available to solve a variety of applications
- Smart electric field sensing on second generation models provides excellent immunity to false triggering from water spray, detergents and other foreign materials
- Second generation models feature superior electrical noise immunity
- Models made with food-grade materials available
Independent Input/Output Models with up to Three Indicator Colors Controlled by Separate Inputs

The output is activated by touching the device and is totally independent of the indicator inputs.

<table>
<thead>
<tr>
<th>Family</th>
<th>Output State</th>
<th>Input/Output</th>
<th>Activation Method</th>
<th>Color</th>
<th>Function</th>
<th>Connection*</th>
</tr>
</thead>
<tbody>
<tr>
<td>K50</td>
<td>A</td>
<td>P</td>
<td>T2</td>
<td></td>
<td>F2</td>
<td>Q</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>G</td>
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<td></td>
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<td>Y</td>
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<td>W</td>
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<td></td>
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<td></td>
<td>X</td>
<td></td>
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<tr>
<td>K50C</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

P = NPN
N = NPN

K50 = Compact
K50C = Compact

One- or Two-Color Momentary or Latching Bipolar (1 NPN and 1 PNP) Output Models

These models do not have inputs to control the indicator. The color of the indicator is determined by the non-activated or activated condition.

<table>
<thead>
<tr>
<th>Family</th>
<th>Output State</th>
<th>Output Function</th>
<th>Output Type</th>
<th>Activation Method</th>
<th>Color (not activated)</th>
<th>Color (activated)</th>
<th>Function</th>
<th>Connection*</th>
</tr>
</thead>
<tbody>
<tr>
<td>K50</td>
<td>A</td>
<td>L</td>
<td>B</td>
<td>T2</td>
<td></td>
<td></td>
<td>H</td>
<td>Q</td>
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<td>K50</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

A = Normally Open
R = Normally Closed
B = Bipolar Output (NPN & PNP)

Commissioning M12/Euro-Style Connector Models

MQDC-406
MQDC-415
MQDC-430
MQDC-506
MQDC-515
MQDC-530
MQDC-806
MQDC-815
MQDC-830

Supply Voltage
12 to 30 V dc

Construction
Housing: Polycarbonate
Translucent dome: Polycarbonate
Mounting Nut: PBT

Environmental Rating
Standard: UL Type 4x, 13
FDA Grade: UL Type 4x
IEC IP67, IP69K per DIN 40050

Operating Temperature
−40 to +50 °C (−40 to +122 °F)

Certifications

<table>
<thead>
<tr>
<th>Family</th>
<th>Output Function</th>
<th>Output Type</th>
<th>Activation Method</th>
<th>Color (not activated)</th>
<th>Color (activated)</th>
<th>Function</th>
<th>Connection*</th>
</tr>
</thead>
<tbody>
<tr>
<td>K50</td>
<td>L</td>
<td>B</td>
<td>T2</td>
<td></td>
<td></td>
<td>H</td>
<td>Q</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

A = Momentary
L = Latching

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

Additional accessories are available at bannerengineering.com

Touch Guard

TC-K50-CL or TC-K30-CL

Touch Guard (not activated) (activated)

B = Bipolar Output (NPN & PNP)

QD models require mating cordset

* FDA Grade models only available with pigtail QD

Laser Marking Available

107
K70 Illuminated Touch Button

- 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 work 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
- Wireless models simplify installation and provide a simple operator interface for pick-to-light, call button and general industrial applications
### Supply Voltage and Current

12 V to 30 V dc; 220 mA max. at 12 V dc; 110 mA max. at 30 V dc

### Supply Protection Circuitry

Protected against transient voltages

### Construction

Housing: Polycarbonate
Dome: Polycarbonate

### Environmental Rating

IEC IP65

### Operating Temperature

-40 to 50 ºC

### Certifications

UL Listed

---

#### Independent Input/Output Models with up to Three Indicator Colors Controlled by Separate Inputs

<table>
<thead>
<tr>
<th>Family</th>
<th>Output State</th>
<th>Output/Output</th>
<th>Activation Method</th>
<th>Color</th>
<th>Function</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>K70</td>
<td>A</td>
<td>P</td>
<td>T2</td>
<td>G</td>
<td>F2</td>
<td>Q</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
<td></td>
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</tr>
</tbody>
</table>

- P = PNP
- N = NPN
- A = Normally Open
- R = Normally Closed
- T2 = Touch

#### One- or Two-Color Momentary or Latching Bipolar (1 NPN and 1 PNP) Output Models

<table>
<thead>
<tr>
<th>Family</th>
<th>Output State</th>
<th>Output Function</th>
<th>Output Type</th>
<th>Activation Method</th>
<th>Color (not activated)</th>
<th>Color (activated)</th>
<th>Function</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>K70</td>
<td>A</td>
<td>L</td>
<td>B</td>
<td>T2</td>
<td>G</td>
<td>B</td>
<td>H</td>
<td>Q</td>
</tr>
<tr>
<td></td>
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</tr>
</tbody>
</table>

- Blank = Momentary
- L = Latching
- G = Green
- Y = Yellow
- R = Red
- B = Blue
- W = White
- X = Not Used

#### Wireless

<table>
<thead>
<tr>
<th>Family</th>
<th>Output State</th>
<th>Activation Method</th>
<th>Color</th>
<th>Function</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>K70</td>
<td>DXN2</td>
<td>T2</td>
<td>G</td>
<td>H</td>
<td>Q</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Y</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- DXN2 = Wireless 2.4 GHz
- DXN9 = Wireless 900 MHz

