

# PVL Parts Verification Array

Retroreflective Array Sensor Error Proofing and Light-Guided Assembly



- Rugged metal frame with 225 mm (8.9 in) or 500 mm (19.7 in) sensing length; 1.5 m (4.9 ft) sensing range using included retroreflective tape (up to 6 m (20 ft) range when used with multiple BRT-84X84A retroreflectors)
- Highly visible green pick arrow
- Red mis-pick arrow
- Flexible mounting options; rugged steel mounting brackets
- Fast response time—excellent for part detection applications



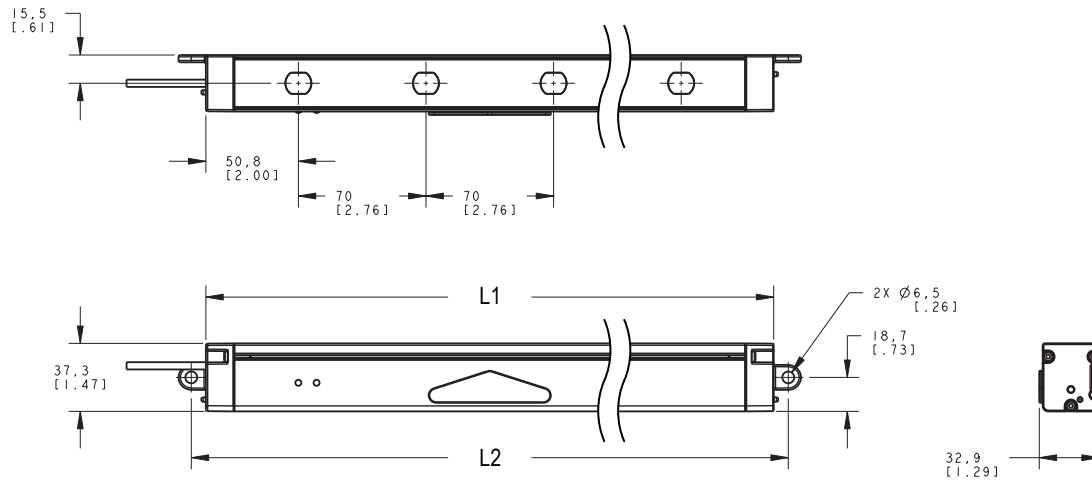
**WARNING: Not To Be Used for Personnel Protection**

Never use this device as a sensing device for personnel protection. Doing so could lead to serious injury or death. This device does NOT include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A sensor failure or malfunction can cause either an energized or de-energized sensor output condition.

## Models

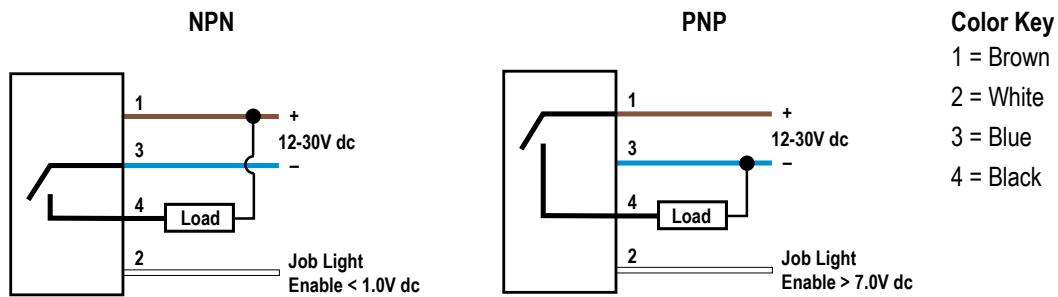
Model Number	Description	Cable	Output
PVL225P	225 mm (8.9 in) length, with up to 1.5 m (4.9 ft) separation between sensor and retroreflective tape (included)	2 m (6.5 ft), 4 wire unterminated cable	PNP
PVL225N			NPN
PVL225PQ		2 m (6.5 ft), cable terminated in 12 mm QD	PNP
PVL225NQ			NPN
PVL500P	500 mm (19.7 in) length with up to 1.5 m (4.9 ft) separation between sensor and retroreflective tape (included)	2 m (6.5 ft), 4 wire unterminated cable	PNP
PVL500N			NPN
PVL500PQ		2 m (6.5 ft), cable terminated in 12 mm QD	PNP
PVL500NQ			NPN

## Dimensions



Model	L1	L2
PVL225	311.5 mm (12.26 in)	327.5 mm (12.89 in)
PVL500	592 mm (23.31 in)	608 mm (23.94 in)

