



# PresencePLUS® Vision Sensors



**PresencePLUS® Pro** ..... page 234

- Low-cost full-featured vision sensing
- Thirteen I/O in separate DIN-rail-mountable controller
- Compact camera head



**PresencePLUS® P4** ..... page 240

- A complete family of application-specific vision sensors
- For detecting absence/presence, orientation, gray scale and bar codes
- Compact design with right-angle or in-line styles



**Lighting** ..... page 255

- Standard lighting: ring, back and area formats
- Specialty versions: on-axis, highly diffused and indirect
- Filters and regulated power supplies for special applications



**Lenses** ..... page 264

- 3.5, 4, 6.5, 8, 12, 16, 25, 35, 50, and 75 mm focal length C-mount lenses
- Optional focus locking and adjustable apertures
- High-performance versions for less image distortion and greater depth of field
- Megapixel lenses for extraordinary resolution



**Accessories** ..... page 263

- Cables for serial, Ethernet and video communication
- Broad offering of versatile mounting brackets
- Enclosure kits to protect the sensor and light
- Auxiliary black and white monitor to view inspections

VISION

# PresencePLUS® Pro

## Full Feature Vision Sensor

### A full-function vision sensor

The PresencePLUS® Pro provides advanced, image-based visual inspections at a price you'll find hard to believe. Banner has transformed costly, complex machine vision systems into a simple, easy-to-use and affordable sensor that solves real-world applications. The sensor captures images and analyzes them using one or more vision tools to make judgements.

- Features Ethernet, serial and flexible I/O in the same full-featured sensor
- Accommodates configurable inputs (NPN/PNP) and configurable outputs (NPN/PNP)
- Allows inspections to be stored and reused

### Easy to install and operate

You can quickly set up an inspection that correctly tests and rejects bad parts on your production line. PresencePLUS® Pro sets up using a remote PC; after setup, inspections are stored in the system and can run without a PC. Inspections can be viewed without a PC, using the PresencePLUS Pro's live video output.



Live video output allows for direct connection to monitor.  
NTSC Video

VISION



### All the tools you need

#### LOCATION TOOLS

Compensate for translational and rotational movement.

- Locate.** Determines translation and rotation by detecting relative movement of edges
- Pattern Find.** Determines translation and rotation by detecting relative movement of a pattern

#### VISION TOOLS

Analyze the image.

- Gray Scale.** Determines the average gray scale value of an area
- Blob.** Determines the presence, connectivity and location of selected features
- Edge.** Determines the presence, number, classification and location of edges
- Object.** Determines the presence, number, classification, size and location of objects
- Pattern Count.** Determines the presence, number and location of a pattern(s)

#### ANALYSIS TOOLS

Measure or evaluate the results of the vision tools.

- Measure.** Measures distance between two prescribed edges, centroid locations or pattern centers
- Test.** Evaluates results of selected vision and analysis tools to determine whether an inspection passes or fails; performs logical operations; and activates outputs
- Communication.** Sends results of selected location, vision and analysis tools over the Ethernet or RS-232 serial communication ports

### PresencePLUS® Pro

- Compact two-piece housing
- Communication over Ethernet, flexible I/O and standard serial protocols
- Live video output
- Software configurable inputs (NPN/PNP) and configurable outputs (NPN/PNP)
- Stored inspections
- Pluggable terminal block
- Six bicolor bright LED indicators
- 10 to 30V dc
- Standard and high-performance C-mount lenses sold separately



Controller PPCTL



Camera PPROCAM

(Shown with lens—sold separately)

### The easiest-to-use software available

- Operates seamlessly across all Banner vision products
- Functions in nine languages
- Operates on Microsoft Windows® operating systems
- Offers a common graphical interface
- Includes intuitive wizard-like setup procedure
- Free upgrades and revisions available for download at [www.bannerengineering.com](http://www.bannerengineering.com)



### PresencePLUS® Pro Sensors

Models*	Resolution	Vision Tools	Location/Rotation Adj.	Communications	Multiple Inspections	Lens	Discrete I/O	Data Sheet
PPCTL Controller	640 x 480 Pixels	 Pattern Count  Edge  Gray Scale  Object  Blob	 Locate ± 90 degrees  Pattern Find ± 10 degrees	Ethernet IP Modbus/TCP ASCII 10 Ethernet RS-232C	12 Remotely Selectable	Standard C-Mount or Megapixel C-Mount	6 Configurable: Electrical (NPN/PNP Selectable), Function, Timing	Quickstart: 68369 Manuals: 68367 & 68368
PPROCAM Camera								

\* A complete solution requires a controller and a camera.



**PresencePLUS® Pro Solution Kits**



Solution kits include camera, controller, cordset, lens, light, PC interface cable, CD-ROM and Quickstart Guide. Detailed information about individual kit components follows.

- *Camera and Controller* ..... Page 235
- *Lights* ..... 255
- *Lens* ..... 264
- *Cables* ..... 265

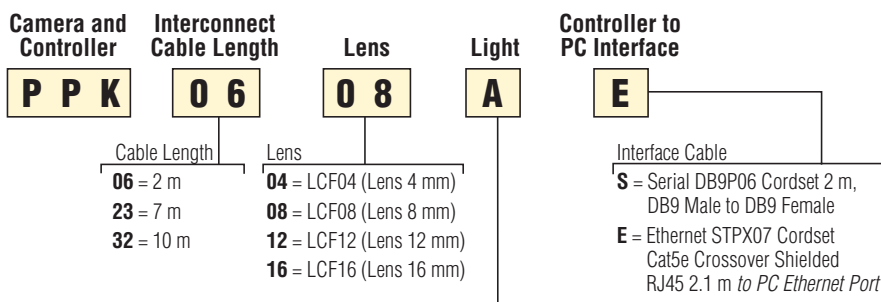
A **partial listing** of kits is below; see *Kit Model Key* to order other variations.

Model Number	Interconnect Cable*, Camera to Controller	Lens	Light**	PC Interface Cable†, Controller to PC
PPK0608RE	2 m	8 mm	Red 80 x 80 mm Ring Light	Cat5e 2 m Crossover RJ45 Ethernet
PPK0612RE		12 mm		
PPK0616RE		16 mm		
PPK0608AE	2 m	8 mm	Red 80 x 80 mm Area Light	Cat5e 2 m Crossover RJ45 Ethernet
PPK0612AE		12 mm		
PPK0616AE		16 mm		
PPK0608BE	2 m	8 mm	Red 70 x 70 mm Backlight	Cat5e 2 m Crossover RJ45 Ethernet
PPK0612BE		12 mm		
PPK0616BE		16 mm		

\*Other lengths available. See Model Key. \*\*Red lights shown. Infrared and other LED colors available. See Model Key.

†Can be omitted by removing suffix "E" or "S" in kit model number.

**Pro Solution Kit Model Key**



Lights


- SRR** = LEDRR62X62W (Ring Light, Red, 62 x 62 mm)
- SRW** = LEDWR62X62W (Ring Light, White, 62 x 62 mm)
- SRB** = LEDBR62X62W (Ring Light, Blue, 62 x 62 mm)
- SRG** = LEDGR62X62W (Ring Light, Green, 62 x 62 mm)
- SRI** = LEDIR62X62W (Ring Light, Infrared, 62 x 62 mm)
- R** = LEDRR80X80W (Ring Light, Red, 80 x 80 mm)
- RW** = LEDWR80X80W (Ring Light, White, 80 x 80 mm)
- RB** = LEDBR80X80W (Ring Light, Blue, 80 x 80 mm)
- RG** = LEDGR80X80W (Ring Light, Green, 80 x 80 mm)
- RI** = LEDIR80X80W (Ring Light, Infrared, 80 x 80 mm)
- SAR** = LEDRA62X62W (Area Light, Red, 62 x 62 mm)
- SAW** = LEDWA62X62W (Area Light, White, 62 x 62 mm)
- SAB** = LEDBA62X62W (Area Light, Blue, 62 x 62 mm)
- SAG** = LEDGA62X62W (Area Light, Green, 62 x 62 mm)
- SAI** = LEDIA62X62W (Area Light, Infrared, 62 x 62 mm)
- A** = LEDRA80X80W (Area Light, Red, 80 x 80 mm)
- AW** = LEDWA80X80W (Area Light, White, 80 x 80 mm)
- AB** = LEDBA80X80W (Area Light, Blue, 80 x 80 mm)
- AG** = LEDGA80X80W (Area Light, Green, 80 x 80 mm)
- AI** = LEDIA80X80W (Area Light, Infrared, 80 x 80 mm)
- B** = LEDRB70X70W (Backlight, Red, 70 x 70 mm)
- BI** = LEDIB70X70W (Backlight, Infrared, 70 x 70 mm)
- LBR** = LEDRB85X220W (Backlight, Red, 85 x 220 mm)
- LBI** = LEDIB85X220W (Backlight, Infrared, 85 x 220 mm)

**Basic Pro Kits**




Model Number	Description
PPK06	Kit: PPROCAM Camera, PPCTL Controller, 2 m Cordset (Camera to Controller), CD-ROM and Quickstart Guide
PPK23	Kit: PPROCAM Camera, PPCTL Controller, 7 m Cordset (Camera to Controller), CD-ROM and Quickstart Guide
PPK32	Kit: PPROCAM Camera, PPCTL Controller, 10 m Cordset (Camera to Controller), CD-ROM and Quickstart Guide

**PresencePLUS® Pro Vision Controller Specifications—Model PPCTL**

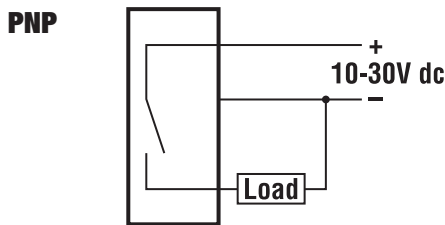
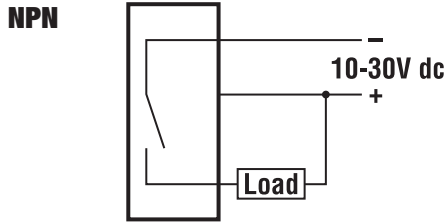
<b>Supply Voltage and Current</b>	10-30V dc; 1.5 A max. (exclusive of load)
<b>Supply Protection Circuitry</b>	Protected against reverse polarity and transient voltages
<b>Memory</b>	Stores up to 12 inspection files
<b>Output Configuration</b>	NPN (sinking) or PNP (sourcing) software selectable
<b>Output Rating</b>	150 mA max, each output <b>OFF-state leakage current:</b> less than 100 $\mu$ A <b>ON-state saturation voltage:</b> less than 1V at 50 mA (NPN); greater than $V+ - 2V$ (PNP)
<b>Input Specifications</b>	<b>NPN:</b> ON, < 3V <b>OFF-state voltage:</b> > 10V at 4 mA max. <b>PNP:</b> ON > $(+V-2)V$ at 1 mA max. <b>OFF-state voltage:</b> < 3V at 6 mA max.
<b>Indicators</b>	<b>8 LEDs:</b> Trigger, Ready, Power, Pass, Fail, Error, Ethernet Connection, Ethernet Data Transfer
<b>Display Options</b>	PC and NTSC video; uses BNC cable connection
<b>Discrete I/O</b>	1 Trigger IN (pin 3) 1 Strobe OUT (pin 4) 6 Programmable I/O (pins 9-14) 1 Product Change IN (pin 15) 4 Product Select IN (pins 16-19)
<b>Communication</b>	1 RJ-45 Ethernet-connection for running <i>PresencePLUS Pro</i> software and/or output inspection results 1 RS-232 DB-9 port for running <i>PresencePLUS Pro</i> software and/or output inspection results 1 RS-232 wired connection to output inspection results
<b>Construction</b>	Steel with black zinc plating
<b>Weight</b>	Approx. 0.55 kg
<b>Environmental Rating</b>	NEMA 1; IEC IP20
<b>Operating Conditions</b>	<b>Temperature:</b> 0° to +50° C <b>Relative humidity:</b> 90% (non-condensing)
<b>Certifications</b>	

**PresencePLUS® Pro Vision Camera Specifications—Model PPROCAM**

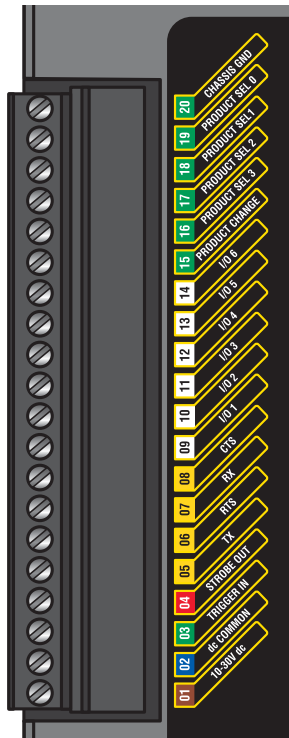
<b>Imager Size</b>	640 x 480 (307,200) pixels
<b>Pixel Size</b>	7.4 x 7.4 microns
<b>Imager</b>	4.8 x 3.6 mm, 6 mm diagonal CCD
<b>Levels of Gray Scale</b>	256
<b>Exposure Time</b>	0.10 millisecond to 2830 milliseconds
<b>Acquisition</b>	Frames per second: 48 max.
<b>Interface</b>	LVDS
<b>Lens Mount</b>	Standard C-mount (1" - 32 UN)
<b>Construction</b>	Black anodized aluminum
<b>Max. Cable Length</b>	7 m
<b>Weight</b>	Approx. 0.09 kg
<b>Environmental Rating</b>	NEMA 1; IEC IP20
<b>Operating Conditions</b>	<b>Temperature:</b> 0° to +50° C <b>Relative humidity:</b> 90% (non-condensing)
<b>Certifications</b>	