#### Additional accessories are available at bannerengineering.com

- SMB30A
- SMB30MM
- SMBAMS30P
- SSA-MBK-EEC1

- 5-Pin M12/Euro-Style
  Straight connector models listed; for right-angle models, add RA to the end of model number (example, MQDC1-506RA)

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

MQDC1-506 is also available in a wireless model:

- DXN2 = Wireless 2.4 GHz
- DXN9 = Wireless 900 MHz

MQDC1-506 Wireless is also available in a momentary or latching model:

- Blank = Momentary
- L = Latching

Laser Marking Available
K50L and K30L Illuminated Push Buttons

- Three sourcing inputs control the green, yellow and red indicator lights
- Ideal for use in abusive environments, featuring rugged, fully encapsulated construction
- Cabled and Euro Quick Disconnect models available
- Available in momentary push button output
Supply Voltage
K30L: 10 to 30 V dc
K50L: 12 to 30 V dc

Construction
Base: Polycarbonate
Translucent dome: Polycarbonate
Push button: Thermoplastic

Environmental Rating
IEC IP65

Operating Temperature
−40 to +50 °C (−40 to +122 °F)

Certifications

Family
K30L

Color
1
2
3
Input
Output
Connection

K30L
K50L

G = Green
Y = Yellow
R = Red
B = Blue
W = White
X = Not Used

P = PNP
PB2 = Momentary Push Button
Blank = 2 m Integral Cable
Q = Euro Integral QD
QP = Euro Pigtail QD
QD models require mating cordset

K30 Push Models

K50 Push Models

4-Pin M12/Euro-Style
For use with K30 models
Straight connector models listed; for right-angle models, add RA to the end of model number (example, MQDC-406RA)

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

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

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

5-Pin M12/ Euro-Style
Straight connector models listed; for right-angle models, add RA to the end of model number (example, MQDC1-506RA)

8-Pin M12/Euro-Style
For use with 3 color F2 models.
Straight connector models listed; for right-angle models, add RA to the end of model number (example, MQDC2S-806RA)

Additional accessories are available at bannerengineering.com
OTB Optical Touch Buttons

- OPTO-TOUCH Optical Touch Buttons are zero-force ergonomic replacements for mechanical push buttons.
- OTB models are momentary-action touch buttons with electromechanical relay or solid-state outputs.
Supply Voltage
Models for 105 to 130 V ac, 210 to 250 V ac (50/60 Hz), 10 to 30 V dc, or 20 to 30 V ac/dc

Construction
Upper Housing: Black polysulfone or Polycarbonate
Base: Fiber-reinforced PBT

Environmental Rating
IEC IP66
NEMA 1, 3, 4X, 12 and 13

Operating Temperature
-20 to +50°C (-4 to +122°F)

Certifications

Family
OTB

Output
VP6

Upper Housing Material
Blank = Polysulfone
L = Polycarbonate

Connection
QD

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

MBCC-406
1.83 m (6')
MBCC-412
3.66 m (12')
MBCC-430
9.14 m (30')

MBCC-506
1.83 m (6')
MBCC-512
3.66 m (12')
MBCC-530
9.14 m (30')

Optional Field Covers
Black OTC-1-BK
Green OTC-1-GN
Red OTC-1-RD
Yellow OTC-1-YW

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

* Only available for OTBVP6 or OTBVN6 models

VP6 = Complementary PNP (1 NO & 1 NC)
VN6 = Complementary NPN (1 NO & 1 NC)
VR81 = 20-30 V ac or dc SPDT electromechanical relay
A5 = 120 V ac SPDT electromechanical relay
B5 = 220/240 V ac SPDT electromechanical relay

4-Pin M12/
Euro-Style
Straight connector models listed; for right-angle models, add RA to the end of model number (example, MQDC-406RA)

4-Pin Mini-Style

5-Pin Mini-Style

Additional accessories are available at bannerengineering.com
VTB Verification
Touch Buttons

- Replaces capacitive touch switches and mechanical push buttons
- Features illuminated base (to provide a bright, easy-to-see job light) solid, flashing or multiple color models available
- Offers choice of models with red, green or blue job light
- Require no physical pressure to operate, eliminating hand, wrist and arm stresses associated with repeated switch operation
- Offers a cost-effective and easy-to-install pick-to-light solution for areas that cannot accommodate a light screen
- Cuts through heavy airborne contamination to function in almost any environment
- Withstands exposure to a variety of chemicals, depending on model
**One-Color Illuminated Base Models**

<table>
<thead>
<tr>
<th>Family</th>
<th>Output</th>
<th>Job Light Color</th>
<th>Upper Housing Material</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTB</td>
<td>P6</td>
<td>N6 = NPN, P6 = PNP</td>
<td>Blank = Polysulfone, R = Red, B = Blue</td>
<td>Q = Euro Integral QD, QP = Euro Pigtail QD</td>
</tr>
</tbody>
</table>

**Two-Color Illuminated Base Models**

<table>
<thead>
<tr>
<th>Family</th>
<th>Output</th>
<th>Job Light 1 Color</th>
<th>Job Light 2 Color</th>
<th>Upper Housing Material</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTB</td>
<td>P6</td>
<td>G = Green, R = Red, B = Blue</td>
<td>G = Green, R = Red, B = Blue</td>
<td>Blank = Polysulfone, L = Polycarbonate</td>
<td>Q = Euro Integral QD, QP = Euro Pigtail QD</td>
</tr>
</tbody>
</table>

