

# PA4600-BB

## Entry/Exit Access Guarding Device

- 2 beams available
- Operating range of 8 m
- Compact size — 46 x 55 mm (1.81 x 2.17 in.)
- Simple “one-box” — active/passive design
- Individual Beam Indicators
- Simplified wiring - electrical connections only required at transceiver
- A Rapid Delivery Product: Select models are available for shipment today or within 3 to 5 days



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## Specifications

<b>Performance</b>	
Protective Height:	500 and 600 mm
Operating Range:	0.8 to 8 m
Response Time:	Transmit Code A: <24 ms; Transmit Code B: <20 ms; Transmit Code C: <16 ms
Safety Output:	Two PNP, each output sourcing 625 mA @ 24 VDC, short circuit protected (See note 1 below)
Auxiliary (Non-Safety ) Output:	One NPN output sinking 100 mA @ 24 VDC or PNP output sourcing 100 mA @ 24 VDC. Both available in follow or fault operating modes.
External Device Monitoring:	50 mA @ 24 VDC steady state (See note 2 below)
Start/Restart:	N.O. input. Momentary contact (10 mA consumption)
Effective Aperture Angle:	± 2.5° maximum, transmitter and receiver at operating range greater than 3 m per IEC 61496-2
Light Source:	Infrared light emitting diode, 880 nm
Transceiver Indicator Lights:	Machine run (green), machine stop (red), interlock/fault (yellow), active (yellow), individual beam and two 7-segment displays (red)
<b>Electrical</b>	
Power Input:	Transceiver: 24 VDC ± 20% 1.6 A max. (transceiver 250 mA + OSSD1 625 mA max. + OSSD2 625 mA max. + auxiliary 100 mA max.). (See note 1 below.) Power Supply must meet requirements of IEC 60204-1 and IEC 61496. STI part number 42992 or equivalent. (See note 1 below.)
<b>Mechanical</b>	
Construction:	Polyester powder-painted aluminum
Cable Length:	Available in 10, 15 and 30 m lengths, unshielded.
Minimum Cable Gauge:	22 AWG (0.32 mm <sup>2</sup> ) for user-supplied cables
Connection Type:	M-12, 8-pin connector
<b>Environmental</b>	
Enclosure Rating:	IP67
Operating Temperature:	0 to 55°C (32 to 131°F)
Relative Humidity:	95% maximum, non-condensing
<b>Approvals</b>	
ESPE Type 4 (IEC 61496-1/ -2) Category 4 / PL e (EN ISO 13849-1) SIL3 / SIL3 CL3 (IEC 61508 / EN 62061) UL508, UL1998, CAN/CSA-C22.2 No. 14, CAN/CSA-C22.2 No. 0.8, CAN/CSA-C22.2 No 0, CAN/CSA-C22.2 No 205	

Specifications subject to change without notification.

Note 1: Total system current requirement is the sum of transceiver (250 mA), OSSD1 (625 mA max.), OSSD2 (625 mA max.) and Aux. output (100 mA max.).

Note 2: 24 VDC is nominal. Actual voltage is dependent upon supply, V = Vsupply - 2V.

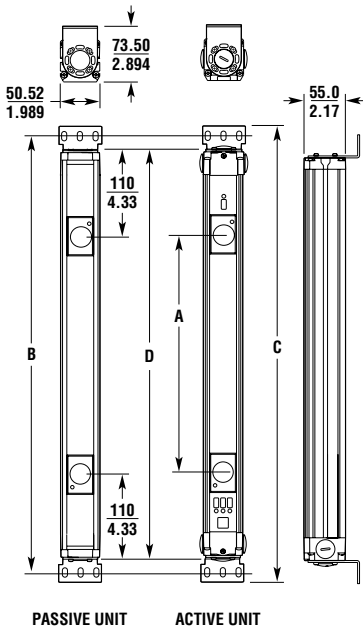
## Description

### The Entry Exit

PA4600-BB is a short range, two-beam safeguarding device. It is suited to detect the torsos of personnel entering a hazardous area. Installation and alignment is simplified with Individual Beam Indicators, which glow red when the beam is out of alignment or blocked. The separate Scan Codes allow the installer to select unique scan frequencies that eliminate cross-talk with adjacent PA4600 systems. Diagnostics are greatly enhanced with the LED status indicators and numeric displays. The active-passive design simplifies the electrical connections, as no connections are needed at the Passive (mirror) assembly.

Dimensions

(mm/in.)