**PresencePLUS® Pro Controller Output Hookups**

**NPN or PNP is software selectable.**



**Controller Terminal Block**



No.	Pin function
20	Chassis ground
19	Product Select 0 IN
18	Product Select 1 IN
17	Product Select 2 IN
16	Product Select 3 IN
15	Product Change IN
14	Programmable I/O 6
13	Programmable I/O 5
12	Programmable I/O 4
11	Programmable I/O 3
10	Programmable I/O 2
9	Programmable I/O 1
8	RS-232 CTS (Clear To Send)
7	RS-232 RX (Receive Data)
6	RS-232 RTS (Request To Send)
5	RS-232 TX (Transmit Data)
4	Strobe OUT
3	Trigger IN
2	dc Common
1	10-30V dc

Pluggable Terminal Block Pinout Diagram

VISION

**Pro Mounting Brackets**

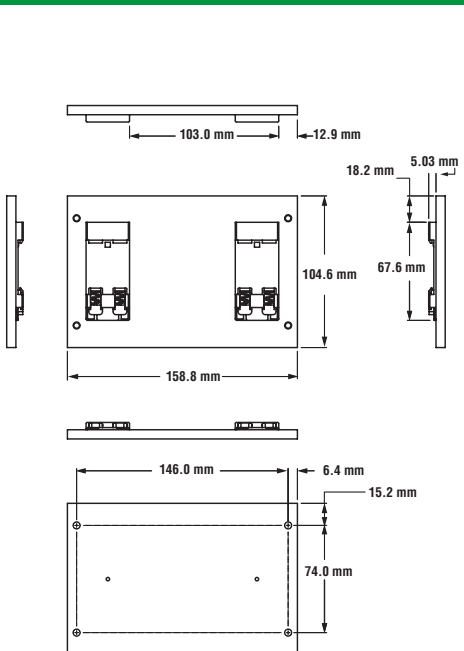
**SMBPPDH**

- DIN-rail mounting bracket—flat mounting for easy viewing of LEDs
- Black ABS plastic
- Hardware included



Used With

- PPCTL Controller



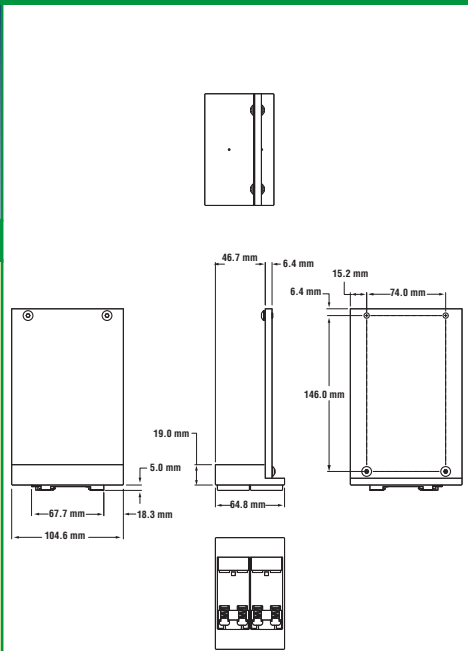
**SMBPDE**

- DIN-rail mounting bracket—edge mounting to save linear track space
- Black ABS plastic
- Hardware included



Used With

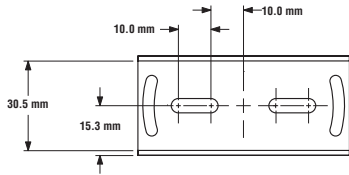
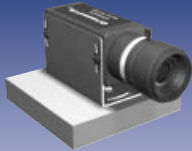
- PPCTL Controller



## Pro Mounting Brackets

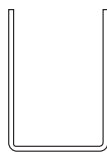
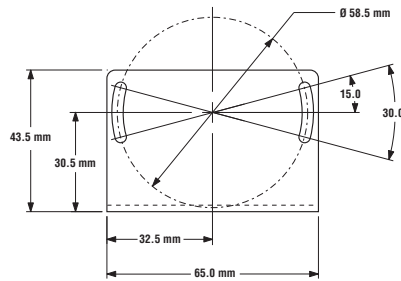
### SMBPPLU

- Long U-shaped bracket—highly stable design
- Bright corrosion-resistant finish
- Hardware included



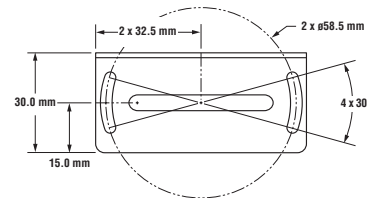
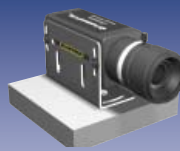
#### Used With

- PPROCAM Camera



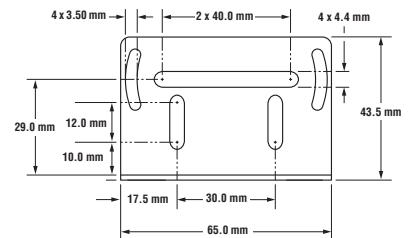
### SMBPPRA

- Right angle bracket—single side mounting for difficult-to-access sites
- Bright corrosion-resistant finish
- Hardware included



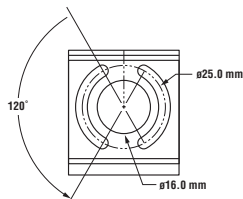
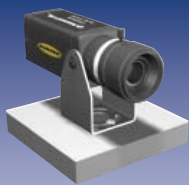
#### Used With

- PPROCAM Camera



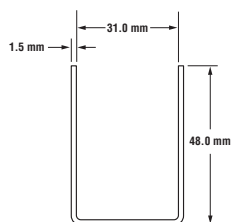
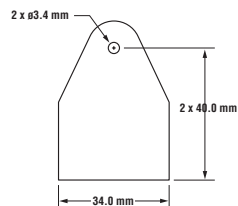
### SMBPPU

- U-shaped swivel bracket—variable rotation on image's y-axis
- Hardware included



#### Used With

- PPROCAM Camera

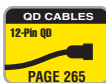


# PresencePLUS® P4

## A Family of Easy-to-Use Vision Sensors

- Includes five models with locate, measure, test, communications and function-specific vision tools
- Delivers high-performance vision inspections in a self-contained housing
- Fits in the palm of your hand
- Supports nine languages
- Features remote TEACH function for inspection changeovers without a PC
- Connects directly to optional real-time video display, without a PC
- Available in standard and high-resolution 1.3 megapixel models
- Offers in-line or right-angle housing styles
- Available with a variety of mounting brackets, lenses and lighting accessories

VISION



### All the tools you need

#### VISION TOOLS

Analyze the image.

- Gray Scale.** Determines the average gray scale value of an area
- Blob.** Determines the presence, connectivity and location of selected features
- Edge.** Determines the presence, number, classification and location of edges
- Object.** Determines the presence, number, classification, size and location of objects
- GEO Count.** Detects the presence and location of a target pattern
- Bar Code.** Finds and decodes advanced 2D and 1D linear bar codes



P4 OMNI & OMNI 1.3..... Page 242

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P4 GEO & GEO 1.3..... 246

P4 EDGE & EDGE 1.3..... 248

P4 BCR & BCR 1.3..... 250

#### LOCATION TOOLS

Compensate for translational and rotational movement.

- Locate.** Determines translation and rotation by detecting relative movement of edges
- GEO Find.** Determines translational and rotational movement of a part up to 360° by detecting relative movement of a pattern

#### ANALYSIS TOOLS

Measure or evaluate the results of the vision tools.

- Measure.** Measures distance between two prescribed edges, centroid locations or pattern centers
- Test.** Evaluates results of selected vision and analysis tools to determine whether an inspection passes or fails; performs logical operations; and activates outputs
- Communication.** Sends results of selected location, vision and analysis tools over the Ethernet or RS-232 serial communication ports



#### P4 OMNI

- Combines all P4 vision inspection tools in a single unit
- Solves most applications using Blob, Gray Scale, GEO Count, Edge and Object tools
- Uses tools simultaneously to inspect multiple features



#### P4 AREA

- Accurately senses light intensity for inspections of defined areas
- Captures and analyzes images using Blob and Gray Scale tools
- Determines the presence, absence, size and location of parts



#### P4 GEO

- Locates inspection details regardless of product orientation
- Uses GEO Count tool to perform 360° pattern matching
- Delivers accurate, repeatable inspections of good or bad parts



#### P4 EDGE

- Measures and gauges multiple edges of a product
- Uses Edge and Object tools to evaluate a selected region-of-interest
- Validates the height, width, location and edge of materials



#### P4 BCR

- Decodes 2D and 1D linear bar codes
- Grades using industry standard metrics
- Reads Data Matrix (ECC200), PDF 417 (available soon) and many standard Linear Codes



## PresencePLUS® P4

- Communicate over Ethernet, flexible I/O and serial protocols
- Live video output
- Software configurable inputs (NPN/PNP) and configurable outputs (NPN/PNP)
- Stored inspections
- Mounting brackets for easy attachment
- Three bicolor bright LED indicators
- 10 to 30 V dc
- Standard and high-performance C-mount lenses sold separately



**In-Line Sensor**

(Shown with lens—sold separately)



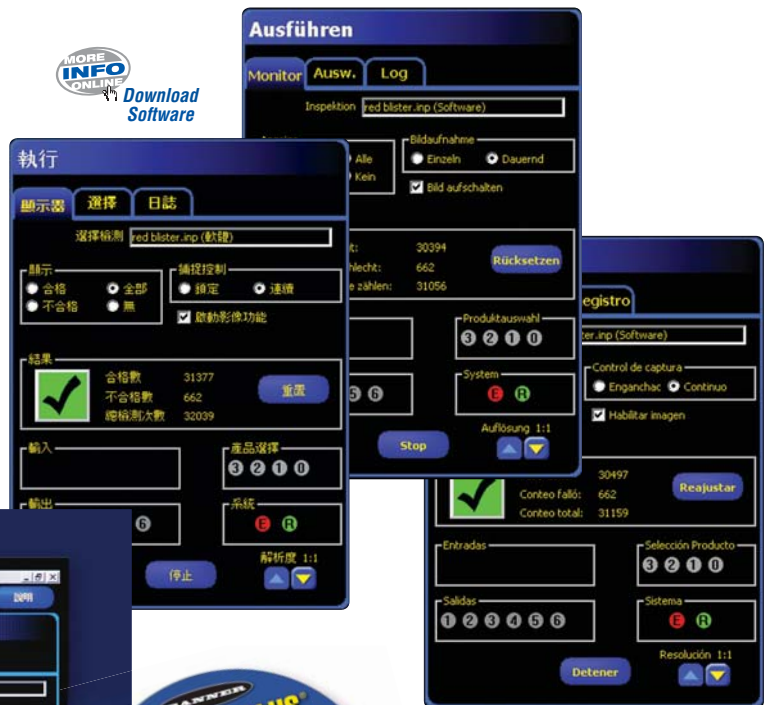
**Right-Angle Sensor**

(Shown with lens—sold separately)

VISION

## The easiest-to-use software available

- Operates seamlessly across all Banner vision products
- Functions in nine languages
- Operates on Microsoft Windows® operating systems
- Offers a common graphical interface
- Includes intuitive wizard-like setup procedure
- Free upgrades and revisions available for download at [www.bannerengineering.com](http://www.bannerengineering.com)



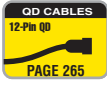
# PresencePLUS® P4

## OMNI and OMNI 1.3 Fully Equipped Vision Sensors

- Combines all P4 vision inspection tools including Blob, Gray Scale, GEO, Edge and Object
- Uses one or multiple sensing tools for expanded application flexibility and extended sensor usability
  - Standard OMNI model (640 x 480 pixels) provides accurate analysis at high speeds
  - High-resolution OMNI 1.3 model (1280 x 1024 pixels) features 1.3 megapixel imaging for detailed inspections of large areas
- Features compact, self-contained P4 housing
- Includes remote TEACH, configurable I/Os, live video and communications standard to all PresencePLUS sensors



VISION



**OMNI & OMNI 1.3** with bar code reading capability

### Solves the most applications in your plant.

- **Orientation Confirmation.** Establishes that products are correctly oriented for robots to handle in an automatic feed work cell
- **Part Identification and Orientation.** Eliminates rejects before they are assembled or packaged
- **Assembly Error Proofing.** Verifies the presence and placement of all clips, bolts and nuts in a trim panel

- **Feature Identification and Counting.** Ensures the correct number of holes are punched in a metal stamping application
- **Product Tracking.** Provides traceability in an automobile assembly operation



### PresencePLUS® P4 OMNI Sensors



Models	Housing	Resolution	Vision Tools	Location/Rotation Adj.	Communications	Multiple Inspections	Lens	Discrete I/O	Data Sheet
P40R	Right-Angle	640 x 480 Pixels	GEO Count	Locate ± 90 degrees	Ethernet IP Modbus/TCP ASCII 10/100 Ethernet RS-232C	12 Remotely Selectable	Standard C-Mount or Megapixel C-Mount	4 Configurable: Electrical (NPN/PNP Selectable), Function, Timing	Quickstart: 118000 Manuals: 125808
P40I	In-Line		Edge						
P401.3R	Right-Angle	1280 x 1024 Pixels	Gray Scale	GEO Find ± 180 degrees			Megapixel C-Mount		
P401.3I	In-Line		Object Blob						

## PresencePLUS® P4 OMNI Solution Kit



Solution kits include sensor, bracket, cordset, lens, light, PC interface cable, CD-ROM and Quickstart Guide. Detailed information about individual kit components follows.

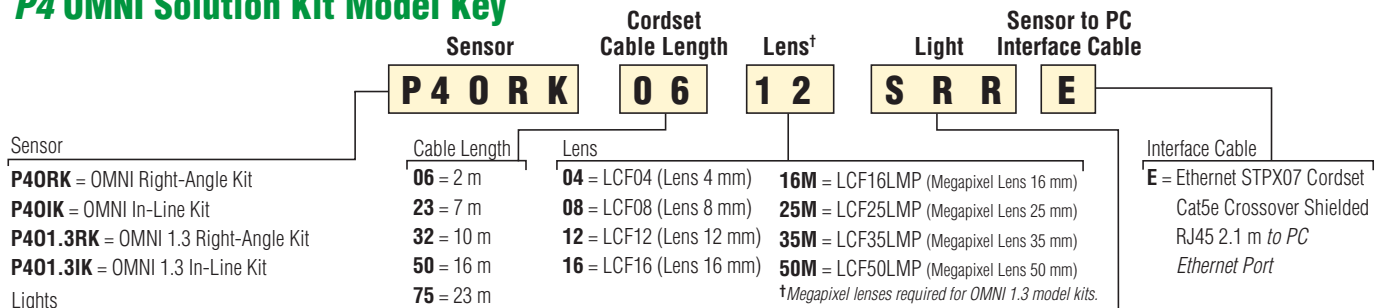
- **Sensors** . . . . . Page 242
- **Lights** . . . . . 255
- **Lens** . . . . . 264
- **Cables** . . . . . 265

A *partial listing* of kits is below; see *Kit Model Key* to order other variations.