**Supply Voltage**
12 to 30 V dc

**Construction**
Upper Housing: Polysulfone or polycarbonate
Base: White polycarbonate

**Environmental Rating**
IP66

**Operating Temperature**
-20 to +50 °C (-4 to +122 °F)

**Certifications**

---

**Optional Field Covers**

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

---

4-Pin M12/Euro-Style
For use with K30 models
Straight connector models listed; for right-angle models, add RA to the end of model number (example, MQDC-406RA)

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

5-Pin M12/ Euro-Style
Straight connector models listed; for right-angle models, add RA to the end of model number (example, MQDC1-506RA)

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

Additional accessories are available at bannerengineering.com
30 mm Mount Illuminated E-Stops

- Available with two-color: yellow and red, one color: red
- Reduces intensive labor costs with a fully enclosed E-Stop button ready for installation
- Multiple buttons can be wired in series, with built-in logic allowing for clear indication of pushed button
- Latching design complies with ISO 13850 direct (positive) opening operation per IEC 60947-5-1
- Rugged design rated to IP65
- Available with illuminated Safety BUS Gateway compatibility
Supply Voltage

12 to 30 V dc

Construction

Upper Housing: Polycarbonate/Polymide
Base: White polycarbonate

Environmental Rating

IP65, IP69K with cover

Operating Temperature

Temperature: –25 to +55 °C (–13 to +131 °F)
Humidity: 45% to 85% RH (no condensation)

Certifications

UL

CSS Series Hookup Cordset Solution

This interconnection solution allows for quick hookup of a series string of emergency stop buttons. The user must ensure that the CSS series hookup cordsets are installed so that they cannot be easily defeated by not allowing access to the QD connectors or allowing improper connection bypassing the function of the Emergency Stop.

Cordsets available on page 119
Flush-Mount Illuminated E-Stop Buttons

- Available with two-color: yellow (or green) and red or one color: red
- Rugged design rated to IP65
- Available with illuminated Safety BUS Gateway compatibility
- Latching design complies with ISO 13850 direct (positive) opening operation per IEC 60947-5-1
- Safe Break Action ensures NC contacts will open if the contact block is separated from the actuator
- Multiple buttons can be interfaced and series connected with CSS Series Hookup Cordsets
- Compliant with ANSI B11.19, ANSI NFPA79, and IEC/EN 60204-1 Emergency Stop requirements
### Illuminated Flush-mount E-Stop Push-Buttons

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Illumination</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSA-EB1PLYR-12ED1Q8</td>
<td>2NC / 1NO (PNP)</td>
<td>YEL/RED-Flash/Solid</td>
</tr>
<tr>
<td>SSA-EB1PLGR-12ED1Q8</td>
<td>2NC / 1NO (PNP)</td>
<td>GREEN/RED-Flash/Solid</td>
</tr>
<tr>
<td>SSA-EB1PLXR-12ED1Q8</td>
<td>2NC / 1NO (PNP)</td>
<td>OFF/RED-Flash/Solid</td>
</tr>
<tr>
<td>SSA-EB1PL-12ED1Q8</td>
<td>2NC / 1NO (PNP)</td>
<td>OFF/RED-Solid/Solid</td>
</tr>
<tr>
<td>SSA-EB1PLYR-02ED1Q5A</td>
<td>2NC – Safety BUS node compatible</td>
<td>YEL/RED-Flash</td>
</tr>
</tbody>
</table>

### Lockable Illuminated Flush-mount E-Stop Push-Buttons

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Illumination</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSA-EB1MLYRP-12ED1Q8</td>
<td>2NC / 1NO (PNP)</td>
<td>YEL/RED-Flash/Solid</td>
</tr>
<tr>
<td>SSA-EB1MLGRP-12ED1Q8</td>
<td>2NC / 1NO (PNP)</td>
<td>GREEN/RED-Flash/Solid</td>
</tr>
</tbody>
</table>

---

**Supply Voltage**

12 to 30 V dc

**Construction**

Upper Housing: Polycarbonate/Polymide Base: White polycarbonate

**Environmental Rating**

IP65

**Operating Temperature**

Temperature: −25 to +55 °C (−13 to +131 °F) Humidity: 45% to 85% RH (no condensation)

**Certifications**

[CE]

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### Diagram

- **Illuminated Flush-mount Model**
  - 80.3 mm
  - 80.8 mm
  - 102.1 mm
  - 111.9 mm

- **Lockable Illuminated Flush-mount Model**
  - 80.3 mm
  - 80.8 mm
  - 102.1 mm
  - 111.9 mm

---

E-stops can be cascaded. See diagram on page 117.
K30 Pick-to-Light Touch Buttons

- Ergonomic design requires no physical pressure to operate, preventing stress on hands and wrists
- Simple operation with the touch of a finger; easily actuated with bare hands or work gloves
- Rugged, fully encapsulated IP69K construction for high-pressure wash-down environments; Models with food grade materials available
- Models with either latching or momentary outputs
- Ideal for pick-to-light and call button applications in a variety of industries
- One-, two-, or three-color models available to solve a variety of applications
- Smart electric field sensing provides excellent immunity to false triggering from water spray, detergents and other foreign materials
- Superior electrical noise immunity
Independent Input/Output Models with up to Three Indicator Colors Controlled by Separate Inputs

The output is activated by touching the device and is totally independent of the indicator inputs.

