

EZ-LIGHT™ Solutions for Connectivity

Assembly



Automotive



Material Handling



Packaging



Robotics



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Banner lights the way for leaner manufacturing.

At the heart of continuous improvement: Banner innovation

Enabling and optimizing manufacturing solutions for a broad cross-section of industries worldwide remains the mission of Banner Engineering. With more than 20,000 sensor, safety, vision and automation products available worldwide, Banner is the most innovative and experienced name in sensors. For simple to complex applications, Banner has more sensor solutions than any other manufacturer.

The innovation leader with more than 40 years of sensor development and application expertise, Banner understands the challenges of sensing in manufacturing and process industries. Banner innovation enhances productivity, ensures quality and solves the most challenging manufacturing applications in the world's leading industries.

Beyond Andon: EZ-LIGHT™ the next generation of operator guidance

Banner's EZ-LIGHT family of products provide numerous solutions for visual process management and operator guidance. From innovative multi-color indicator lights to pick-to-light and sequence-guided error-proofing and productivity solutions, EZ-LIGHTs replace conventional pick-to-light devices and provide process refinement in ways never before possible. Incorporating sensor technology into operator guidance indicators ensures virtually error-free assembly and the highest levels of productivity.

EZ-LIGHT™ solutions provide the following:

- Real-time operational status indication for workers and supervisors
- Operator prompting and sequential part selection
- Error proofing with sensor or push-button verification
- Point sensing or arrays for wide area pick-to-light
- Easy installation without certified personnel
- Compatibility with PLC or other logic-level control outputs
- Reduced costs, defects and Muda (waste)
- Improved plant rhythm, productivity and efficiency



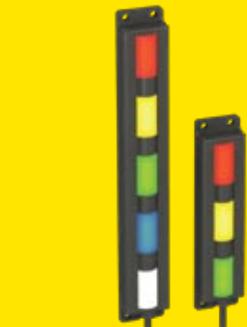
What's new to the EZ-LIGHT™ Family:



General-Purpose and Sensor Emulator Indicators

Features three new indicator housings

- K50FL Flat-Pack with 50 mm dome/flat mount
- K30L with 30 mm dome/22 mm mount
- CL50 Column Light with large single illuminated segment/30 mm mount



TL30F Tower Light

Features multi-color, multi-segment indication for surface mounting



WL50F Work Lights

Provides bright, even illumination in areas where space is limited, including control cabinets and panels



Audible Indicators

Adds steady or pulsed audible indication to the EZ-LIGHT TL50 Tower Light, CL50 Column Light, and K50L and K80L Dome Lights





Connection: Segmented and Audible—5-pin Euro/M12 QD
All others—4-pin Euro/M12 QD

QPMA: 150 mm (6") PUR pigtail QD

QP: 150 mm (6") PVC pigtail QD

Q: Integral QD

Blank: 2 m attached cable

Terminal-wired (K80L only)

Compatibility: I/O Block



Other Colors Available

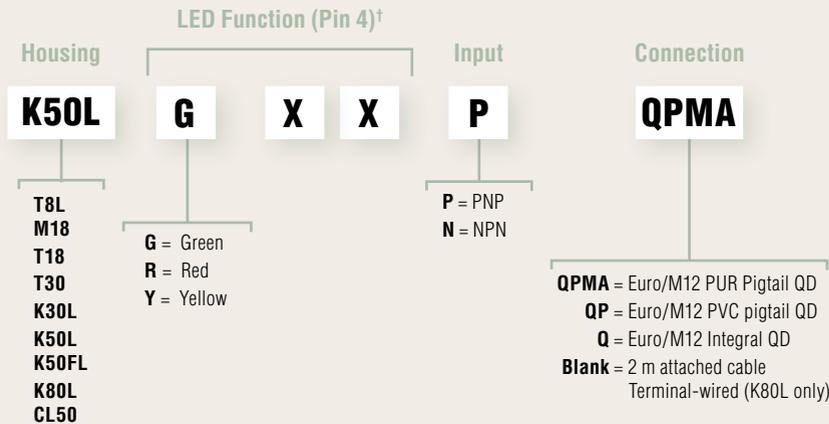
EZ-LIGHT™ General-Purpose Indicators: Three-Color LED

Indicators provide three colors from two outputs for simple and economical visual indication of process status.