Model Number Right-Angle Sensor	Model Number In-Line Sensor	Sensor	Cordset*	Lens	Light**	Sensor to PC Interface Cable†
P40RK0612LRRE	P40IK0612LRRE	OMNI	2 m	12 mm	Red 80 x 80 mm Ring Light	Cat5e 2.1 m Crossover RJ45 Ethernet
P40RK0616LRRE	P40IK0616LRRE			16 mm		
P401.3RK0616MLRRE	P401.3IK0616MLRRE	16 mm Megapixel				
P401.3RK0625MLRRE	P401.3IK0625MLRRE	25 mm Megapixel				
P40RK0612ARE	P40IK0612ARE	OMNI		12 mm	Red 80 x 80 mm Area Light	
P40RK0616ARE	P40IK0616ARE	16 mm				
P401.3RK0616MARE	P401.3IK0616MARE	16 mm Megapixel				
P401.3RK0625MARE	P401.3IK0625MARE	25 mm Megapixel				

\* Other lengths available. See Model Key. \*\* Red lights shown. Infrared and other LED colors available. See Model Key.  
† Can be omitted by removing suffix E in kit model number.

### P4 OMNI Solution Kit Model Key



### P4 OMNI Basic Kits and Sensors



OMNI Model Number	OMNI 1.3 Model Number	Description
P40RK06	P401.3RK06	Kit: Right-Angle Sensor, Bracket, 2 m Cordset, CD-ROM and Quickstart Guide
P40RK23	P401.3RK23	Kit: Right-Angle Sensor, Bracket, 7 m Cordset, CD-ROM and Quickstart Guide
P40RK32	P401.3RK32	Kit: Right-Angle Sensor, Bracket, 10 m Cordset, CD-ROM and Quickstart Guide
P40IK06	P401.3IK06	Kit: In-Line Sensor, Bracket, 2 m Cordset, CD-ROM and Quickstart Guide
P40IK23	P401.3IK23	Kit: In-Line Sensor, Bracket, 7 m Cordset, CD-ROM and Quickstart Guide
P40IK32	P401.3IK32	Kit: In-Line Sensor, Bracket, 10 m Cordset, CD-ROM and Quickstart Guide
P40R	P401.3R	Right-Angle Sensor—Includes Bracket and CD-ROM
P40I	P401.3I	In-Line Sensor—Includes Bracket and CD-ROM



# PresencePLUS® P4

## AREA and AREA 1.3 Vision Sensors for Presence and Size

VISION

- Combines Blob and Gray Scale tools to capture and analyze images
- Senses light intensity to perform basic inspections of defined areas
  - Standard AREA model provides high-speed analysis up to 10,000 parts per minute.
  - High-resolution AREA 1.3 model (1280 x 1024 pixels) delivers analysis up to 1,200 parts per minute using 1.3 megapixel imaging for detailed inspections of large areas.
- Features compact, self-contained P4 housing
- Includes remote TEACH, configurable I/Os, live video and communications standard to all PresencePLUS sensors



### Performs multiple sensing functions at industry-leading speeds.

- **Quality Control Sorting.** Identifies chipped glass bottles in a filling application
- **Assembly Error Proofing.** Verifies the presence and placement of all clips, bolts and nuts in an automotive trim panel
- **Feature Identification and Counting.** Ensures the correct number of holes are punched in a metal stamping application
- **Location Confirmation.** Establishes that products are correctly located for robots to handle in an automatic feed work cell
- **Process Control.** Monitors baked goods for uneven browning



### PresencePLUS® P4 AREA Sensors

Models	Housing	Resolution	Vision Tools	Location/Rotation Adj.	Communications	Multiple Inspections	Lens	Discrete I/O	Data Sheet
P4AR	Right-Angle	128 x 100 Pixels			Ethernet IP Modbus/TCP ASCII 10/100 Ethernet RS-232C	12 Remotely Selectable	Standard C-Mount or Megapixel C-Mount	4 Configurable: Electrical (NPN/PNP Selectable), Function, Timing	Quickstart: 118000 Manuals: 125439
P4AI	In-Line								
P4A1.3R	Right-Angle	1280 x 1024 Pixels		Locate ± 90 degrees			Megapixel C-Mount		
P4A1.3I	In-Line								

## PresencePLUS® P4 AREA Solution Kit



Solution kits include sensor, bracket, cordset, lens, light, PC interface cable, CD-ROM and Quickstart Guide. Detailed information about individual kit components follows.

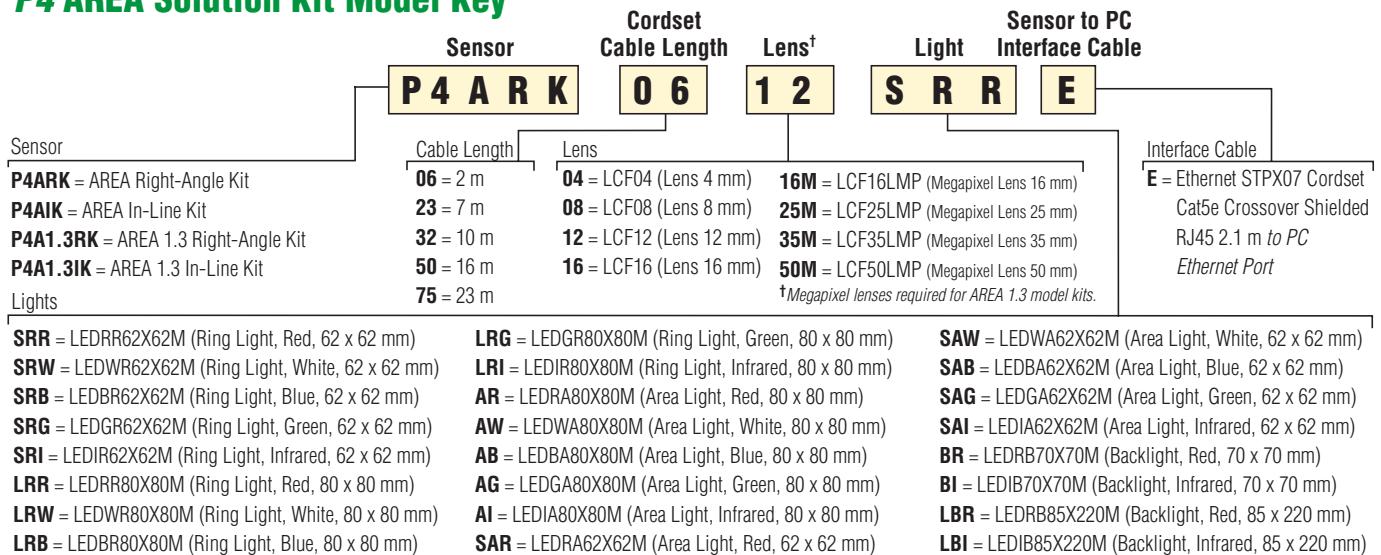
- **Sensors** ..... Page 244
- **Lights** ..... 255
- **Lens** ..... 264
- **Cables** ..... 265

A *partial listing* of kits is below; see *Kit Model Key* to order other variations.

Model Number Right-Angle Sensor	Model Number In-Line Sensor	Sensor	Cordset*	Lens	Light**	Sensor to PC Interface Cable†
P4ARK0612LRRE	P4AIK0612LRRE	AREA	2 m	12 mm	Red 80 x 80 mm Ring Light	Cat5e 2.1 m Crossover RJ45 Ethernet
P4ARK0616LRRE	P4AIK0616LRRE			16 mm		
P4A1.3RK0616MLRRE	P4A1.3IK0616MLRRE	16 mm Megapixel				
P4A1.3RK0625MLRRE	P4A1.3IK0625MLRRE	25 mm Megapixel				
P4ARK0612ARE	P4AIK0612ARE	AREA		12 mm	Red 80 x 80 mm Area Light	
P4ARK0616ARE	P4AIK0616ARE			16 mm		
P4A1.3RK0616MARE	P4A1.3IK0616MARE	16 mm Megapixel				
P4A1.3RK0625MARE	P4A1.3IK0625MARE	25 mm Megapixel				

\* Other lengths available. See Model Key. \*\* Red lights shown. Infrared and other LED colors available. See Model Key.  
† Can be omitted by removing suffix E in kit model number.

### P4 AREA Solution Kit Model Key



### P4 AREA Basic Kits and Sensors



AREA Model Number	AREA 1.3 Model Number	Description
P4ARK06	P4A1.3RK06	Kit: Right-Angle Sensor, Bracket, 2 m Cordset, CD-ROM and Quickstart Guide
P4ARK23	P4A1.3RK23	Kit: Right-Angle Sensor, Bracket, 7 m Cordset, CD-ROM and Quickstart Guide
P4ARK32	P4A1.3RK32	Kit: Right-Angle Sensor, Bracket, 10 m Cordset, CD-ROM and Quickstart Guide
P4AIK06	P4A1.3IK06	Kit: In-Line Sensor, Bracket, 2 m Cordset, CD-ROM and Quickstart Guide
P4AIK23	P4A1.3IK23	Kit: In-Line Sensor, Bracket, 7 m Cordset, CD-ROM and Quickstart Guide
P4AIK32	P4A1.3IK32	Kit: In-Line Sensor, Bracket, 10 m Cordset, CD-ROM and Quickstart Guide
P4AR	P4A1.3R	Right-Angle Sensor—Includes Bracket and CD-ROM
P4AI	P4A1.3I	In-Line Sensor—Includes Bracket and CD-ROM

VISION

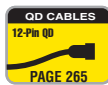
# PresencePLUS® P4

## GEO and GEO 1.3 Vision Sensors for Shape Detection

- Uses GEO Count tool to detect the presence, location and rotation of a target pattern
- Inspects for correct features regardless of product orientation or position in the sensor's field of view
  - Standard GEO model provides high-speed analysis of up to 6,000 parts per minute.
  - High-resolution GEO 1.3 model (1280 x 1024 pixels) features 1.3 megapixel imaging for extra detail or extended sensing field of view.
- Features compact, self-contained P4 housing
- Includes remote TEACH, configurable I/Os, live video and communications standard to all PresencePLUS sensors



VISION



### Performs accurate 360° inspections.



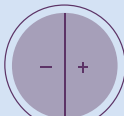
- **Part Identification and Orientation.** Eliminates rejects before they are assembled or packaged
- **Assembly Verification.** Verifies the positioning of critical features

- **Orientation Confirmation.** Establishes that products are correctly located for robots to handle in an automatic feed work cell
- **Label Verification.** Verifies that appropriate labels are correctly positioned in a packaging application



### PresencePLUS® P4 GEO Sensors



Models	Housing	Resolution	Vision Tools	Location/Rotation Adj.	Communications	Multiple Inspections	Lens	Discrete I/O	Data Sheet	
P4GR	Right-Angle	128 x 100 Pixels	 GEO Count	 Locate ± 90 degrees	Ethernet IP Modbus/TCP ASCII 10/100 Ethernet RS-232C	12 Remotely Selectable	Standard C-Mount or Megapixel C-Mount	4 Configurable: Electrical (NPN/PNP Selectable), Function, Timing	Quickstart: 118000  Manuals: 121555	
P4GI	In-Line			 GEO Find ± 180 degrees			Megapixel C-Mount			
P4G1.3R	Right-Angle	1280 x 1024 Pixels								
P4G1.3I	In-Line									

## PresencePLUS® P4 GEO Solution Kit



Solution kits include sensor, bracket, cordset, lens, light, PC interface cable, CD-ROM and Quickstart Guide. Detailed information about individual kit components follows.

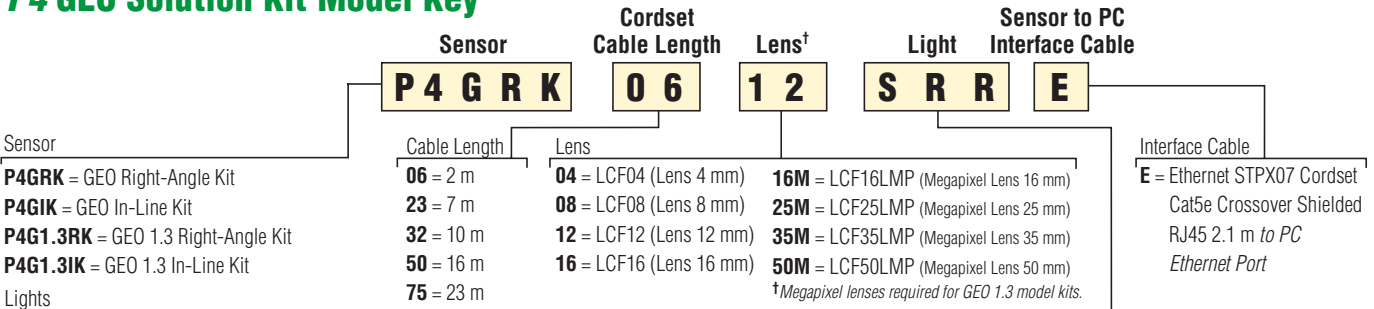
- **Sensors** . . . . . Page 246
- **Lights** . . . . . 255
- **Lens** . . . . . 264
- **Cables** . . . . . 265

A *partial listing* of kits is below; see *Kit Model Key* to order other variations.