<table>
<thead>
<tr>
<th>Family</th>
<th>Output State</th>
<th>Output Function</th>
<th>Output Type</th>
<th>Activation Method</th>
<th>Color (not activated)</th>
<th>Color (activated)</th>
<th>Function</th>
<th>Connection*</th>
</tr>
</thead>
<tbody>
<tr>
<td>K30</td>
<td>A</td>
<td>L</td>
<td>B</td>
<td>T2</td>
<td>G, Y, R</td>
<td>G, Y, R</td>
<td>C3</td>
<td>Q</td>
</tr>
<tr>
<td></td>
<td>A = Normally Open</td>
<td>L = Momentary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Blank = 2 m Integral Cable</td>
</tr>
<tr>
<td></td>
<td>R = Normally Closed</td>
<td>Blank = Momentary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2 m Integral Cable</td>
</tr>
</tbody>
</table>

One- or Two-Color Momentary or Latching Bipolar (1 NPN and 1 PNP) Output Models

These models do not have inputs to control the indicator. The color of the indicator is determined by the non-activated or activated condition.

<table>
<thead>
<tr>
<th>Family</th>
<th>Output State</th>
<th>Output Function</th>
<th>Output Type</th>
<th>Activation Method</th>
<th>Color (not activated)</th>
<th>Color</th>
<th>Function</th>
<th>Connection*</th>
</tr>
</thead>
<tbody>
<tr>
<td>K30</td>
<td>A</td>
<td>L</td>
<td>B</td>
<td>T2</td>
<td>G, Y, R</td>
<td>G, Y</td>
<td>C</td>
<td>Q</td>
</tr>
<tr>
<td></td>
<td>A = Normally Open</td>
<td>L = Momentary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Blank = 2 m Integral Cable</td>
</tr>
<tr>
<td></td>
<td>R = Normally Closed</td>
<td>Blank = Momentary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2 m Integral Cable</td>
</tr>
</tbody>
</table>

Supply Voltage 12 to 30 V dc

Construction
Housing: Polycarbonate
Translucent dome: Polycarbonate
Mounting Nut: PBT

Environmental Rating
IEC IP67, IP69K per DIN 40050

Operating Temperature
−40 to +50 °C (−40 to +122 °F)

Certifications

<table>
<thead>
<tr>
<th>Function</th>
<th>Connection*</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3</td>
<td>Q</td>
</tr>
<tr>
<td>blank</td>
<td>2 m Integral Cable</td>
</tr>
</tbody>
</table>

Blank = 2 m Integral Cable
Q = Euro Integral QD
QP = Euro Pigtail QD
QQ models require mating cordset

* FDA Grade models only available with pigtail QD

---

4-Pin M12/Euro-Style
Straight connector models listed;
for right-angle models, add RA to the end of model number
(example, MQDC-406RA)

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

Additional accessories are available at bannerengineering.com
K50 Pick-to-Light Touch Buttons

- Ergonomic design requires no physical pressure to operate, preventing stress on hands and wrists
- Simple operation with the touch of a finger, hand or whole palm
- Easily actuated with bare hands or work gloves
- Rugged, fully encapsulated IP69K construction for high-pressure wash-down environments
- Models with either latching or momentary outputs
- Ideal for pick-to-light and call button applications in a variety of industries
- One-, two- and three-color models available to solve a variety of applications
### One- or Two-Color

<table>
<thead>
<tr>
<th>Family</th>
<th>Output State</th>
<th>Input</th>
<th>Activation Method</th>
<th>Color</th>
<th>Job</th>
<th>Sense</th>
<th>Function</th>
<th>Connection*</th>
</tr>
</thead>
<tbody>
<tr>
<td>K50</td>
<td>A</td>
<td>P</td>
<td>T2</td>
<td></td>
<td>G</td>
<td>R</td>
<td>C</td>
<td>Q</td>
</tr>
<tr>
<td>K50C</td>
<td>Normally Open</td>
<td>PNP</td>
<td>T2F</td>
<td></td>
<td>G</td>
<td>R</td>
<td>1-Color Only</td>
<td>Blank = 2 m Integral Cable</td>
</tr>
</tbody>
</table>

- **A** = Normally Open
- **R** = Normally Closed
- **P** = PNP
- **N** = NPN
- **T2** = Touch
- **T2F** = Touch FDA Grade
- **G** = Green
- **Y** = Yellow
- **R** = Red
- **B** = Blue
- **W** = White
- **X** = Not Used

### Three-Color

<table>
<thead>
<tr>
<th>Family</th>
<th>Output State</th>
<th>Input</th>
<th>Activation Method</th>
<th>Color</th>
<th>Job</th>
<th>Mispick</th>
<th>Sense</th>
<th>Function</th>
<th>Connection*</th>
</tr>
</thead>
<tbody>
<tr>
<td>K50</td>
<td>A</td>
<td>P</td>
<td>T2</td>
<td></td>
<td>G</td>
<td>Y</td>
<td>R</td>
<td>C3</td>
<td>Q</td>
</tr>
<tr>
<td>K50C</td>
<td>Normally Open</td>
<td>PNP</td>
<td>T2F</td>
<td></td>
<td>G</td>
<td>Y</td>
<td>R</td>
<td>C3</td>
<td>Blank = 2 m Integral Cable</td>
</tr>
</tbody>
</table>

- **A** = Normally Open
- **R** = Normally Closed
- **P** = PNP
- **N** = NPN
- **T2** = Touch
- **T2F** = Touch FDA Grade
- **G** = Green
- **Y** = Yellow
- **R** = Red
- **B** = Blue
- **W** = White
- **X** = Not Used