Models	LED Function*	Inputs**
T30GRY6PQPMA	3-Color Logic: Green (Pin 4) Red (Pin 2) Yellow (Pin 2 & 4)	PNP
K50LGRY6PQPMA		
K50FLGRY6PQPMA		
K80LGRY6PQPMA		
	Lights independently selected	

EZ-LIGHT™ General-Purpose Indicators: Single-Color LED

Single-color indicators offer a simple and economical way to visually indicate process status.



EZ-LIGHT™ Indicators: Audible

Audible indicators combine visible light indication with audio alerts to indicate process status.

Models	Audible Alert***	Function*	Input**
K50LGXRA1XPQPMA	Steady Tone (75 dB)	2-Color & Audible Logic: Green (Pin 4) Red & Audible (Pin 2)	PNP
K50LGXRAL1XPQPMA	Loud Steady Tone (95 dB)		

* Contact factory or visit bannerengineering.com for standard or additional I/O block compatible models.

** For NPN model, replace **P** in model number with **N** (example, **K50LGRY6NPQMA**).

*** Typical decibel level is at a distance of 1 m.

† Single-Color Logic: Pin 4 (PNP input) is compatible with most I/O blocks. Contact factory for other colors.

†† Combiner cordset **CSF-M12F51M12M41** required for compatibility with 2-output I/O block port, see back cover.

EZ-LIGHT™ Indicators: Segmented Displays

Indicators provide simultaneous one, two, three or four color display for multiple status indication.

Models	LED Function	Inputs**
 K80L4GRYB1PQ††	Color 1: Green Color 2: Red Color 3: Yellow Color 4: Blue	PNP
 K80L3THGRYX1PQ††	Color 1: Green Color 2: Red Color 3: Yellow	
 K80L2HGXR1PQ	Color 1: Green Color 2: Red	
 K80L1WXXX1PQ	White	

mm mount
polyester



K50L



K50FL



K80L



CL50

EZ-LIGHT™ Sensor Emulation Indicators: Two & Three-Color LED

- Two-color sensor output emulator provides high-visibility of sensor ON/OFF (PASS/FAIL) state.
- Indicator connects to existing sensor installations using a parallel wired Y-cord, see back cover.

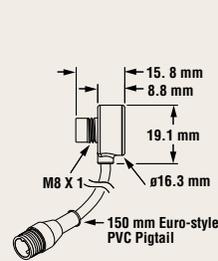
Connection: 150 mm (6") 4-pin Euro/M12 PUR Pigtail QD

Models	LED Function	Inputs*
M18RGX7PQPMA	2-Color Sensor Emulation Logic: Sensor OFF-Red (Pin 1) Sensor ON-Green (Pin 4)	PNP
T18RGX7PQPMA		
T30RGX7PQPMA		
K30LRGX7PQPMA		
K50LRGX7PQPMA		
K50FLRGX7PQPMA		
CL50RGX7PQPMA		
K80LRGX7PQPMA		
T8LRGX7PQPMA		

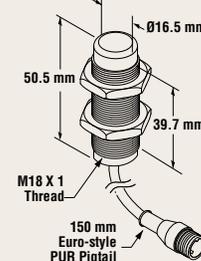
* For NPN model, replace **P** in model number with **N** (example, **M18RGX7PQPMA**).