Model Number Right-Angle Sensor	Model Number In-Line Sensor	Sensor	Cordset*	Lens	Light**	Sensor to PC Interface Cable†
P4GRK0612LRRE	P4GIK0612LRRE	GEO	2 m	12 mm	Red 80 x 80 mm Ring Light	Cat5e 2.1 m Crossover RJ45 Ethernet
P4GRK0616LRRE	P4GIK0616LRRE			16 mm		
P4G1.3RK0616MLRRE	P4G1.3IK0616MLRRE	16 mm Megapixel				
P4G1.3RK0625MLRRE	P4G1.3IK0625MLRRE	GEO 1.3		25 mm Megapixel		
P4GRK0612ARE	P4GIK0612ARE	GEO		12 mm	Red 80 x 80 mm Area Light	
P4GRK0616ARE	P4GIK0616ARE			16 mm		
P4G1.3RK0616MARE	P4G1.3IK0616MARE	GEO 1.3		16 mm Megapixel		
P4G1.3RK0625MARE	P4G1.3IK0625MARE			25 mm Megapixel		

\* Other lengths available. See Model Key. \*\* Red lights shown. Infrared and other LED colors available. See Model Key.  
† Can be omitted by removing suffix E in kit model number.

### P4 GEO Solution Kit Model Key



- SRR** = LEDR62X62M (Ring Light, Red, 62 x 62 mm)
- SRW** = LEDWR62X62M (Ring Light, White, 62 x 62 mm)
- SRB** = LEDBR62X62M (Ring Light, Blue, 62 x 62 mm)
- SRG** = LEDGR62X62M (Ring Light, Green, 62 x 62 mm)
- SRI** = LEDIR62X62M (Ring Light, Infrared, 62 x 62 mm)
- LRR** = LEDRR80X80M (Ring Light, Red, 80 x 80 mm)
- LRW** = LEDWR80X80M (Ring Light, White, 80 x 80 mm)
- LRB** = LEDBR80X80M (Ring Light, Blue, 80 x 80 mm)
- LRG** = LEDGR80X80M (Ring Light, Green, 80 x 80 mm)
- LRI** = LEDIR80X80M (Ring Light, Infrared, 80 x 80 mm)
- AR** = LEDRA80X80M (Area Light, Red, 80 x 80 mm)
- AW** = LEDWA80X80M (Area Light, White, 80 x 80 mm)
- AB** = LEDBA80X80M (Area Light, Blue, 80 x 80 mm)
- AG** = LEDGA80X80M (Area Light, Green, 80 x 80 mm)
- AI** = LEDIA80X80M (Area Light, Infrared, 80 x 80 mm)
- SAR** = LEDRA62X62M (Area Light, Red, 62 x 62 mm)
- SAW** = LEDWA62X62M (Area Light, White, 62 x 62 mm)
- SAB** = LEDBA62X62M (Area Light, Blue, 62 x 62 mm)
- SAG** = LEDGA62X62M (Area Light, Green, 62 x 62 mm)
- SAI** = LEDIA62X62M (Area Light, Infrared, 62 x 62 mm)
- BR** = LEDRB70X70M (Backlight, Red, 70 x 70 mm)
- BI** = LEDIB70X70M (Backlight, Infrared, 70 x 70 mm)
- LBR** = LEDRB85X220M (Backlight, Red, 85 x 220 mm)
- LBI** = LEDIB85X220M (Backlight, Infrared, 85 x 220 mm)

### P4 GEO Basic Kits and Sensors



GEO Model Number	GEO 1.3 Model Number	Description
P4GRK06	P4G1.3RK06	Kit: Right-Angle Sensor, Bracket, 2 m Cordset, CD-ROM and Quickstart Guide
P4GRK23	P4G1.3RK23	Kit: Right-Angle Sensor, Bracket, 7 m Cordset, CD-ROM and Quickstart Guide
P4GRK32	P4G1.3RK32	Kit: Right-Angle Sensor, Bracket, 10 m Cordset, CD-ROM and Quickstart Guide
P4GIK06	P4G1.3IK06	Kit: In-Line Sensor, Bracket, 2 m Cordset, CD-ROM and Quickstart Guide
P4GIK23	P4G1.3IK23	Kit: In-Line Sensor, Bracket, 7 m Cordset, CD-ROM and Quickstart Guide
P4GIK32	P4G1.3IK32	Kit: In-Line Sensor, Bracket, 10 m Cordset, CD-ROM and Quickstart Guide
P4GR	P4G1.3R	Right-Angle Sensor—Includes Bracket and CD-ROM
P4GI	P4G1.3I	In-Line Sensor—Includes Bracket and CD-ROM

VISION

# PresencePLUS® P4

## EDGE and EDGE 1.3 Vision Sensors for Height, Width, Location and Edges

- Uses Edge and Object tools to evaluate selected features
- Validates the height, width, location and edge of materials
  - Standard EDGE model provides high-speed analysis of more than 10,000 parts per minute.
  - High-resolution EDGE 1.3 model (1280 x 1024 pixels) delivers analysis of up to 1,200 parts per minute using 1.3 megapixel imaging for detailed inspections of large areas.
- Features compact, self-contained P4 housing
- Includes remote TEACH, configurable I/Os, live video and communications standard to all PresencePLUS sensors



VISION



**Highly detailed automated error-proofing and inspections at a fraction of the cost of comparable vision sensors.**

- **Part Identification and Orientation.** Eliminates rejects before they are assembled or packaged
- **Assembly Verification.** Inspects for all critical features in a variety of assembly applications
- **Error Proofing.** Measures for the correct fill level of liquid in bottles

- **Label Verification.** Verifies that labels are correctly positioned
- **Quality Control Sorting.** Verifies that caps are on completely and correctly in a high-speed bottling application



### PresencePLUS® P4 EDGE Sensors



Models	Housing	Resolution	Vision Tools	Location/Rotation Adj.	Communications	Multiple Inspections	Lens	Discrete I/O	Data Sheet
P4ER	Right-Angle	128 x 100 Pixels			Ethernet IP Modbus/TCP ASCII 10/100 Ethernet RS-232C	12 Remotely Selectable	Standard C-Mount or Megapixel C-Mount	4 Configurable: Electrical (NPN/PNP Selectable), Function, Timing	Quickstart: 118000 Manuals: 120413
P4EI	In-Line								
P4E1.3R	Right-Angle	1280 x 1024 Pixels		Locate ± 90 degrees			Megapixel C-Mount		
P4E1.3I	In-Line								



## PresencePLUS® P4 EDGE Solution Kit



Solution kits include sensor, bracket, cordset, lens, light, PC interface cable, CD-ROM and Quickstart Guide. Detailed information about individual kit components follows.

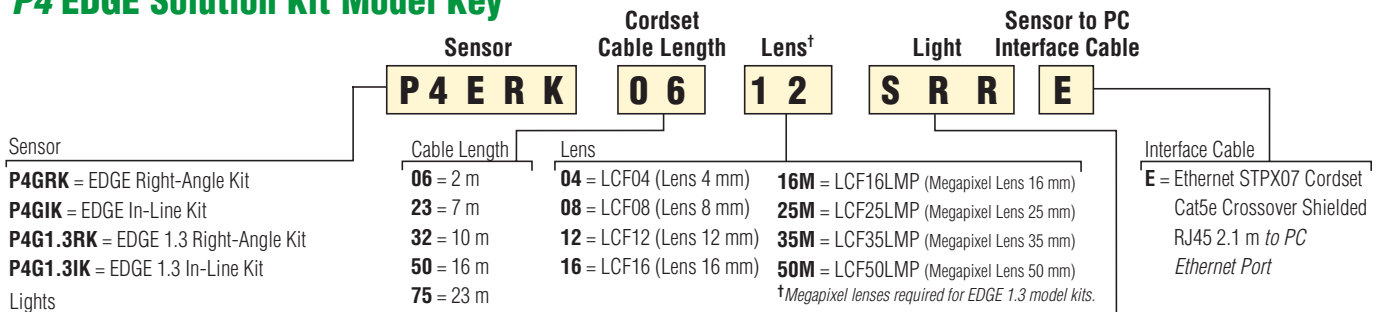
- **Sensors** . . . . . Page 248
- **Lights** . . . . . 255
- **Lens** . . . . . 264
- **Cables** . . . . . 265

A *partial listing* of kits is listed below; see *Kit Model Key* to order other variations.

Model Number Right-Angle Sensor	Model Number In-Line Sensor	Sensor	Cordset*	Lens	Light**	Sensor to PC Interface Cable†
P4ERK0612LRRE	P4EIK0612LRRE	EDGE	2 m	12 mm	Red 80 x 80 mm Ring Light	Cat5e 2.1 m Crossover RJ45 Ethernet
P4ERK0616LRRE	P4EIK0616LRRE			16 mm		
P4E1.3RK0616MLRRE	P4E1.3IK0616MLRRE	16 mm Megapixel				
P4E1.3RK0625MLRRE	P4E1.3IK0625MLRRE	EDGE 1.3		25 mm Megapixel		
P4ERK0612ARE	P4EIK0612ARE	EDGE		12 mm	Red 80 x 80 mm Area Light	
P4ERK0616ARE	P4EIK0616ARE	EDGE 1.3		16 mm		
P4E1.3RK0616MARE	P4E1.3IK0616MARE			16 mm Megapixel		
P4E1.3RK0625MARE	P4E1.3IK0625MARE	EDGE 1.3		25 mm Megapixel		

\* Other lengths available. See Model Key. \*\* Red lights shown. Infrared and other LED colors available. See Model Key.  
† Can be omitted by removing suffix E in kit model number.

### P4 EDGE Solution Kit Model Key



- Lights**
- SRR** = LEDR62X62M (Ring Light, Red, 62 x 62 mm)
  - SRW** = LEDWR62X62M (Ring Light, White, 62 x 62 mm)
  - SRB** = LEDBR62X62M (Ring Light, Blue, 62 x 62 mm)
  - SRG** = LEDGR62X62M (Ring Light, Green, 62 x 62 mm)
  - SRI** = LEDIR62X62M (Ring Light, Infrared, 62 x 62 mm)
  - LRR** = LEDRR80X80M (Ring Light, Red, 80 x 80 mm)
  - LRW** = LEDWR80X80M (Ring Light, White, 80 x 80 mm)
  - LRB** = LEDBR80X80M (Ring Light, Blue, 80 x 80 mm)
  - LRG** = LEDGR80X80M (Ring Light, Green, 80 x 80 mm)
  - LRI** = LEDIR80X80M (Ring Light, Infrared, 80 x 80 mm)
  - AR** = LEDRA80X80M (Area Light, Red, 80 x 80 mm)
  - AW** = LEDWA80X80M (Area Light, White, 80 x 80 mm)
  - AB** = LEDBA80X80M (Area Light, Blue, 80 x 80 mm)
  - AG** = LEDGA80X80M (Area Light, Green, 80 x 80 mm)
  - AI** = LEDIA80X80M (Area Light, Infrared, 80 x 80 mm)
  - SAR** = LEDRA62X62M (Area Light, Red, 62 x 62 mm)
  - SAW** = LEDWA62X62M (Area Light, White, 62 x 62 mm)
  - SAB** = LEDBA62X62M (Area Light, Blue, 62 x 62 mm)
  - SAG** = LEDGA62X62M (Area Light, Green, 62 x 62 mm)
  - SAI** = LEDIA62X62M (Area Light, Infrared, 62 x 62 mm)
  - BR** = LEDRB70X70M (Backlight, Red, 70 x 70 mm)
  - BI** = LEDIB70X70M (Backlight, Infrared, 70 x 70 mm)
  - LBR** = LEDRB85X220M (Backlight, Red, 85 x 220 mm)
  - LBI** = LEDIB85X220M (Backlight, Infrared, 85 x 220 mm)

### P4 EDGE Basic Kits and Sensors



EDGE Model Number	EDGE 1.3 Model Number	Description
P4ERK06	P4E1.3RK06	Kit: Right-Angle Sensor, Bracket, 2 m Cordset, CD-ROM and Quickstart Guide
P4ERK23	P4E1.3RK23	Kit: Right-Angle Sensor, Bracket, 7 m Cordset, CD-ROM and Quickstart Guide
P4ERK32	P4E1.3RK32	Kit: Right-Angle Sensor, Bracket, 10 m Cordset, CD-ROM and Quickstart Guide
P4EIK06	P4E1.3IK06	Kit: In-Line Sensor, Bracket, 2 m Cordset, CD-ROM and Quickstart Guide
P4EIK23	P4E1.3IK23	Kit: In-Line Sensor, Bracket, 7 m Cordset, CD-ROM and Quickstart Guide
P4EIK32	P4E1.3IK32	Kit: In-Line Sensor, Bracket, 10 m Cordset, CD-ROM and Quickstart Guide
P4ER	P4E1.3R	Right-Angle Sensor—Includes Bracket and CD-ROM
P4EI	P4E1.3I	In-Line Sensor—Includes Bracket and CD-ROM

# PresencePLUS® P4

## BCR and BCR 1.3 Vision Sensors for Advanced 2D and 1D Barcodes

- Uses Bar Code tool to read and grade bar codes
- Finds and decodes advanced 2D and 1D linear bar codes
  - Standard BCR model (640 x 480 pixels) reads 2D Data Matrix ECC200 and PDF 417 (available soon), and 1D linear codes such as Code 39, Code 128, Codabar, Interleaved 2 of 5, EAN-8 and EAN-13 (supports UPC-A).
  - High-resolution BCR 1.3 model (1280 x 1024 pixels) features 1.3 megapixel imaging that reads and grades smaller bar codes in larger field of views.
- Features compact, self-contained P4 housing
- Includes remote TEACH, configurable I/Os, live video and communications standard to all PresencePLUS sensors



VISION





### Accurately reads the 2D and 1D bar codes other readers can't.

- **Complete Package Inspection.** Verifies content codes in a pharmaceutical packaging application
- **Product Tracking.** Provides traceability in an automobile assembly operation
- **Assembly Error Proofing.** Verifies product codes stamped on parts in a precision metal stamping application
- **Quality Control Inspection.** Validates recipient information in a credit card remittance operation



### PresencePLUS® P4 BCR Sensors



Models	Housing	Resolution	Vision Tools	Location/Rotation Adj.	Communications	Multiple Inspections	Lens	Discrete I/O	Data Sheet
P4BCR	Right-Angle	640 x 480 Pixels	 Barcode	 Locate ± 90 degrees	Ethernet IP Modbus/TCP ASCII 10/100 Ethernet RS-232C	8 Remotely Selectable	Standard C-Mount or Megapixel C-Mount	4 Configurable: Electrical (NPN/PNP Selectable), Function, Timing	Quickstart: 118000
P4BCI	In-Line								Manuals: 122800
P4BC1.3R	Right-Angle	1280 x 1024 Pixels					Megapixel C-Mount		Manuals: 122800
P4BC1.3I	In-Line								

## PresencePLUS® P4 BCR Solution Kit



Solution kits include sensor, bracket, cordset, lens, light, PC interface cable, CD-ROM and Quickstart Guide. Detailed information about individual kit components follows.