* FDA Grade models only available with pigtail QD

### Supply Voltage

| 12 to 30 V dc |

### Construction

- Housing: Polycarbonate
- Translucent dome: Polycarbonate
- Mounting Nut: PBT

### Environmental Rating

- Standard: UL Type 4x, 13
- FDA Grade: UL Type 4x
- IEC IP67, IP69K per DIN 40050

### Operating Temperature

| −40 to +50 °C (−40 to +122 °F) |

### Certifications

![CE]![UL]

### Additional Accessories

- SMB30A
- SMB30FA
- SMB30FVK
- SMB30SC

![Touch Guard](bannerengineering.com)

- **4-Pin M12/Euro-Style**
  - For use with K30 models
  - Straight connector models listed: for right-angle models, add RA to the end of model number (example, MQDC-406RA)

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

- **5-Pin M12/ Euro-Style**
  - Straight connector models listed: for right-angle models, add RA to the end of model number (example, MQDC1-506RA)

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

- **8-Pin M12/ Euro-Style**
  - For use with 3 color F2 models.
  - Straight connector models listed: for right-angle models, add RA to the end of model number (example, MQDC2S-806RA)

| MQDC2S-806 | 2 m (6.5') |
| MQDC2S-815 | 5 m (15') |
| MQDC2S-830 | 9 m (30') |
K70 Illuminated Pick-to-Light Touch Button

- 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; requires no physical force to operate
- Can be actuated with bare hands or work 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
- One-, two- and three-color models available
Supply Voltage and Current
12 V to 30 V dc; 220 mA Max. at 12 V dc;
110 mA Max. at 30 V dc

Supply Protection Circuitry
Protected against transient voltages

Construction
Housing: Polycarbonate
Dome: Polycarbonate

Environmental Rating
IEC IP65

Operating Temperature
–40 to 50 ºC

Certifications
UL Listed
CE

Pick-To-Light

Family | Output State | Input | Activation Method | Color | Function | Connection
---|---|---|---|---|---|---
K70 | A | P | T2 | Not Activated | G | 1-Color Only | Blank = 2 m Integral Cable
R | Normally Closed | PNP | Touch | Activated | X | D = Pick-to-Light

Specialty Models

Family | Output State | Input | Activation Method | Color 1 | Color 2 | Color 3 | Function | Connection
---|---|---|---|---|---|---|---|---
K70 | A | P | T2 | G | R | Y | C4 = Specialty Pick-to-Light | Blank = 2 m Integral Cable
R | Normally Closed | PNP | Touch | Activated | Activated | Activated | Q = Euro Integral QD

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

5-Pin M12/Euro-Style
Straight connector models listed; for right-angle models, add RA to the end of model number (example, MQDC1-506RA)

Additional accessories are available at bannerengineering.com
K50 Optical Pick-to-Light Series

- Rugged, cost-effective and easy-to-install solutions for error-proofing and parts-verification applications
- Illuminated dome provides easy-to-see job light status
- Choose either polarized retro-reflective or fixed-field models
- Fully encapsulated IP67 construction
### One- or Two-Color Models

<table>
<thead>
<tr>
<th>Family</th>
<th>Output State</th>
<th>Input</th>
<th>Sensing Mode</th>
<th>Range</th>
<th>Color</th>
<th>Function</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>K50</td>
<td>A</td>
<td>P</td>
<td>FF</td>
<td>50</td>
<td>G</td>
<td>C</td>
<td>Q</td>
</tr>
</tbody>
</table>

- **A** = Normally Open
- **R** = Normally Closed
- **P** = PNP
- **N** = NPN
- **LP** = Polar Retro
- **FF** = Fixed-Field
- **Blank** = LP models
- **G** = Green
- **R** = Red
- **B** = Blue
- **W** = White
- **X** = Not Used

#### Sensing Range
- Polarized Retroreflective: 2.0 m
- Fixed-field: 50 mm or 100 mm

#### Supply Voltage
- 12 to 30 V dc

#### Construction
- Housing: Polycarbonate
- Translucent dome: Polycarbonate
- Mounting Nut: PBT

#### Environmental Rating
- IEC IP67, IP69K per DIN 40050

#### Operating Temperature
- −40 to +50 °C (−40 to +122 °F)

#### Certifications
- Some models pending. Contact factory for additional information.

---

### Three-Color Models

<table>
<thead>
<tr>
<th>Family</th>
<th>Output State</th>
<th>Input</th>
<th>Sensing Mode</th>
<th>Range</th>
<th>Color</th>
<th>Function</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>K50</td>
<td>A</td>
<td>P</td>
<td>FF</td>
<td>50</td>
<td>G</td>
<td>C3</td>
<td>Q</td>
</tr>
</tbody>
</table>

- **A** = Normally Open
- **R** = Normally Closed
- **P** = PNP
- **LP** = Polar Retro
- **FF** = Fixed-Field
- **Blank** = LP models
- **G** = Green
- **Y** = Yellow
- **R** = Red
- **B** = Blue
- **W** = White