EZ-LIGHT™ Indicators: Dimension Drawings

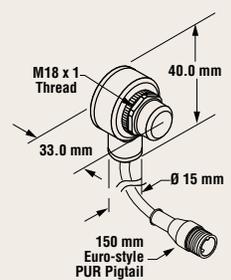
T8L Models



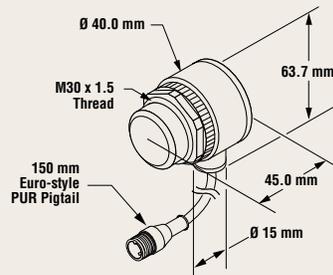
M18 Models



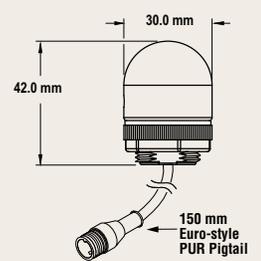
T18 Models



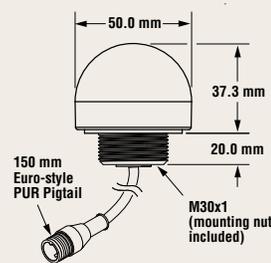
T30 Models



K30L Models

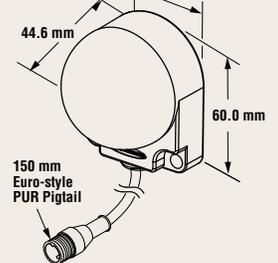


K50L Models

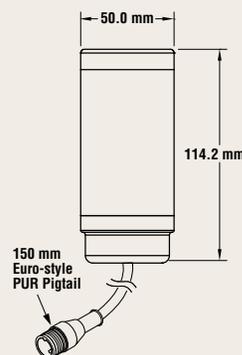


- 1 = Brown
- 2 = White
- 3 = Blue
- 4 = Black

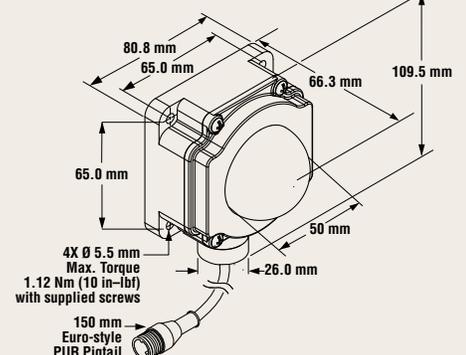
K50FL Models



CL50 Models



K80L Models



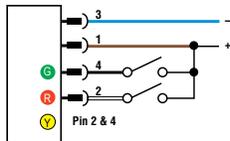
EZ-LIGHT™ Indicators: PNP Hookups

Key

- 1 = Brown
- 2 = White
- 3 = Blue
- 4 = Black
- 5 = Gray

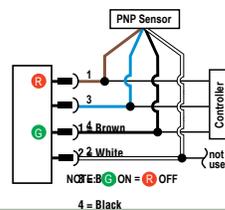
3-Color Models

General-Purpose Green, Red, Yellow



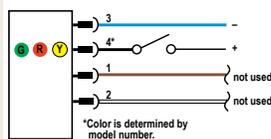
2-Color Models

Sensor Emulator Green, Red



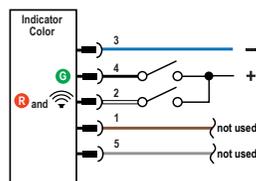
1-Color Models

General-Purpose



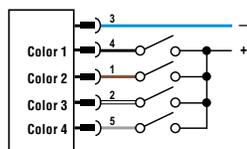
*Color is determined by model number.

K50L Audible Models



Segmented Models†

Green, Red, Yellow, Blue



†Hookup is for 4 segment models. Depending on the number of segments, pins 5, 2 and 1 may not be used.



EZ-LIGHT™ Pick-to-Light Sensors and Actuators

- 150 mm (6") pigtail quick-disconnect (PUR) with common Euro/M12 connection for quick and easy installation
- K50/K80 dome-style indicators with sensors or push-button actuators
- VTB smart, verification touch buttons for many applications



K80

- 50 mm dome/Flat or DIN-mount
- Thermoplastic polyester



K50

- 50 mm dome/30 mm mount
- Thermoplastic polyester

K50 & K80 Series: Pick-to-Light/Single-Point Sensing with Integrated Pick, Sensing Acknowledgement and "Mispick" Light