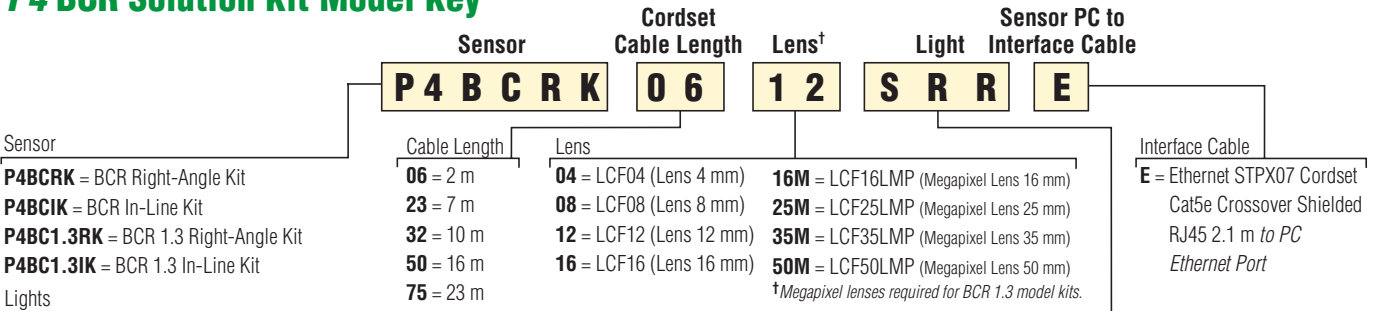
- **Sensors** . . . . . Page 250
- **Lights** . . . . . 255
- **Lens** . . . . . 264
- **Cables** . . . . . 265

A *partial listing* of kits is below; see *Kit Model Key* to order other variations.

Model Number Right-Angle Sensor	Model Number In-Line Sensor	Sensor	Cordset*	Lens	Light**	Sensor to PC Interface Cable†
P4BCRK0612LRRE	P4BCIK0612LRRE	BCR	2 m	12 mm	Red 80 x 80 mm Ring Light	Cat5e 2.1 m Crossover RJ45 Ethernet
P4BCRK0616LRRE	P4BCIK0616LRRE			16 mm		
P4BC1.3RK0616MLRRE	P4BC1.3IK0616MLRRE	BCR 1.3		16 mm Megapixel		
P4BC1.3RK0625MLRRE	P4BC1.3IK0625MLRRE			25 mm Megapixel		
P4BCRK0612ARE	P4BCIK0612ARE	BCR		12 mm	Red 80 x 80 mm Area Light	
P4BCRK0616ARE	P4BCIK0616ARE			16 mm		
P4BC1.3RK0616MARE	P4BC1.3IK0616MARE	BCR 1.3	16 mm Megapixel			
P4BC1.3RK0625MARE	P4BC1.3IK0625MARE		25 mm Megapixel			

\* Other lengths available. See Model Key. \*\* Red lights shown. Infrared and other LED colors available. See Model Key.  
† Can be omitted by removing suffix E in kit model number.

### P4 BCR Solution Kit Model Key




- Lights**
- SRR** = LEDR62X62M (Ring Light, Red, 62 x 62 mm)
  - SRW** = LEDWR62X62M (Ring Light, White, 62 x 62 mm)
  - SRB** = LEDBR62X62M (Ring Light, Blue, 62 x 62 mm)
  - SRG** = LEDGR62X62M (Ring Light, Green, 62 x 62 mm)
  - SRI** = LEDIR62X62M (Ring Light, Infrared, 62 x 62 mm)
  - LRR** = LEDRR80X80M (Ring Light, Red, 80 x 80 mm)
  - LRW** = LEDWR80X80M (Ring Light, White, 80 x 80 mm)
  - LRB** = LEDBR80X80M (Ring Light, Blue, 80 x 80 mm)
  - LRG** = LEDGR80X80M (Ring Light, Green, 80 x 80 mm)
  - LRI** = LEDIR80X80M (Ring Light, Infrared, 80 x 80 mm)
  - AR** = LEDRA80X80M (Area Light, Red, 80 x 80 mm)
  - AW** = LEDWA80X80M (Area Light, White, 80 x 80 mm)
  - AB** = LEDBA80X80M (Area Light, Blue, 80 x 80 mm)
  - AG** = LEDGA80X80M (Area Light, Green, 80 x 80 mm)
  - AI** = LEDIA80X80M (Area Light, Infrared, 80 x 80 mm)
  - SAR** = LEDRA62X62M (Area Light, Red, 62 x 62 mm)
  - SAW** = LEDWA62X62M (Area Light, White, 62 x 62 mm)
  - SAB** = LEDBA62X62M (Area Light, Blue, 62 x 62 mm)
  - SAG** = LEDGA62X62M (Area Light, Green, 62 x 62 mm)
  - SAI** = LEDIA62X62M (Area Light, Infrared, 62 x 62 mm)
  - BR** = LEDRB70X70M (Backlight, Red, 70 x 70 mm)
  - BI** = LEDIB70X70M (Backlight, Infrared, 70 x 70 mm)
  - LBR** = LEDRB85X220M (Backlight, Red, 85 x 220 mm)
  - LBI** = LEDIB85X220M (Backlight, Infrared, 85 x 220 mm)

### P4 BCR Basic Kits and Sensors



BCR Model Number	BCR 1.3 Model Number	Description
P4BCRK06	P4BC1.3RK06	Kit: Right-Angle Sensor, Bracket, 2 m Cordset, CD-ROM and Quickstart Guide
P4BCRK23	P4BC1.3RK23	Kit: Right-Angle Sensor, Bracket, 7 m Cordset, CD-ROM and Quickstart Guide
P4BCRK32	P4BC1.3RK32	Kit: Right-Angle Sensor, Bracket, 10 m Cordset, CD-ROM and Quickstart Guide
P4BCIK06	P4BC1.3IK06	Kit: In-Line Sensor, Bracket, 2 m Cordset, CD-ROM and Quickstart Guide
P4BCIK23	P4BC1.3IK23	Kit: In-Line Sensor, Bracket, 7 m Cordset, CD-ROM and Quickstart Guide
P4BCIK32	P4BC1.3IK32	Kit: In-Line Sensor, Bracket, 10 m Cordset, CD-ROM and Quickstart Guide
P4BCR	P4BC1.3R	Right-Angle Sensor—Includes Bracket and CD-ROM
P4BCI	P4BC1.3I	In-Line Sensor—Includes Bracket and CD-ROM

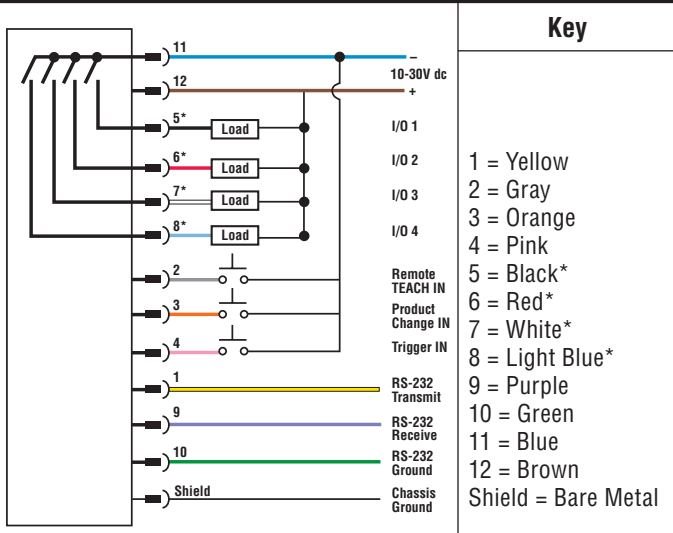
**PresencePLUS® P4 Specifications**

<b>Power</b>	<p><b>Voltage:</b> 10-30V dc (24V dc ± 10% if a light source is powered by the sensor)  <b>Current:</b> <b>AREA, GEO &amp; EDGE</b>—500 mA max. (exclusive of I/O load)  <b>OMNI 1.3, AREA 1.3, GEO 1.3, EDGE 1.3 &amp; BCR 1.3</b>—550 mA max. (exclusive of I/O load)  <b>OMNI &amp; BCR</b>—650 mA max. at 24V dc (exclusive of I/O load)</p>
<b>Input/Output Configuration</b>	NPN or PNP software selectable
<b>Discrete I/O</b>	1 Trigger IN      1 Strobe OUT      4 Programmable I/O      1 Product Change IN 1 Remote TEACH IN
<b>Output Rating</b>	150 mA <b>ON-state saturation voltage:</b> less than 1V at 150 mA max. NPN; greater than V+ -2V (PNP) <b>OFF-state leakage current:</b> less than 100 µA NPN or PNP
<b>Communications</b>	1 RJ-45 10/100 Ethernet RS-232 flying leads
<b>Display Options</b>	PC or NTSC video (9 m max. cable length)
<b>Memory</b>	<b>BCR:</b> Stores up to 8 inspection files <b>All others:</b> Stores up to 12 inspection files
<b>Bicolor Status Indicators</b>	<b>Green:</b> PASS <b>Red:</b> FAIL <b>Green:</b> POWER <b>Red:</b> ERROR <b>Green:</b> READY <b>Red:</b> TRIGGER
<b>Acquisition</b>	<p><b>Frames per second:</b>  <b>AREA, GEO &amp; EDGE</b>—500 max.  <b>OMNI &amp; BCR</b>—48 max.  <b>OMNI 1.3, AREA 1.3, GEO 1.3, EDGE 1.3 &amp; BCR 1.3</b>—26.8 max.</p> <p><b>Image Size:</b>  <b>AREA, GEO &amp; EDGE</b>—128 x 100 pixels  <b>OMNI &amp; BCR</b>—640 x 480 pixels  <b>OMNI 1.3, AREA 1.3, GEO 1.3, EDGE 1.3 &amp; BCR 1.3</b>—1280 x 1024 pixels</p> <p><b>Levels of Gray Scale:</b> 256</p>
<b>Exposure Time</b>	<b>AREA, GEO &amp; EDGE:</b> 0.01 to 20.47 milliseconds <b>OMNI &amp; BCR:</b> 0.1 to 2830 milliseconds <b>OMNI 1.3, AREA 1.3, GEO 1.3, EDGE 1.3 &amp; BCR 1.3:</b> 0.1 to 1670 milliseconds
<b>Imager</b>	<b>AREA, GEO &amp; EDGE:</b> 2.56 x 2.00 mm, 3.2486 mm diagonal CMOS; 128 x 100 pixels <b>OMNI &amp; BCR:</b> 4.736 x 3.552 mm, 5.92 diagonal CCD; 640 x 480 pixels <b>OMNI 1.3, AREA 1.3, GEO 1.3, EDGE 1.3 &amp; BCR 1.3:</b> 8.576 x 6.861 mm, 10.9829 mm diagonal; 1280 x 1024 pixels
<b>Pixel Size</b>	<b>AREA, GEO &amp; EDGE:</b> 20 x 20 micrometer <b>OMNI &amp; BCR:</b> 7.4 x 7.4 microns <b>OMNI 1.3, AREA 1.3, GEO 1.3, EDGE 1.3 &amp; BCR 1.3:</b> 6.7 x 6.7 micrometers
<b>Lens Mount</b>	C-mount
<b>Construction</b>	Black anodized aluminum housing, glass lens
<b>Weight</b>	Approx. 0.29 kg
<b>Environmental Rating</b>	IEC IP20; NEMA 1
<b>Operating Temperature</b>	<b>Stable ambient temperature:</b> 0° C to +50° C <b>Stable ambient lighting:</b> No large, quick changes in light level; no direct or reflected sunlight <b>Relative humidity:</b> 35-95% (non-condensing)
<b>Certification</b>	
<b>Hookup Diagrams</b>	<b>NPN:</b> VS01 (p. 253) <b>PNP:</b> VS02 (p. 253)

PresencePLUS® P4 Hookups

VS01

NPN Outputs with NPN Inputs†

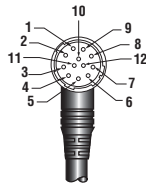


Key

- 1 = Yellow
- 2 = Gray
- 3 = Orange
- 4 = Pink
- 5 = Black\*
- 6 = Red\*
- 7 = White\*
- 8 = Light Blue\*
- 9 = Purple
- 10 = Green
- 11 = Blue
- 12 = Brown
- Shield = Bare Metal

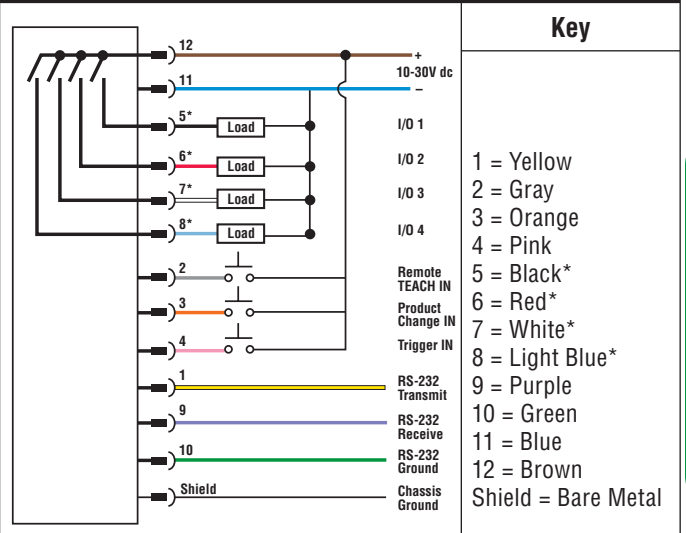
† Inputs can be either NPN or PNP.  
\* Can be independently configured as an output or input.