#### Sensing Range
- C3 = Specialty Pick-to-Light
- C4 = Specialty Pick-to-Light

#### Supply Voltage
- 12 to 30 V dc

#### Construction
- Housing: Polycarbonate
- Translucent dome: Polycarbonate
- Mounting Nut: PBT

#### Environmental Rating
- IEC IP67, IP69K per DIN 40050

#### Operating Temperature
- −40 to +50 °C (−40 to +122 °F)

#### Certifications
- Some models pending. Contact factory for additional information.

---

### Additional Accessories
- **BRT-2X2**
- **BRT-35X35B**
- **BRT-51X51BM**
- **BRT-50D**
- **BRT-100X18A**

- **BRT-THG-1-100**
- **BRT-THG-2-100**
- **BRT-THG-3-100**
- **BRT-TVHG-2X2**

Additional accessories are available at bannerengineering.com
K50 Modbus
Pick-to-Light Series

- Rugged, cost-effective and easy-to-install solutions for error-proofing and parts-verification applications
- Illuminated dome provides easy-to-see job light status
- Choose either polarized retroreflective or fixed-field models
- Fully encapsulated IP67 construction
- User can customize or select standard function configurations
- Modbus communication minimizes the cabling and system programming requirements
**Family**

- **K50**

**Sensing Mode**

- **FF** = Fixed-Field

**Range**

- **50** = 50 mm
- **100** = 100 mm

**LED Color**

- **G** = Green
- **Y** = Yellow
- **R** = Red
- **B** = Blue
- **W** = White

**Bus Indicator**

- **S1** = Modbus see page 100

**Connection**

- **Q**
  - Blank = 2 m Integral Cable
  - Q = Euro Integral QD
  - QP = Euro Pigtail QD
  - QD models require mating cordset

---

**Sensing Range**

- Polarized Retroreflective: 2.0 m
- Fixed-field: 50 mm or 100 mm

**Supply Voltage**

- 12 to 30 V dc

**Construction**

- Housing: Polycarbonate
- Translucent dome: Polycarbonate
- Mounting Nut: PBT

**Environmental Rating**

- IEC IP67

**Operating Temperature**

- −40 to +50 °C (−40 to +122 °F)

**Certifications**

- CE

---

**Images**

- SMB30A
- SMB30FA
- SMB30RAVK
K30/K50/K80 Push Button Pick-to-Light Series

- Illuminated dome provides an easy-to-see green job light some models also light red for alternate operation
- Up to three independent colors in one unit
- Waterproof IP65 construction for wet environments
- Immune to EMI and RFI interference
- 12 to 30 V dc operation
- Cabled and Quick Disconnect models available
**One- or Two-Color**

<table>
<thead>
<tr>
<th>Family</th>
<th>Output State</th>
<th>Sensing Mode</th>
<th>LED Color</th>
<th>Function</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>K30</td>
<td>A</td>
<td>PB</td>
<td>G</td>
<td>D</td>
<td>Q</td>
</tr>
<tr>
<td>K50</td>
<td>P</td>
<td>PB</td>
<td>R</td>
<td>C</td>
<td>Q</td>
</tr>
<tr>
<td>K80</td>
<td></td>
<td></td>
<td>B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| A = Normally Open | P = Normally Closed |

* K30 models only available with Normally Open PNP output

**Three-Color**

<table>
<thead>
<tr>
<th>Family</th>
<th>Output State</th>
<th>Sensing Mode</th>
<th>LED Color</th>
<th>Function</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>K50</td>
<td>A</td>
<td>PB</td>
<td>G</td>
<td>C3</td>
<td>Q</td>
</tr>
<tr>
<td>K80</td>
<td></td>
<td></td>
<td>Y</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| A = Normally Open |

* Blank = Terminal Wired [K30 only]
* Q = Euro Integral QD
* QP = Euro Pigtail QD
* QPMA = PUR Euro Pigtail QD

**Supply Voltage**

12 to 30 V dc

**Construction**

Base and Translucent Dome: Polycarbonate
Push Button: Thermoplastic or Stainless Steel

**Environmental Rating**

K30: IP65  Other models: IP67

**Operating Temperature**

−40 to +50 °C (−40 to +122 °F)

**Certifications**

[UL/CUL]
PVD Diffuse/Retroreflective Parts Verification Array

- One-component system, easy to mount and even easier to use. Automatically operates in either diffuse or retroreflective mode, depending on the application.
- Automatic setup and adjustment; wide beam pattern provides easy alignment.
- Range up to 2 m (6.5 ft) when used with retroreflective target; 400 mm (15.7 in) when used in diffuse mode.
- Large job lights on either side of the metal housing can be remotely controlled to initiate user action with a solid or a blinking green light; job lights turn red to indicate bin-picking errors.
- Compact package size; only 30 mm wide x 15 mm deep (1.2 in x 0.6 in).
- Available in 2 lengths to fit existing parts bin sizes and configurations.
- Heavy-duty protective brackets available.
Sensing Range
Retroreflective: 2 m
Diffuse: 400 mm

Supply Voltage
12 to 30 V dc

Construction
Housing: Black painted aluminum
Lenses: Acrylic
End Caps: Thermoplastic
Switch Cover: Thermoplastic

Environmental Rating
NEMA 2; IEC IP62

Operating Temperature
0 to +50 °C (+32 to 122 °F)

Certifications

<table>
<thead>
<tr>
<th>Models</th>
<th>No. of Beams</th>
<th>Sensing Length (L1)</th>
<th>Overall Length (L2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVD100</td>
<td>4</td>
<td>100 mm</td>
<td>137.8 mm</td>
</tr>
<tr>
<td>PVD225</td>
<td>8</td>
<td>225 mm</td>
<td>266.4 mm</td>
</tr>
</tbody>
</table>

4-Pin M12/Euro-Style
For use with K30 models
Straight connector models listed; for right-angle models, add RA to the end of model number (example, MQDC-406RA)