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

Connection: 150 mm (6")
PUR Pigtail QD

C models:
4-pin Euro/M12 QD

C3 and C4 models:
5-pin Euro/M12 QD

Models			Sensing Mode/LED*	Range	Output**	Output Type†
Green with Yellow Sensing Acknowledgement (C)	Green with Yellow Sensing Acknowledgement & Red Mispick Light (C3)	Green with Yellow Sensing Acknowledgement & Red Mispick Light (5-Second OFF-Delay) (C4)				
K50RPLPGYCQPMA	K50RPLPGRYC3QPMA	K50RPLPGRYC4QPMA	POLAR RETRO	2 m	NC	PNP
K50APFF50GYCQPMA	K50APFF50GRYC3QPMA	K50APFF50GRYC4QPMA	FIXED-FIELD	50 mm	NO	
K50APFF100GYCQPMA	K50APFF100GRYC3QPMA	K50APFF100GRYC4QPMA		100 mm	NO	
K50APPBGYCQPMA	K50APPBGRYC3QPMA	K50APPBGRYC4QPMA	PUSH-BUTTON	—	NO	
K80APPBGYCQPMA	K80APPBGRYC3QPMA	K80APPBGRYC4QPMA		—	NO	

* Visible Red LED Infrared LED NO = Normally Open, NC = Normally Closed

** Models listed turn output ON when hand is present. Alternate models are available.

† PNP models are listed. For NPN model, replace **P** in model number with **N** (example, **K50RNLPGRYC3QPMA**).



VTB Series: Ergo Actuators with Integrated Pick Light

- Illuminated base provides an easy-to-see pick light.
- Ergonomically designed touch buttons used for part-pick, material call and andon applications.



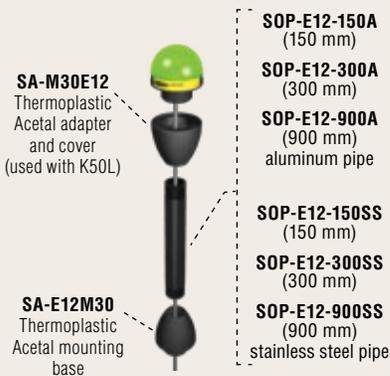
Models	Upper Housing	Connection	Pulse* (OFF delay)	Output Type**	Pick Light
VTBP6QPMA12	Polysulfone	150 mm (6") 4-Pin Euro/M12 Pigtail QD	500 ms	PNP	Green
VTBP6RQPMA12					Red
VTBP6BQPMA12					Blue
VTBP6GRQPMA12†		150 mm (6") 5-Pin Euro/M12 Pigtail QD			Green & Red

* 500 millisecond OFF-delay feature to compensate for slow networks and long scan times.

** PNP models are listed. For NPN model, replace **P** in model number with **N** (example, **VTBN6QPMA12**).

† 2-color model requires access to 5 pins (I/O blocks may require two ports).

Mounting Accessories—Elevated Use (Standoff Pipe, Enclosure Mounts and Hanging Brackets)



SOP-E12-150A
(150 mm)

SOP-E12-300A
(300 mm)

SOP-E12-900A
(900 mm)
aluminum pipe

SOP-E12-150SS
(150 mm)

SOP-E12-300SS
(300 mm)

SOP-E12-900SS
(900 mm)
stainless steel pipe



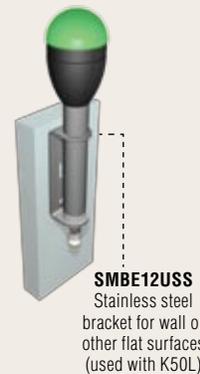
SA-M30M30-75
Thermoplastic Acetal
standoff with 30 mm
mounting base for
cabinet mounting or
use with most
30 mm brackets
(used with K50L)



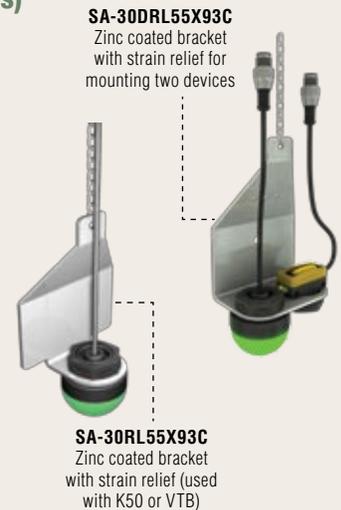
SA-30RL55X93
Zinc coated, oversized
right-angle legend plate
for identification labels