12-Pin QD



VS02

PNP Outputs with PNP Inputs†

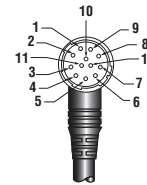


Key

- 1 = Yellow
- 2 = Gray
- 3 = Orange
- 4 = Pink
- 5 = Black\*
- 6 = Red\*
- 7 = White\*
- 8 = Light Blue\*
- 9 = Purple
- 10 = Green
- 11 = Blue
- 12 = Brown
- Shield = Bare Metal

† Inputs can be either NPN or PNP.  
\* Can be independently configured as an output or input.

12-Pin QD



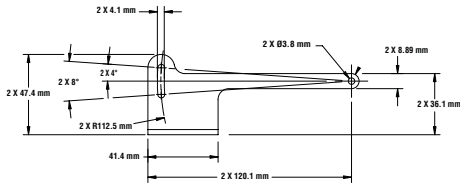
VISION

## P4 Mounting Brackets

VISION

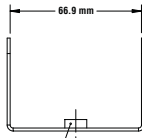
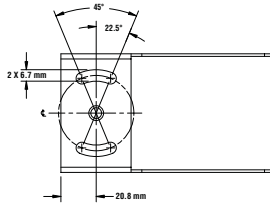
### SMBP4RA

- Right-angle bracket included with sensor—8 degrees of rotation on image's y-axis
- Black corrosion-resistant zinc finish
- Hardware included



**Used With**

- P4 Sensors (Right-Angle)

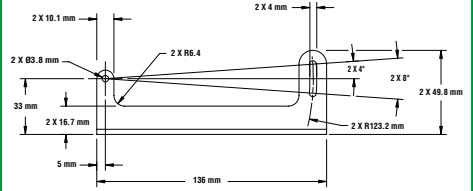


1/4-20 PEM Nut  
Press fit  
(PEM CLS-0420-0)



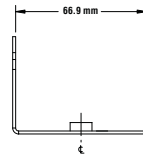
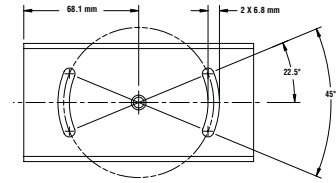
### SMBP4IL

- In-line bracket included with sensor
- Black corrosion-resistant zinc finish
- 8 degrees of rotation on image's y-axis
- Hardware included



**Used With**

- P4 Sensors (In-Line)



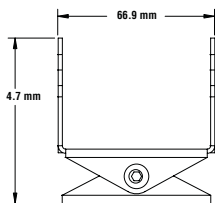
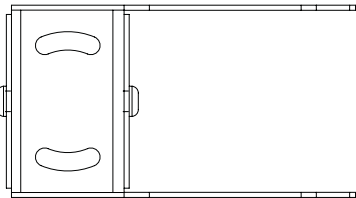
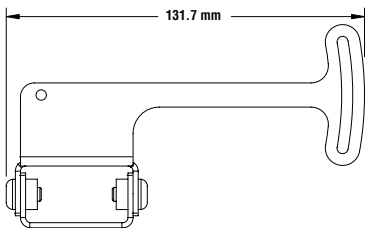
### SMBP4RAS

- Right-angle swivel bracket—70 degrees of rotation on image's x-axis and 20 degrees on the y-axis
- Black corrosion-resistant zinc finish
- Hardware included



**Used With**

- P4 Sensors (Right-Angle)





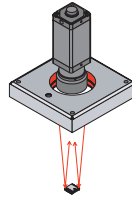
Banner's lighting accessories provide one-stop-shopping support and convenience for an entire vision sensing solution. Banner's extensive line of standard and specialty lights offer illumination solutions for the vast majority of lighting applications.

## PresencePLUS® Lighting Selection Guide

	Description	Application Examples	Page
	<p><b>Ring Light</b> Mounts directly to the sensor for easy setup and illuminates any object directly in front of the sensor</p>	<ul style="list-style-type: none"> <li>• Verify date or lot codes on labels.</li> <li>• Detect label presence.</li> <li>• Detect double sheets.</li> </ul>	256
	<p><b>Low-Angle Ring Light</b> Illuminates nearly perpendicular to the direction of an inspection, enhancing the contrast of surface features</p>	<ul style="list-style-type: none"> <li>• Detect etching in glass, metal or plastic.</li> <li>• Count solder balls.</li> <li>• Detect missing material and roundness in the opening of a plastic bottle.</li> <li>• Detect surface texture on metal sheets.</li> </ul>	256
	<p><b>Area Light</b> Provides even illumination in a concentrated area</p>	<ul style="list-style-type: none"> <li>• Illuminate dark fields.</li> <li>• Detect notches in ceramic rings and metal tubing.</li> <li>• Verify printing on reflective surfaces.</li> <li>• Distinguish between rough and smooth surfaces.</li> <li>• Inspect for cracks or holes in sheet material.</li> </ul>	257
	<p><b>LED Spot Light</b> Installs directly above an object to illuminate with high-intensity light, enhancing the contrast of surface features</p>	<ul style="list-style-type: none"> <li>• Verify print on glossy surface.</li> <li>• Illuminate parts in a washdown environment.</li> <li>• Indicate sensor field of view for end of zip code sensing.</li> <li>• Use in small spaces and washdown areas—IP67 rated.</li> </ul>	258
	<p><b>Multi-Light</b> Has independently adjustable light intensity of each axis</p>	<ul style="list-style-type: none"> <li>• Detect markings on wrinkled metallic surfaces.</li> <li>• Verify surface quality and printing on an IC chip.</li> </ul>	258
	<p><b>Tubular Fluorescent Light</b> Has waterproof housing with integrated mounting brackets</p>	<ul style="list-style-type: none"> <li>• Provide easy, affordable, flicker free illumination of large objects such as a car panel.</li> <li>• Illuminate entire beverage case or web.</li> </ul>	258
	<p><b>Backlight</b> Installs behind the target, directly facing the sensor; has a highly diffused surface and uniform brightness, with a lower intensity than other lights</p>	<ul style="list-style-type: none"> <li>• Create a silhouette of the part.</li> <li>• Detect foreign material on a clear web.</li> <li>• Sort parts by size and shape.</li> <li>• Measure spacing between connector leads.</li> <li>• Measure the height of a cap on a clear bottle.</li> </ul>	259
	<p><b>On-Axis Light</b> Provides even, diffused illumination for flat, reflective surfaces</p>	<ul style="list-style-type: none"> <li>• Detect markings on a brushed metal surface.</li> <li>• Verify date codes on reflective surfaces.</li> </ul>	260
	<p><b>Highly-Diffused Light</b> Provides soft illumination from multiple directions, minimizing glare and shadows</p>	<ul style="list-style-type: none"> <li>• Verify date-code ink on curved metallic surfaces, such as soda can bottoms.</li> <li>• Read printing on clear plastic.</li> <li>• Verify printing on plastic bottles.</li> </ul>	260
	<p><b>Laser Emitters</b> Provides high-contrast illumination with five distinct beam shapes</p>	<ul style="list-style-type: none"> <li>• Sense surface height and texture differences.</li> </ul>	261

**PresencePLUS® Ring Lights**

- Brightly illuminates smaller objects
- Centers the light on the image
- Mounts directly to the camera



**MORE INFO**  
ONLINE PDF  
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**Standard PresencePLUS® Pro LED Ring Lights**

Illumination Area†	Models	Description	Sensor Models	Connection*	Data Sheet
80 x 80 mm	LEDRR80X80W	Red 24V dc	<b>Pro</b>	2 m	108626
	LEDWR80X80W	White 24V dc			
	LEDBR80X80W	Blue 24V dc			
	LEDGR80X80W	Green 24V dc			
	LEDIR80X80W	Infrared 24V dc			
62 x 62 mm	LEDRR62X62W	Red 24V dc			
	LEDWR62X62W	White 24V dc			
	LEDBR62X62W	Blue 24V dc			
	LEDGR62X62W	Green 24V dc			
	LEDIR62X62W	Infrared 24V dc			

\* For 9 m cable, add suffix W/30 to the 2 m model number (example, LEDRR80X80W W/30).

**MORE INFO**  
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**Standard PresencePLUS® P4 LED Ring Lights**

Illumination Area†	Models	Description	Sensor Models	Connection*	Data Sheet
62 x 62 mm	LEDRR62X62M	Red 24V dc	<b>P4</b>	0.3 m Threaded 3-Pin Pico Pigtail QD	116941
	LEDWR62X62M	White 24V dc			
	LEDBR62X62M	Blue 24V dc			
	LEDIR62X62M	Infrared 24V dc			
80 x 80 mm	LEDRR80X80M	Red 24V dc			
	LEDWR80X80M	White 24V dc			
	LEDBR80X80M	Blue 24V dc			
	LEDGR80X80M	Green 24V dc			
	LEDIR80X80M	Infrared 24V dc			

\* Splitter cable available for powering dual lights (see page 261).

**MORE INFO**  
ONLINE PDF  
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**Specialty PresencePLUS® Fluorescent Ring Lights\*\***

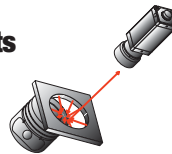
Illumination area	Models	Description	Sensor Models	Data Sheet
100 mm dia.	HFFW5100	110V ac Fluorescent Ring Light	<b>Pro, P4</b>	115969
	HFFW5100A220	220V ac Fluorescent Ring Light		115970
	HFFBB	110V ac UV Fluorescent Ring Light		115968

RFLBB UV Fluorescent ring lamp replacement bulb  
RFLW5100 Fluorescent ring lamp replacement bulb

**Standard PresencePLUS® LED Low-Angle Ring Lights**



- Highlights surface irregularities
- Highlights changes in elevation



**MORE INFO**  
ONLINE PDF  
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Illumination area	Models	Description	Sensor Models	Data Sheet
100 mm dia.	LEDRI100N	Red 12V dc	<b>Pro, P4</b>	67432

Note: Requires an external power supply (see page 266).

**Specialty PresencePLUS® LED Low-Angle Ring Light\*\***

Illumination area	Models	Description	Sensor Models	Data Sheet
150 mm dia.	LEDRI150N	Red 12V dc	<b>Pro, P4</b>	67433
	LEDRI150N-3	Red 12V dc		

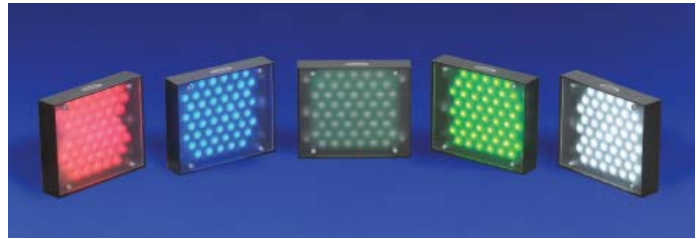
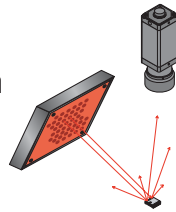
† For replacement windows and diffusers (see page 261).  
\*\* Specialty lights are not stocked and are non-returnable; they require an external power supply (see page 266).

**MORE INFO**  
ONLINE PDF  
Download PDF



### PresencePLUS® Area Lights

- Creates shadows to detect changes in depth
- Illuminates specific surface angles
- Avoids glare of reflective surfaces



#### Standard PresencePLUS® LED Area Lights

Illumination Area†	Models	Description	Sensor Models	Connection*	Data Sheet
80 x 80 mm	LEDRA80X80W	Red 24V dc	<b>Pro, P4</b>	2 m	115607
	LEDWA80X80W	White 24V dc			
	LEDBA80X80W	Blue 24V dc			
	LEDGA80X80W	Green 24V dc			
	LEDIA80X80W	Infrared 24V dc			
62 x 62 mm	LEDRA62X62W	Red 24V dc	<b>Pro, P4</b>	2 m	121779
	LEDWA62X62W	White 24V dc			
	LEDBA62X62W	Blue 24V dc			
	LEDGA62X62W	Green 24V dc			
	LEDIA62X62W	Infrared 24V dc			

\* For 9 m cable, add suffix **W/30** to the 2 m model number (example, LEDRA80X80W W/30).



#### Standard PresencePLUS® P4 LED Area Lights

Illumination Area†	Models	Description	Sensor Models	Connection*	Data Sheet
80 x 80 mm	LEDRA80X80M	Red 24V dc	<b>P4</b>	2 m Threaded 3-Pin Pico Pigtail QD	116949
	LEDWA80X80M	White 24V dc			
	LEDBA80X80M	Blue 24V dc			
	LEDGA80X80M	Green 24V dc			
	LEDIA80X80M	Infrared 24V dc			
62 x 62 mm	LEDRA62X62M	Red 24V dc	<b>P4</b>	2 m Threaded 3-Pin Pico Pigtail QD	121780
	LEDWA62X62M	White 24V dc			
	LEDBA62X62M	Blue 24V dc			
	LEDGA62X62M	Green 24V dc			
	LEDIA62X62M	Infrared 24V dc			

\* Splitter cable available for powering dual lights (see page 261).



#### Specialty PresencePLUS® LED Area Lights\*\*

Illumination Area	Models	Description	Sensor Models	Data Sheet
50 x 50 mm	LEDRA50X50N	Red 12V dc	<b>Pro, P4</b>	67423
	LEDWA50X50N	White 12V dc		
	LEDBA50X50N	Blue 12V dc		
	LEDIA50X50N	Infrared 12V dc		
75 x 75 mm	LEDRA75X75N	Red 12V dc	<b>Pro, P4</b>	67424
	LEDWA75X75N	White 12V dc		
	LEDBA75X75N	Blue 12V dc		
	LEDIA75X75N	Infrared 12V dc		
100 x 100 mm	LEDRA100X100N	Red 12V dc	<b>Pro, P4</b>	67425
	LEDWA100X100N	White 12V dc		
	LEDBA100X100N	Blue 12V dc		
	LEDIA100X100N	Infrared 12V dc		

† For replacement windows and diffusers (see page 261).