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

5-Pin M12/ Euro-Style
Straight connector models listed; for right-angle models, add RA to the end of model number (example, MQDC1-506RA)

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

Additional accessories are available at bannerengineering.com
PVL Retroreflective Parts Verification Array

- Cost-effective coverage with the highest reliability
- Opto-mechanical alignment with bright red emitter beams allows for easy setup
- Easy installation with no assembly required
- Can mount directly to racking profile vertically or horizontally
- Rugged, metal compact housing for high durability
- Highly visible, two-color integrated job LED arrows for confirmation of correct pick or indication of mis-pick
- Retroreflective tape can be placed on adjacent unit or one of the brackets for reduced installation costs
- Large mounting holes for securing directly to slotted racking systems
- Slotted housing design allows cable to exit on either end
Sensing Range: Retroreflective: 1.5 m
Supply Voltage: 12 to 30 V dc
Construction: Housing: aluminum anodized
Translucent Indicator: polycarbonate
Environmental Rating: IP50
Operating Temperature: 0 to +50 °C (+32 to 122 °F)
Certifications: 4-Pin M12/Euro-Style

<table>
<thead>
<tr>
<th>Models</th>
<th>No. of Beams</th>
<th>Sensing Length (L1)</th>
<th>Hole-to-Hole Length (L2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVL225</td>
<td>4</td>
<td>225 mm</td>
<td>327.5 mm</td>
</tr>
<tr>
<td>PVL500</td>
<td>8</td>
<td>500 mm</td>
<td>608.0 mm</td>
</tr>
</tbody>
</table>

4-Pin M12/Euro-Style
Straight connector models listed; for right-angle models, 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')

BRT-THG-1-100
Replacement retroreflective tape
BRT-84X84A
Long Range Reflectors

Additional accessories are available at bannerengineering.com
PVA Opposed-Mode
Parts Verification Array

- Compact package, available in 4 lengths to fit many sizes and configurations of existing parts bins
- Range up to 2 m (6.5 ft)
- Two-component system (asynchronous emitter and receiver) needs no sync wire or controller box
- Clearly visible green job indicator lights mounted on either side of emitter and receiver housings; the light can be remotely controlled to initiate user action with a solid ON or blinking condition
- Two frequency settings to prevent crosstalk in close-proximity, multiple-array installations
- Heavy-duty protective brackets available
Sensing Range 2 m
Supply Voltage 12 to 30 V dc
Construction Housing: Black painted aluminum
Lenses: Acrylic
End Caps: PBT
Switch Cover: Thermoplastic
Environmental Rating NEMA 2; IEC IP62
Operating Temperature 0 to +50 °C (+32 to 122 °F)
Certifications

<table>
<thead>
<tr>
<th>Models</th>
<th>No. of Beams</th>
<th>Sensing Length (L1)</th>
<th>Overall Length (L2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVA100</td>
<td>5</td>
<td>100 mm</td>
<td>137.8 mm</td>
</tr>
<tr>
<td>PVA225</td>
<td>10</td>
<td>225 mm</td>
<td>266.4 mm</td>
</tr>
<tr>
<td>PVA300</td>
<td>13</td>
<td>300 mm</td>
<td>341.4 mm</td>
</tr>
<tr>
<td>PVA375</td>
<td>16</td>
<td>375 mm</td>
<td>416.6 mm</td>
</tr>
</tbody>
</table>

SMBPVA1 pair included with the PVA
SMBPVA2 for use on 28 mm pipe
SMBPVA6 for use on 28 mm pipe
SMBPVA5 Protective Bracket

Additional accessories are available at bannerengineering.com

4-Pin M12/Euro-Style
Straight connector models listed; for right-angle, add RA to the end of the model number (example, MQDC-406RA)
Backlights
A part to be inspected is placed between the camera and a bright, even light source. The result creates a silhouette of the target which is useful in edge detection, part presence and measurement applications.

Ring Lights
A Ring Light is affixed to the camera and both items can be mounted as one piece for convenience. This setup is useful for relatively small parts or close up applications.

Low-Angle Ring Lights
Also called a dark field illuminator, this specialty light has its LEDs mounted in a ring, pointing toward the part almost perpendicular to the camera’s direction of view. Low-Angle Ring lights create shadows and bright spots, and are useful in detecting changes in depth.

Directional Lights
Directional lights, available in a variety of housings, create shadows to detect changes in depth, illuminate specific surface angles, and avoid glare off reflective surfaces when directed at an angle away from camera.

On-Axis Lights
On-Axis, or coaxial, lights generates light that travels along the same axis as the camera’s direction of view. The camera looks down from the top, through the On-Axis light, to the target part below. This technique is useful in eliminating shadows, inspecting shiny objects, or inspecting for height changes.

Structured Lights
A laser line generator is an example of a structured lighting scheme. This technique uses a high quality, uniform laser line to infer the presence of a difficult to see target. As a three-dimensional part passes through the laser line’s path, the image of the laser becomes distorted so the camera can detect the part.

Washdown
The Banner portfolio of heavy-duty lights includes products suitable for use in washdown environments, hazardous locations, and high temperature applications. Several of these lights are resistant to common cleaning chemicals, as well being resistant to cutting oils and fluids, making them useful in harsh environments.
Backlights

A part to be inspected is placed between the camera and a bright, even light source. The result creates a silhouette of the target which is useful in edge detection, part presence and measurement applications.