SA-M22M22-50
Thermoplastic Acetal
standoff with 22.5 mm
mounting base for
cabinet mounting
(used with K30L)



SMBE12USS
Stainless steel
bracket for wall or
other flat surfaces
(used with K50L)



SA-30DL55X93C
Zinc coated bracket
with strain relief for
mounting two devices

SA-30RL55X93C
Zinc coated bracket
with strain relief (used
with K50 or VTB)

EZ-LIGHT™ Pick-to-Light Arrays

- 150 mm (6") pigtail quick-disconnect (PVC) with common Euro/M12 connection provides quick and easy installation.
- PVAs are opposed-mode (2-piece) sensor arrays with green pick light.
- PVD are diffuse or retroreflective mode (1-piece) sensor arrays with green pick light.



PVA Series: Opposed-mode Arrays with Integrated Pick Light

Description: Emitter/Receiver Pair

Connection: 150 mm (6")
4-Pin Euro/M12 PVC
Pigtail QD

DIP-switch configurable:

1. Frequency Select: A/B
2. LO/DO
3. Pick Light ON Solid/Flashing
4. Pick Light Input High/Low



Models†	Sensing Mode/LED*	Range	Array Length	Output Type**	Pick Light Input
PVA100P6Q W/6IN		2 m	100 mm	PNP	+5 to 30V dc
PVA225P6Q W/6IN			225 mm		
PVA300P6Q W/6IN			300 mm		
PVA375P6Q W/6IN			375 mm		

* Infrared LED

** PNP models are listed. For NPN model, replace **P** in model number with **N** (example, **PVA100N6Q W/6IN**).

† 150 mm (6") pigtail models listed. For 2 m (6.5') pigtail QD, replace **W/6IN** with **Q** (example, **PVA100P6Q**).

PVD Series: Single-sided Arrays with Integrated Pick Light

Connection: 150 mm (6")
4-Pin Euro/M12 PVC
Pigtail QD

DIP-switch configurable
(Bold is factory default condition):

1. Pulse Stretcher: **500 ms**/Zero
2. Auto Adj. Rate: **10 sec**/5 sec
3. Frequency Select: **A/B**
4. Red—Mispick: **ON/OFF**



Models	Sensing Mode/LED*	Range	Array Length	Output Type
PVD100MA1Q W/6IN		Retroreflective Mode: up to 2 m	100 mm	PNP
PVD225MA1Q W/6IN		Diffuse Mode: up to 400 mm	225 mm	

* Visible Red LED

Array Protective Covers



Models*	Range	Used With	DIP Switch Access	Light Protected
SMBPVA5AB	PVA Protective Cover	PVA100	No	Yes
SMBPVA10AB		PVA225		
SMBPVA13AB		PVA300		
SMBPVA16AB		PVA375		
SMBPVD100AB	PVD Protective Cover	PVD100	No	Yes
SMBPVD225AB		PVD225		

* Models listed are recommended for automotive applications. Once cover is installed, sensor DIP switches are not accessible.

Brackets: PVA/PVD—28 mm Tube Bin/Racks

Models	Description
SMBPVA7	Black-painted center clamp—requires SMBPVA..C back plate
SMBPVA8	Zinc-finished top/bottom pivot clamp—requires SMBPVA..C back plate
SMBPVA6-1 (Qty 1) SMBPVA6 (Qty 4)	Molded metal clamp-style—includes fasteners
SMBPVA2	Molded plastic clamp (Qty 4)—requires adhesive
SMBPVA5C (100 mm) SMBPVA10C (225 mm) SMBPVA13C (300 mm) SMBPVA16C (375 mm)	Zinc-finished steel back plate (requires SMBPVA7 or SMBPVA8)