\*\* Specialty lights are not stocked and are non-returnable; they require an external power supply (see page 266).

**PresencePLUS® LED Spot Lights**

- Provides off-axis illumination of small areas
- Withstands washdown (rated IP67)



**Standard PresencePLUS® LED Spot Lights**

Illumination Area	Models	Description	Sensor Model	Connection*	Data Sheet
30 mm	LEDRSW	<b>Red</b> 10 to 30V dc	<b>Pro, P4</b>	2 m	122987
	LEDWSW	<b>White</b> 10 to 30V dc			
	LEDBSW	<b>Blue</b> 10 to 30V dc			
	LEDGSW	<b>Green</b> 10 to 30V dc			

\* For 9 m cable, add suffix W/30 to the 2 m model number (example, LEDRSW W/30).



**PresencePLUS® P4 LED Spot Lights**

Illumination Area	Models	Description	Sensor Model	Connection*	Data Sheet
30 mm	LEDRSM	<b>Red</b> 10 to 30V dc	<b>P4</b>	2 m Threaded 3-pin Pico Pigtail QD	122986
	LEDWSM	<b>White</b> 10 to 30V dc			
	LEDBSM	<b>Blue</b> 10 to 30V dc			
	LEDGSM	<b>Green</b> 10 to 30V dc			

\* Splitter cable available for powering dual lights (see page 261).



**Specialty PresencePLUS® LED Multi-Lights**

- Provides multiple lighting angles and highly diffused lighting

Illumination Area	Models	Description	Sensor Models	Data Sheet
50 mm dia.	LEDRM50N	<b>Red</b> low-angle & on-axis, 12V dc	<b>Pro, P4</b>	67435
	LEDRM50N-H	<b>Red</b> low-angle & on-axis, high output 12V dc		
75 mm dia.	LEDRM75N	<b>Red</b> low-angle & on-axis, 12V dc	<b>Pro, P4</b>	67436
150 mm dia.	LEDRC150N	<b>Red</b> dome & on-axis multi-light, 12V dc		67443
200 mm dia.	LEDRC200N	<b>Red</b> dome & on-axis multi-light, 12V dc		67444

Note: Specialty lights are not stocked and are non-returnable; they require an external power supply (see page 266).

**PresencePLUS® Tubular Fluorescent Lights**

- Provides easy, affordable, flicker-free illumination of large objects
- Use waterproof housings with integrated mounting brackets

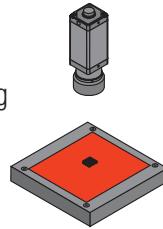
Models	Description	Ballast	Used With	Data Sheet
HFFW8DC	8" Light, 24V dc	Integral	<b>Pro, P4</b>	115387
HFFW8AC110	8" Light, 110V ac			
HFFW8AC230	8" Light, 230V ac			
HFFW12DC	12" Light, 24V dc			
HFFW12AC	12" Light, 120 to 277V ac			
HFFW14DC	14" Light, 24V dc			
HFFW15AC110	15" Light, 110V ac			
HFFW15AC230	15" Light, 230V ac			
HFFW24AC	24" Light, 120 to 277V ac			
HFFW36AC	36" Light, 120 to 277V ac			
HFFW48AC	48" Light, 120 to 277V ac			
HFFW8ACR	8" Light, 120 to 277V ac			
HFFW12ACR	12" Light, 120 to 277V ac			
HFFW15ACR	15" Light, 120 to 277V ac			
HFFW24ACR	24" Light, 120 to 277V ac			
HFFW36ACR	36" Light, 120 to 277V ac			
HFFW48ACR	48" Light, 120 to 277V ac			
SMBWFTLS	Straight Bracket	—	<b>Tubular Lights</b>	115763
SMBWFTLR	Right-Angle Bracket			



Note: Replacement bulbs available, contact factory for information. All models have louvers integral mounting flange, optional brackets are listed for heavy-duty mounting (two brackets required for each light).

### PresencePLUS® Backlights

- Determines the shape and size of target objects
- Provides the most robust lighting for measuring and gauging
- Highlights through-holes in target objects



#### Standard PresencePLUS® LED Backlights

Illumination Area†	Models	Description	Sensor Models	Connection*	Data Sheet
70 x 70 mm	LEDRB70X70W	Red 24V dc	Pro, P4	2 m	115349
	LEDIB70X70W	Infrared 24V dc			
85 x 220 mm	LEDRB85X220W	Red 24V dc			
	LEDIB85X220W	Infrared 24V dc			

\* For 9 m cable, add suffix W/30 to the 2 m model number (example, LEDRB70X70W W/30).



#### Standard PresencePLUS® P4 LED Backlights

Illumination Area†	Models	Description	Sensor Models	Connection*	Data Sheet
70 x 70 mm	LEDRB70X70M	Red 24V dc	P4	2 m Threaded 3-Pin Pico Pigtail QD	116947
	LEDIB70X70M	Infrared 24V dc			
85 x 220 mm	LEDRB85X220M	Red 24V dc			
	LEDIB85X220M	Infrared 24V dc			

\* Splitter cable available for powering dual lights (see page 261).



#### Specialty PresencePLUS® LED Backlights\*\*

Illumination Area	Models	Description	Sensor Models	Data Sheet
50 x 50 mm	LEDRB50X50N	Red diffused, 12V dc	Pro, P4	67426
	LEDWB50X50N	White diffused, 12V dc		
	LEDBB50X50N	Blue diffused, 12V dc		
	LEDIB50X50N	Infrared diffused, 12V dc		
75 x 75 mm	LEDRB75X75N	Red diffused, 12V dc	Pro, P4	67427
	LEDWB75X75N	White diffused, 12V dc		
	LEDBB75X75N	Blue diffused, 12V dc		
	LEDIB75X75N	Infrared diffused, 12V dc		
100 x 100 mm	LEDRB100X100N	Red diffused, 12V dc	Pro, P4	67428
	LEDWB100X100N	White diffused, 12V dc		
	LEDBB100X100N	Blue diffused, 12V dc		
	LEDIB100X100N	Infrared diffused, 12V dc		
50 x 200 mm	LEDRB50X200N	Red diffused, 12V dc	Pro, P4	67429
	LEDRB50X200N-H	Red diffused, high output, 12V dc		67430
	LEDRB50X200N-NH	Red non-diffused, high output 12V dc		
100 x 200 mm	LEDRB100X200N	Red diffused, 12V dc	Pro, P4	67431
	LEDIB100X200N	Infrared diffused, 12V dc		

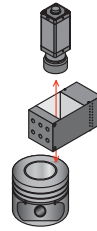
† For replacement windows and diffusers (see page 261).

\*\*Specialty lights are not stocked and are non-returnable; they require an external power supply (see page 266).

VISION

**On-Axis and Highly-Diffused Lights**

- More uniformly illuminates than a ring light
- Provides collimated illumination in same optical path as camera
- Evenly illuminates on flat reflective material



**Standard PresencePLUS® LED On-Axis Lights**

Illumination Area	Models	Description	Sensor Models	Connection*	Data Sheet
100 x 100 mm	LEDRO100W	Red 24V dc	Pro, P4	2 m	126059

\* For 9 m cable, add suffix W/30 to the 2 m model number (example, LEDRO100W W/30).



**Standard PresencePLUS® P4 LED On-Axis Lights**

Illumination Area	Models	Description	Sensor Models	Connection	Data Sheet
100 x 100 mm	LEDRO100M	Red 24V dc	P4	2 m Threaded, 3-pin Pico, Pigtail QD	126059



**Specialty PresencePLUS® LED On-Axis Lights**

Illumination Area	Models	Description	Sensor Models	Data Sheet
25 mm dia.	LEDRO25N	Red 12V dc	Pro, P4	67437
	LEDWO25N	White 12V dc		
	LEDBO25N	Blue 12V dc		
50 mm dia.	LEDRO50N-D	Red LED, w/dust cover, 12V dc	Pro, P4	67438
	LEDRO50N-H	Red LED, high output, 12V dc		
	LEDWO50N	White 12V dc		
	LEDBO50N	Blue 12V dc		
	LEDIO50N	Infrared 12V dc		
75 mm dia.	LEDRO75N	Red 12V dc	Pro, P4	67439
	LEDRO75N-H	Red high output, 12V dc		
	LEDWO75N	White 12V dc		
	LEDBO75N	Blue 12V dc		
50 mm dia.	LEDRO50N	Red 12V dc	Pro, P4	67438
100 mm dia.	LEDRO100N	Red 12V dc	Pro, P4	67440
	LEDWO100N	White 12V dc		

**Standard PresencePLUS® LED Highly-Diffused Lights†**



- Minimizes glare and shadows
- Illuminates curved surfaces softly and evenly
- Minimizes texture



Illumination Area	Models	Description	Sensor Models	Data Sheet
150 mm dia.	LEDRD150N	Red dome, 12V dc	Pro, P4	66955
200 mm dia.	LEDRD200N	Red dome, 12V dc	Pro, P4	67444

† Requires an external power supply (see page 266)

**Specialty PresencePLUS® LED Highly-Diffused Lights**









Illumination Area	Models	Description	Sensor Models	Data Sheet
25 mm dia.	LEDRS25N	Red 12V dc	Pro, P4	67441
75 mm dia.	LEDRS75N	Red 12V dc	Pro, P4	67442
	LEDGS75N	Green 12V dc		

NOTE: Specialty lights are not stocked and are non-returnable; they require an external power supply (see page 266)

## Laser Emitters for Illumination

PresencePLUS® Laser Emitters • Provides high-contrast illumination • Senses surface height and texture differences



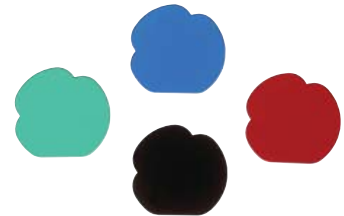
Models	Description	Sensor Models	Connection*	Data Sheet
 QS186LE10 	Small Spot	Pro, P4	2 m	109415
QS186LE11 	Vertical Line			
QS186LE12 	Horizontal Line			
QS186LE14 	Cross			
QS186LE212 	Extra Bright Horizontal Line (Class 2)			

\* For 9 m cable and QD models contact factory.



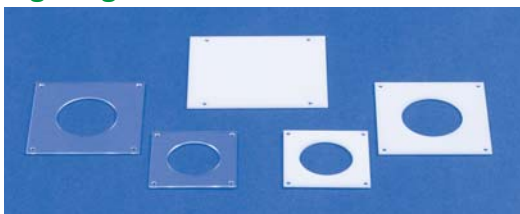
## Filters

Models	Color	Description	Data Sheet
FLTI	Infrared (≥ 760 nm)	Blocks visible light and passes infrared light. Included with all Banner Infrared light sources.	69461
FLTUV	Ultraviolet	Clear protective UV filter for high-performance lenses	None
FLTB	Blue (≥ 470 nm)	Improves quality by helping to reduce ambient light; it passes blue and infrared light.	115635
FLTG	Green (≥ 525 nm)	Improves quality by helping to reduce ambient light; it passes green and infrared light.	115634
FLTR	Red (≥ 600 nm)	Improves quality by helping to reduce ambient light; it passes red and infrared light	69628
LEDRPFK	—	Polarizing filter kit for 80 x 80 Ring Lights	108945
LEDAPFK	—	Area light/backlight polarizing kit for light and camera	113657



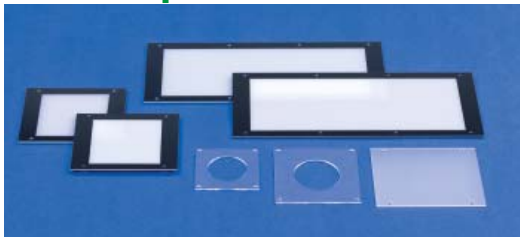
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## Lighting Diffusers



Model	Description	Use With
LEDRDW	White Diffusing Window Kit	80 x 80 mm Ring Lights
LEDRCDW	Clear Diffusing Window Kit	80 x 80 mm Ring Lights
LEDRDWS	White Diffusing Window Kit	62 x 62 mm Ring Lights
LEDRCDWS	Clear Diffusing Window Kit	62 x 62 mm Ring Lights
LEDADW	White Diffusing Window Kit	80 x 80 mm Area Lights
LEDADWS	White Diffusing Window Kit	62 x 62 mm Area Lights

## Window Replacements



Model	Description	Use With
LEDRCW	Clear Window Replacement	80 x 80 mm Ring Lights
LEDRCWS	Clear Window Replacement	62 x 62 mm Ring Lights
LEDAW	Clear Window Replacement	80 x 80 mm Area Lights
LEDAWS	Clear Window Replacement	62 x 62 mm Area Lights
LEDBW	White Window Replacement	70 x 70 mm Red Backlights
LEDBIW	White Window Replacement	70 x 70 mm Infrared Backlights
LEDBWL	White Window Replacement	85 x 200 mm Red Backlights
LEDBIWL	White Window Replacement	85 x 200 mm Infrared Backlights

## Splitter Cable



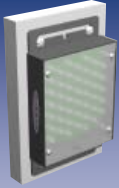
Model	Description	Use With
P4CYL	Cable Powers Two Lights with One P4 (200 mm Trunk & Branches with 3-pin Pico QD)	Standard Ring Lights, Area Lights, Spot Lights & Backlights with 3-pin Pico QD

**PresencePLUS® Lighting Mounting Brackets**

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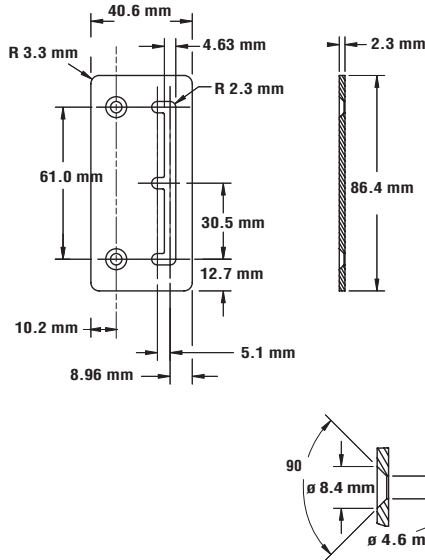
**SMBABM**