Ring Lights

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visit www.bannerengineering.com for more information
Pro Editor is ideal for those who don’t have IO-Link, but who want more control and customization than a standard indicator. The Pro Editor software must be used with a Pro converter cable, which is sold separately.

IO-Link is an open standard serial communication protocol that allows for the bi-directional exchange of data from IO-Link supported sensors that are also connected through a master.

Pick-IQ is a purpose-built, Modbus compatible serial bus protocol that uses a Common ID to reduce the typical latency that results from polling multiple devices.

<table>
<thead>
<tr>
<th>Pro Editor Models</th>
<th>PRO</th>
<th>IO-Link</th>
<th>PICK-IQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>K50 Pro Indicator</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>K50 Pro Compact Indicator</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>K30 Pro Indicator</td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S22 Pro Indicator and S22 Pro Touch Button</td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K50 Pro Touch Button</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>K50 Pro Touch Button with Vibration Feedback</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>TL50 Pro</td>
<td>✔</td>
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<td>WLS27 Pro</td>
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Product Line Extensions

WLS28-2 Multicolor
- Three and five color models cover all standard indication states with only four wires to connect
- Combine illumination and multiple indication capabilities in a single device to simplify installation and improve ergonomics
- EZ-STATUS® promotes faster response to status changes and reduces the risk of costly mistakes and accidents

Heavy-Diffuse WLS27
- Now available with heavy diffuse windows for reduced intensity and a more uniform light distribution

WLS15 Dual Color
- Dual-color models with EZ-STATUS® combine illumination and indication in one light fixture
New Solutions

Challenge
• Operators standing close to the machine need to be alerted to changes in status
• Larger tower lights with a brighter light output can strain the eyes if a worker stands in close proximity for long periods of time

Solution
• TL30 tower lights display machine status with a clearly visible but comfortable light output that workers can be nearby for extended periods of time
• The slim 30 mm diameter is suitable a for a wide range of machines, including equipment where space is limited
• Uniform indicator segments appear gray when off, eliminating false indication from ambient light

Challenge
• Visibility is critical for equipment inspection and maintenance on a skid
• The presence of oil or gas qualifies the area as Class I Division 2

Solution
• HLS27 provides bright light so personnel can verify equipment status
• The slim design easily fits under the roof without obstructing the work area or view
• Dimming options give the operator control of intensity and provide energy savings
• The HLS27 also fits cleanly in the control cabinet
• Color options are available for integrated, location specific status indication

Challenge
• Truck drivers need to know when to advance through the wash and when to wait or proceed with caution
• Most stoplights cannot withstand the harsh environment inside the wash and therefore cannot be mounted close enough to the process for drivers to easily see status changes. In addition, traditional stoplights are often not bright enough to see well in outdoor settings.

Solution
• WLS27 segmented strip lights provide reliable performance in harsh environments
• Bright light output and long length of the strip light generate highly visible indication that can be easily identified from a distance or at an angle
• WLS27 segmented models can display multiple conditions simultaneously like a standard tower light
• Cascadable for increased visibility with no additional wiring
Challenge
• Hard guards around robotic work cells can block overhead lighting, resulting in a dimly lit area
• Poor lighting makes maintenance more challenging to complete quickly and effectively, while harsh lighting can create an uncomfortable work environment for staff

Solution
• WLB72 strip lights brightly illuminate the area so staff can easily monitor and maintain equipment
• The diffuse window reduces glare and hotspots, which can cause eye strain
• Adding light where needed is a more budget-friendly solution than adding more high bay fixtures
• The energy-efficient LED lights provide years of maintenance-free operation and a low total cost of ownership (TCO)

Challenge
• Work cycles can vary in length, and periodically an operator will need to enter the robotic cell during a work cycle
• Shutting the robot off with an emergency stop button will bring operations to a sudden halt and can damage the robot as well as the material being worked upon

Solution
• OS80 Operator Switch is easy-to-install in any location
• Easily actuated by a gloved or bare hand without worry of false actuation
• The tactile operation and bright illuminated base indicator provides unmistakable mechanical and visual feedback when the OS80 has been actuated

Challenge
• Operators looking at the sensors were unable to see when the output was active
• Difficult to troubleshoot the issues that arose on the assembly line, causing costly downtime

Solution
• S15L In-Line Sensor Status Indicators can be mounted in-line with a sensor for 360 degree-visibility of power and status
• 4 LEDs contained in the device produce two colors, green and yellow, to identify power and output status
• Low-profile design makes it ideal for bright indication in tight spaces

Challenge
• Manufacturers want to find ways to streamline productivity on their assembly lines
• Operators frequently grab from the wrong location and install incorrect components

Solution:
• Pick-to-Light Solutions Kit is an enclosure with a DXM Controller on the inside and an HMI on the outside that is ready to connect to power and PTL110 devices
• The built-in configurations decrease installation costs, improve pick sequences, and ensure flexible pick functionality
• Pick-to-Light devices and systems help manufacturers reduce the risk of error in the assembly process, boosting product quality and reducing cost
More Information Online

For the latest as well as legacy products, brackets, cordsets, accessories, and new solutions, find us on the web at www.bannerengineering.com.

You also have access to more detailed information such as engineering drawings, complete specifications, installation instructions, product configurators and product videos.

- T18 and T30 T-Style Indicators
- T8L T-Style Indicators
- K80 Call Light Battery Powered Flashing Indicators
- K80L Flat-Mount Domed Indicators
- M18 Metal Barrel Indicators
- TL30F Linear Segmented Indicators
- LTB Optical Touch Buttons
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