SMBPVA7



SMBPVA8



SMBPVA6



SMBPVA2

EZ-LIGHT™ TL50 Tower Light

- Preassembled and preconfigured multi-segment indicators
- Robust IP67-rated, water and oil-tight industrial housings for direct machine mounting
- Up to 5 colors in a single tower; multiple lights can be on simultaneously
- Low-power consumption (2 watts vs. 15 watts) and long life (100,000 hours typical)



Connection: 150 mm (6")
5-pin Euro/M12
PUR Pigtail QD

Compatibility: I/O Block



EZ-LIGHT™ TL50 Tower Lights: Three-Function—I/O Block Compatible (single “2-output” port)

PNP Models	Color Count	Audible Alert	Function*	Hookup
TL50GYR6PQPMA	3	—	3 Color Logic: Green (Pin 4) Red (Pin 2) Yellow (Pin 2 & 4)	
TL50GRA6PQPMA	2	Max. Intensity: 95 db @ 1 m	2-Color & Audible Logic: Green (Pin 4) Red (Pin 2) Audible (Pin 2 & 4)	

* Contact factory for other I/O block compatible color configurations and audible options.

More I/O Block Compatible Models!

Audible only



Single-color

One Function:

I/O block compatible on pin 4. Visit bannerengineering.com/build_tl50 for single-color and audible only models.

C1 C2/A

Two Function: TL50XX1QPMA

Two-function models are I/O block compatible with a single “2-output” port (C1 = Pin 4, C2/A = Pin 2).



Two-color

One-color with Audible

Three or Four Function:

Standard TL50 model numbers are I/O block compatible with two “2-output” ports using combiner cordset **CSF-M12F51M12M41**, see back cover. Visit bannerengineering.com/build_tl50 to configure your models.

Four-color



Specialty Solutions

Models with 2 or 3 Pigtail QDs for Special Applications



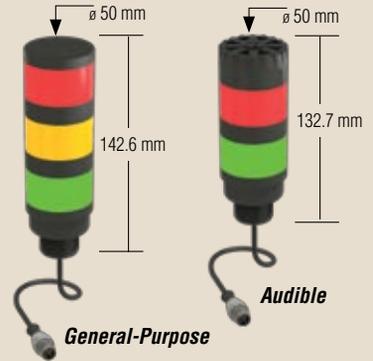
EZ-LIGHT™ Wireless Solutions



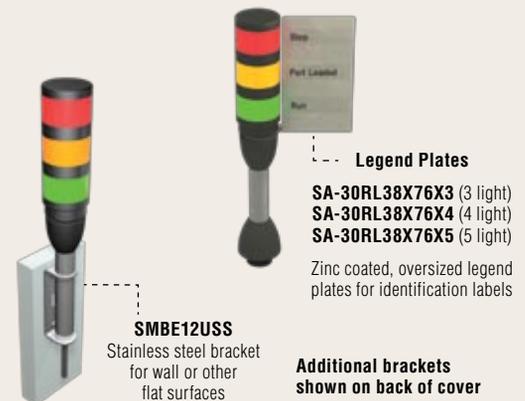
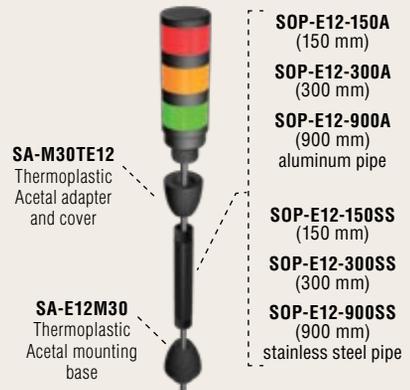
SureCross® Wireless I/O Network

Contact Banner or your local authorized distributor.

Dimensions



Mounting Accessories—Elevated Use (Standoff Pipe, Extensions and Brackets)





EZ-LIGHT™ Accessories

- Banner offers brackets and cordsets for virtually limitless configuration possibilities, including brackets for direct mounting to 28 mm pipe.
- Reflectors are available in numerous sizes, shapes and materials. Contact Banner or your local distributor for more information.