- Base-mounting bracket
- Black corrosion-resistant zinc finish
- Hardware included



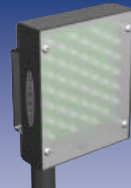
**Used With**

- Area Lights (80 x 80)
- Backlights (70 x 70)



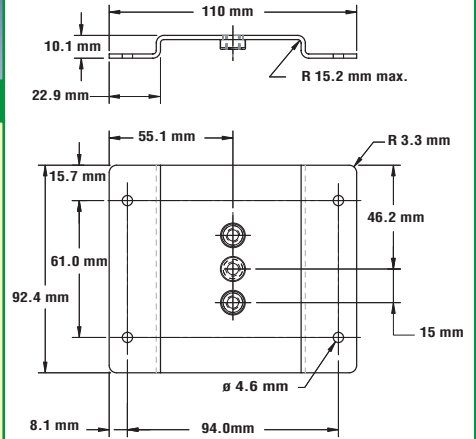
**SMBACM**

- Column-mounting bracket
- Black corrosion-resistant zinc finish
- Hardware included



**Used With**

- Area Lights (80 x 80)
- Backlights (70 x 70)



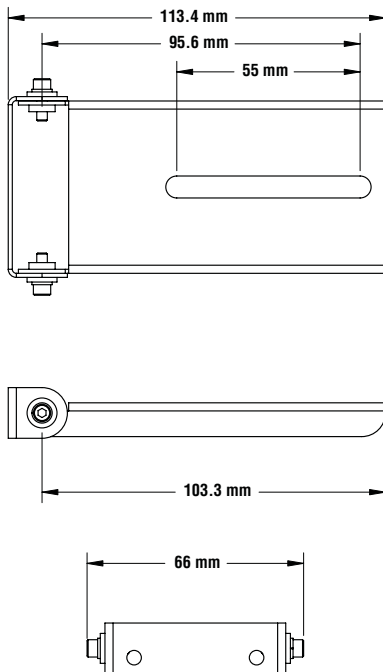
**SMBP4ASM**

- For mounting one light to P4 sensor housing
- Black corrosion-resistant zinc finish
- Hardware included



**Used With**

- Area Light (62 x 62)
- Area Light (80 x 80)\*
- Spot Lights



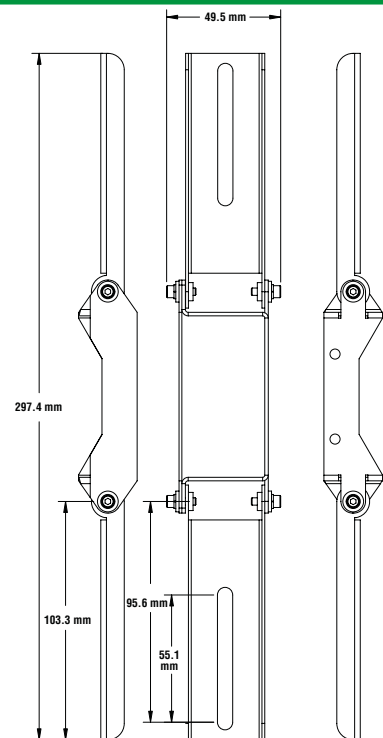
**SMBP42ASM**

- For mounting two lights to P4 sensor housing
- Black corrosion-resistant zinc finish
- Hardware included



**Used With**

- Area Light (62 x 62)
- Area Light (80 x 80)\*
- Spot Lights



\*Requires one SMBACM bracket for each light.

### PresencePLUS® Mounting Systems

Models	Description	Used With
SMBPPK3	3" Column, Base, and Knuckle Kit	<b>Pro, P4, Lights</b>
SMBPPK6	6" Column, Base, and Knuckle Kit	
SMBPPK	Mounting Bracket Knuckle	
SMBPPKE3	3" Column	
SMBPPKE6	6" Column	
SMBPPKB	Mounting Bracket Base	
SMBPPLK	2" Mounting Knuckle Assembly	
SMBPPF1	Bogen Arm with Single Knob	
SMBPPFB	Bogen Arm Clamp	



### PresencePLUS® Enclosure Kits

Models	Description	Data Sheet
P4RE67-G	Heavy-duty stainless-steel enclosure kit for PresencePLUS P4 right-angle sensor and ring light - glass viewport; NEMA 6 rated	121996
P4RE67-P	Heavy-duty stainless-steel enclosure kit for PresencePLUS P4 right-angle sensor and ring light - polycarbonate viewport; NEMA 6 rated	
PPE-G	Heavy-duty cold-rolled steel industrial protection kit for PresencePLUS Pro camera and lens - glass viewport; NEMA 1 rated	115342
PPE-P	Heavy-duty cold-rolled steel industrial protection kit for PresencePLUS Pro camera and lens - polycarbonate viewport; NEMA 1 rated	
PPE4-G	Heavy-duty stainless-steel enclosure kit for PresencePLUS Pro camera and ring light - glass viewport; NEMA 4 rated	111362
PPE4-P	Heavy-duty stainless-steel enclosure kit for PresencePLUS Pro camera and ring light - polycarbonate viewport; NEMA 4 rated	
PPE-RG	PresencePLUS Pro camera enclosure and industrial protection kit replacement glass viewport	None
PPE-RP	PresencePLUS Pro camera enclosure and industrial protection kit replacement polycarbonate plastic viewport	
SMBPPES	Mounting bracket, enclosure straight (PPE-P, PPE-G)	None
SMBPPEA	Mounting bracket, enclosure right angle (PPE-P, PPE-G)	
SMBPPEF	Mounting bracket, enclosure front (PPE-P, PPE-G)	



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**Lenses**

**PresencePLUS® Standard Lenses**



Models	Description	Format Size	Sensor Models
LCF04	4 mm Lens	1/3"	<b>ALL (except 1.3 megapixel models)</b>
LCF08	8 mm Lens		
LCF12	12 mm Lens with Focus Locking		
LCF16	16 mm Lens with Focus Locking		
LCF25R	25 mm Lens	1"	
LCF25LR	25 mm Lens with Focus Locking, Metal Housing	2/3"	
LCF50L1R	50 mm Lens with Focus Locking		
LCF50L2R	50 mm Lens with Focus Locking, Metal Housing	1"	
LCF75LR	75 mm Lens with Focus Locking, Metal Housing	—	
LEK	C-mount Lens Extension Kit (0.5, 1.0, 5.0, 10, 20 and 40 mm)	—	
LEKS	C-mount Lens Extension Kit (0.25, and 0.5 mm)		

**PresencePLUS® High-Performance Lenses**



Models	Description	Format Size	Sensor Models
LCF03LT	3.5 mm Lens with Focus Locking	1/2"	<b>ALL (except 1.3 megapixel models)</b>
LCF1040LT	10 - 40 mm Lens with Zoom and Focus Locking		
LCF06LT	6.5 mm Lens with Focus Locking	2/3"	
LCF08LT	8 mm Lens with Focus Locking		
LCF12LT	12 mm Lens with Focus Locking		
LCF16LT	16 mm Lens with Focus Locking		
LCF25LT	25 mm Lens with Focus Locking		
LCF50LT	50 mm Lens with Focus Locking		
LCF75LT	75 mm Lens with Focus Locking		
FLTUV	UV Lens Filter, Clear Glass	—	
LEK	C-mount Lens Extension Kit (0.5, 1.0, 5.0, 10, 20 and 40 mm)		
LEKS	C-mount Lens Extension Kit (0.25, and 0.5 mm)		

**PresencePLUS® Megapixel Lenses**



Models	Description	Format Size	Sensor Models
LCF08LMP	8 mm Lens with Focus Locking	2/3"	<b>ALL</b>
LCF12LMP	12 mm Lens with Focus Locking		
LCF16LMP	16 mm Lens with Focus Locking		
LCF25LMP	25 mm Lens with Focus Locking		
LCF35LMP	35 mm Lens with Focus Locking		
LCF50LMP	50 mm Lens with Focus Locking		
LEK	C-mount Lens Extension Kit (0.5, 1.0, 5.0, 10, 20 and 40 mm)	—	
LEKS	C-mount Lens Extension Kit (0.25, and 0.5 mm)		

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**PresencePLUS® Cables and Cordsets**

	Models	Description	Sensor
	PPC06	2 m, Camera to Controller	<b>Pro</b>
	PPC06HF	2 m, Camera to Controller (High Flex)	
	PPC06RA	2 m, Camera to Controller Right Angle	
	PPC06RAHF	2 m, Camera to Controller Right Angle (High Flex)	
	PPC10RA	3 m, Camera to Controller Right Angle	
	PPC23	7 m, Camera to Controller	
	PPC23HF	7 m, Camera to Controller (High Flex)	
	PPC23RA	7 m, Camera to Controller Right Angle	
	PPC23RAHF	7 m, Camera to Controller Right Angle (High Flex)	
	PPC32	10 m, Camera to Controller	
	PPC32HF	10 m, Camera to Controller (High Flex)	
	PPC32RA	10 m, Camera to Controller Right Angle	
PPC32RAHF	10 m, Camera to Controller Right Angle (High Flex)		
	DB9P06	2 m, DB9 Male to DB9 Female for Serial Communication	<b>P4</b>
	DB9P15	5 m, DB9 Male to DB9 Female for Serial Communication	
	DB9P30	9 m, DB9 Male to DB9 Female for Serial Communication	
	P4C06	2 m, 12-pin Sensor Quick Disconnect	<b>Pro, P4</b>
	P4C23	7 m, 12-pin Sensor Quick Disconnect	
	P4C32	10 m, 12-pin Sensor Quick Disconnect	
	P4C50	16 m, 12-pin Sensor Quick Disconnect	
	P4C75	23 m, 12-pin Sensor Quick Disconnect	
	BNC06	2 m, Video/Coaxial with Male BNC on Both Ends	<b>Pro, P4</b>
	BNC15	5 m, Video/Coaxial with Male BNC on Both Ends	
	BNC30	9 m, Video/Coaxial with Male BNC on Both Ends	
	STP07	Cat5e Shielded RJ45 2.1 m for Ethernet Communications	<b>Pro, P4</b>
	STP25	Cat5e Shielded RJ45 7.6 m for Ethernet Communications	
	STPX07	Cat5e Crossover Shielded RJ45 2.1 m for Ethernet Communications	
	STPX25	Cat5e Crossover Shielded RJ45 7.6 m for Ethernet Communications	
	STPX75	Cat5e Crossover Shielded RJ45 23 m for Ethernet Communications	



**PresencePLUS® Monitors\***



Models	Description	Sensor Models	Data Sheet
PPM9	9" Black and White NTSC Video Monitor	<b>Pro, P4</b>	None
PPM7	7" Flat Panel NTSC Video Monitor		116056

\*Monitors require a BNC cable (above) for connection to a PresencePLUS Sensor.



### Continuous Power Supplies



Models	Input	Input Cord	Outputs	Output Cable	Used With	Data Sheet
PSA-12	100-250V ac 50/60 Hz	North America (NEMA 5-15)	12V dc $\pm 5\%$ with voltage regulation of $\pm 1\%$ 3.5 A max.	1.8 m Terminated with 9-pin D-sub connector (female pins)	Continuous LED Lights	67445
PSA-12E		Cont. Europe (Schuko CEE 7)				
PSA-24	100-250V ac 50/60 Hz	North America (NEMA 5-15)	24V dc $\pm 5\%$ with voltage regulation of $\pm 1\%$ 2.2 A max.	1.8 m Terminated with 9-pin D-sub connector (female pins)	Continuous LED Lights	67447
PSA-24E		Cont. Europe (Schuko CEE 7)				
PSC-24*	100-250V ac 50/60 Hz	North America (NEMA 5-15)	24V dc $\pm 5\%$ with voltage regulation of $\pm 1\%$ 2.2 A max.	1.8 m 2-wire Unterminated	SCM Strobe Control Module (see below)	67446
PSC-24E*		Cont. Europe (Schuko CEE 7)				
PSDINA-24 (DIN-rail mountable)	115/230V ac (Auto Select)	—	24V dc @ 2.5 mA max.	—	P4, Pro & Lights	—



PSA.. & PSG..



PSDINA-24

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### Strobe Control Module\*



Models	Input	Trigger Input	Output	Output Pulse Range	Used With	Data Sheet
SCM	24V DC $\pm 5\%$ 2 A max.	5-12V dc pulse rising or falling (switch selectable) 10 mA max.	2-channels 24V dc $\pm 5\%$  9 A nominal per channel @ 60 Hz	5 to 1,300 microseconds	Strobed types: <b>LEDRD150N-S</b>	67448



### Variable Power Supplies\*



Models	Input	Input Cord	Outputs	Output Cable	Used With	Data Sheet
PS2V-12	100-140V ac 60 Hz	North America (NEMA 5-15)	2-channels 6 - 12V dc  2 A max. per channel	1.8 m Terminated with 9-pin D-sub connector (female pins)	Continuous LED Lights	67449
PS2V-12E	200-250V ac 50 Hz	Cont. Europe (Schuko CEE 7)				



### Power Supply Extension Cables\*

Models	Length	Configuration	Used With
DB906	1.8 m	Cable powers one continuous light (one end male pins and one end female; both ends terminated with 9-pin D-sub connector)	Continuous LED Lights
DB910	3.0 m		
DB9Y	1.8 m	Cable powers two continuous lights with one supply (9 m trunk with male connector and 9 m branches with female connector; ends terminated with 9-pin D-sub connector)	Strobed LED Lights
DB906S	1.8 m	Cable powers one strobed light (one end male pins and one end female; both ends terminated with 9-pin D-sub connector)	
DB910S	3.0 m		
DB9YS	1.8 m	Cable powers one strobed light (9 m trunk with male connector and 9 m branches with female connector; ends terminated with 9-pin D-sub connector)	

\* These products are not stocked and are non-returnable.