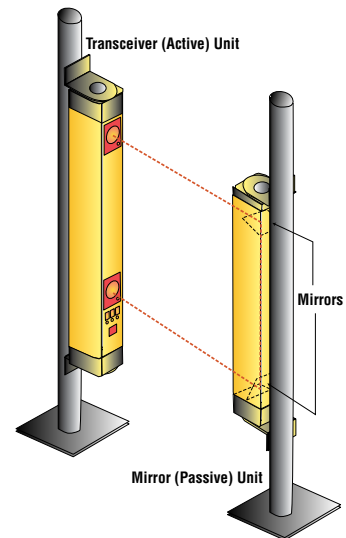
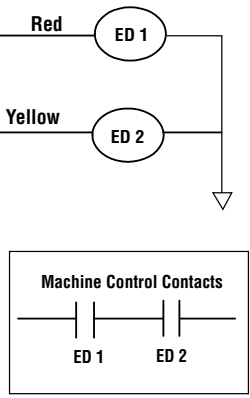
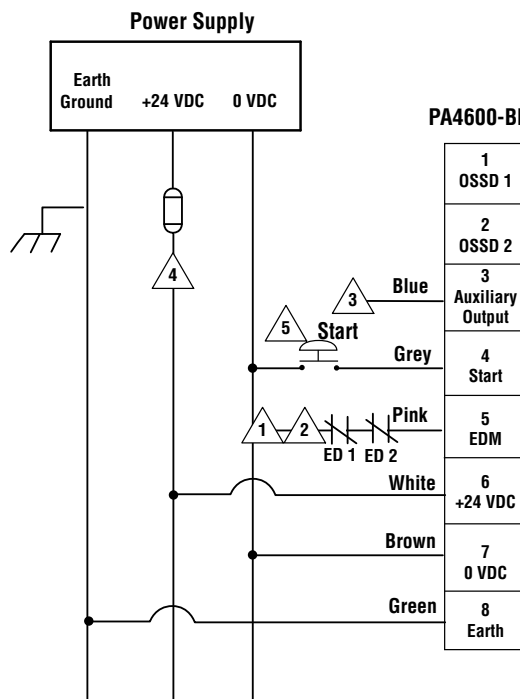
PA4600-BB Dimensions and Shipping Weights

	A Beam Spacing mm/in.	B Mounting Holes mm/in.	C Overall Height mm/in.	D Sensor Height mm/in.	System Shipping Weights kg/lb.
PA46-BB-2-500**	500/19.69	760.84/29.95	781.09/30.75	720/28.34	6.3/14
PA46-BB-2-600*	600/23.62	860.84/33.90	881.09/34.70	820/32.28	6.7/15

\*Meets ANSI/RIA R15.06-1999 (R2009)

\*\*Meets EN999: 1998

Wiring



- 1 External Device Monitoring must be used when force-guided control relays are used as the Final Switching Devices. Connect terminal 5 (pink wire) through N.C. contacts to 0 VDC.
- 2 For the purpose of bench testing prior to installation, the user may select EDM OFF (default factory setting). In this case the EDM line, terminal 5 (pink wire) must be connected to the 0 VDC line.
- 3 Aux. Output NPN or PNP 100 mA. max. @ 24VDC, connect to PLC
- 4 User-supplied fuse (2 A time lag type)
- 5 Start connections are shown with option N01 – normally open (pulled to 0 VDC)

Note: The conductor colors are reference to the optional cables available from Omron STI.

## Ordering

To order a Perimeter Access PA4600-BB system, simply choose from the selection below.

Model	Part No.	Description
<b>Perimeter Access PA4600-BB</b>		
PA46-BB-2-500	40386-1001	2 beams with 500 mm spacing**
PA46-BB-2-600	40386-1009	2 beams with 600 mm spacing*

\*Meets ANSI/RIA R15.06-1999 (R2009)

\*\*Meets EN999: 1998

### Accessories (sold separately)

Part Number	Description
<b>Transceiver Cables</b>	
CBL-LCRX-10M	Receiver Cable, 10 m (32.8 ft)
CBL-LCRX-15M	Receiver Cable, 15 m (49.3 ft)
CBL-LCRX-30M	Receiver Cable, 30 m (98.5 ft)
<b>Resource Modules</b>	
RM-1	RM-1 Resource Module
RM-2	RM-2 Resource Module
RM-2AC	RM-2AC Resource Module/Power Supply
RM-2AC-IP	RM-2AC-IP Resource Module/Power Supply
RM-3	RM-3 Resource Mute Module
RM-X	RM-X Safety Relay, 22.5 mm DIN enclosure



For information on Resource Modules, see page D-63



For information on safety light curtain accessories, see page D-78

## Safety Standards and Precautions

The PA4600-BB is a presence sensing device used only for perimeter access guarding applications, such as around robots and workcells. The PA4600-BB meets ANSI/RIA R15.06-1999 (R2009) and EN999:1998 optical configuration requirements for perimeter access guarding presence-sensing devices. PA4600-BB systems have been EC type examined to the requirements of IEC 61496-1, -2 for a Type 4 ESPE. The PA4600-BB also meets the control reliability requirements of ANSI/RIA R15.06-1999 (R2009).

The optical design and detection capability of the PA4600-BB are optimized for torso detection of personnel entering a hazardous area from the perimeter, also called perimeter access guarding. It is not intended to be used for the detection of hands and fingers. It is not designed for, nor should it be used as, a high-resolution point-of-operation safety light curtain. The safety beams have been positioned to meet ANSI/RIA R15.06-1999 (R2009) and EN999:1998 perimeter guarding requirements. These documents are an excellent reference for the application of perimeter guarding optical devices such as the PA4600-BB.

The PA4600-BB should only be used on machinery that can consistently and immediately stop anywhere in its cycle or stroke. Never use a PA4600-BB to guard the perimeter of a full revolution clutched power press or machine. If the PA4600-BB does not protect all access to the hazardous area, other appropriate devices such as mechanical guards must guard the unprotected access.

The purchaser, installer and employer have the responsibility to meet all local, state and federal government laws, rules, codes or regulations relating to the proper use, installation, operation and maintenance of this control and the guarded machine. See the Installation and Operation Manual for more information.

All application examples described are for illustration purposes only. Actual installations will differ from those indicated.

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