Brackets: EZ-LIGHT™ Indicators and Sensors

Models and Description	Used With
 SMBAMS18P Flat bracket with 18 mm hole for mounting indicator	M18 T18
 SMBAMS18RA Right-angle bracket with 18 mm hole for mounting indicator	
 SMBAMS22P Flat bracket with 22.5 mm hole for mounting indicator or operator switch	K30L
 SMBAMS22RA Right-angle bracket with 22.5 mm hole for mounting indicator or operator switch	
 SMBAMS30P Flat bracket with 30 mm hole for mounting indicator or sensor	T30 K50L & K50 VTB TL50 CL50
 SMBAMS30PL52 Flat bracket with 70 x 40 mm space for label above 30 mm mounting hole for indicator or sensor	
 SMBAMS30PL52R Flat bracket with 60 x 58 mm space for label to side of 30 mm mounting hole for indicator or sensor	
 SMBAMS30RA Right-angle bracket with 30 mm hole for mounting indicator or sensor	
 SMBAMS30RLS Right-angle bracket with 62 x 26 mm space for label above 30 mm mounting hole for indicator or sensor	T30 K50L & K50 TL50 CL50 VTB
 SMBAMS30RLJ Right-angle bracket with 70 x 40 mm space for label above 30 mm mounting hole for indicator or sensor	

Models and Description	Used With
 SMBAMSBRA* Right-angle base piece with four point hole pattern for 90+° rotation	SMBAMS.. brackets with 25 mm hole spacing
 SMB30SC Black reinforced thermoplastic polyester 30 mm swivel bracket for indicator or sensor	T30 K50L & K50 TL50 CL50 VTB
 SMBDX80DIN Black reinforced thermoplastic polyester DIN-mount bracket	K80L & K80 SureCross Wireless devices
 SMB8MM Right-angle bracket with 8 mm hole for mounting indicator	T8L
 SA-K50A18 Protective mounting bracket for sensor	K50

* Multiple SMBAMSBRA base brackets can be integrated together to allow for additional points of articulation.

Andon Bracket



Models	Rope Pull	Used With
SMBARPL30	Left side	K50
SMBARPR30	Right side	
SMBARPB30	Both sides	

NOTE: Contact Banner or your local distributor for rope pull components.

Cordsets: Combiner Y-Cords

Use for connecting 3 or 4 segmented indicators, and 3 or 4 function standard TL50 Tower lights to a "2-output" I/O block.

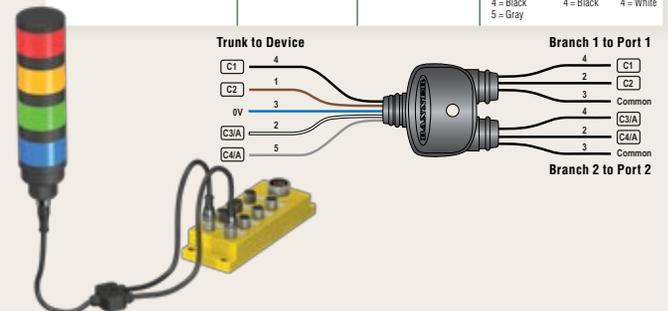
Models	Branches (Male)	Trunk (Female)	Pinout	
CSF-M12F51M12M41	4-Pin Euro QD 2 x 0.3 m	5-Pin Euro QD 0.3 m		
			Female 1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray	Branch 1 1 = NC 2 = Brown 3 = Blue 4 = Black 5 = White

Cordsets: Parallel Wired Y-Cords

For use with PVA pairs and EZ-LIGHT™ sensor emulators.

Models	Branches† (Female)	Trunk† (Male)	Pinout
CSB-M1240M1240	4-Pin Euro QD No Branches	No Trunk	Female  Male 
CSB-M1241M1241	4-Pin Euro QD 2 x 0.3 m	0.3 m	1 = Brown 2 = White 3 = Blue 4 = Black
CSB-M1248M1241		2.5 m	

† Additional cordset lengths are available. Contact Banner or your local authorized distributor.



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