## Wiring Diagram

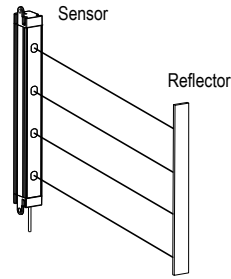


**NOTE:** Pin 5 (center) is not used.

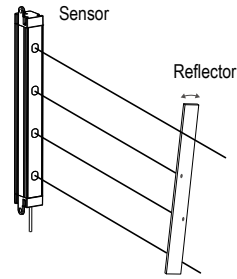
## Installation

Multiple sensors located farther than the sensor's maximum range from one another are unlikely to cause crosstalk problems. However, when multiple sensors are mounted in a confined area, take care to avoid crosstalk between them. Make sure that the sensor's beams fall in the center of the reflector.

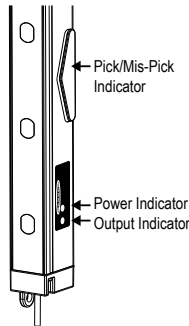
**Correct Alignment**



**Incorrect Alignment**



**Status Indicators/Troubleshooting**



Indicator	Condition	Description
#1	Steady Yellow	Output is active
	OFF	Output is inactive
#2	Steady Green	Power is ON and system is OK
	OFF	Power is OFF

**Specifications**

**Supply Voltage**

12 to 30V dc (10% maximum ripple)

**Supply Current**

**PVL225:**

< 140 mA max current at 12V dc (exclusive of load)

< 70 mA max current at 30V dc (exclusive of load)

**PVL500:**

< 220 mA max current at 12V dc (exclusive of load)

< 100 mA max current at 30V dc (exclusive of load)

**Supply Protection Circuitry**

Protected against reverse polarity and transient voltages

**Output Rating**

**Maximum Load:** 150 mA

**ON-state saturation voltage:**

PNP: < 2V at 10 mA dc; < 2.5V at 150 mA dc

NPN: < 1.5V at 10 mA dc; < 2.0V at 150 mA dc

**OFF-state leakage current:** <10 µA at 30V dc

**Indicators**

**Job ("Pick") Indicator:** Green

**Mis-pick Indicator:** Flashing Red

**Green LED:** Power ON/OFF

**Yellow LED:** Output ON/OFF

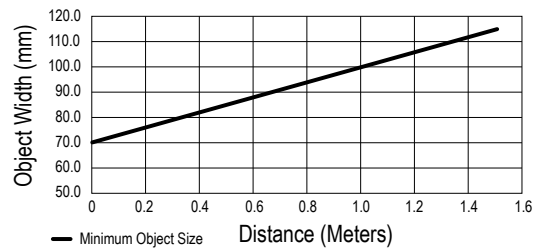
**Output Response Time**

Less than 2 milliseconds ON and OFF

**Connections**

2m (6.5 ft) PVC integral cable with unterminated, or 2m (6.5 ft) cable with 12 mm QD

**Minimum Object Detection Size**



**Environmental Rating**

IP50

**Operating Conditions**

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

**Humidity:** 90% at 50° C max. relative humidity (non-condensing)

**Storage:** -40° to +70° C (-40° to +158° F)

**Construction**

**Housing:** aluminum anodized

**Translucent dome:** polycarbonate

**Vibration and Mechanical Shock**

All models meet Mil. Std. 202F requirements method 201A (vibration: 10 to 60 Hz max., double amplitude)

**Beam Spacing**

70 mm

PVL225: 4 beams

PVL500: 8 beams

**Sensing Range**

1.5 m (4.9 ft) with retroreflective tape

0.06 in. maximum acceleration 10G). Also meets IEC 947-5-2; 30G 11 ms duration, half sine wave.

**Certifications**

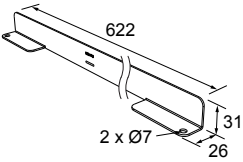
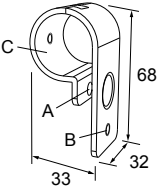
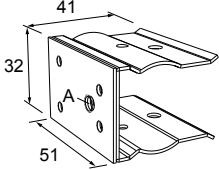


**Quick-Disconnect (QD) Cordsets**

4-Pin Threaded M12/Euro-Style Cordsets				
Model	Length	Style	Dimensions	Pinout
MQDC-406	1.83 m (6 ft)	Straight		<p>1 = Brown 2 = White 3 = Blue 4 = Black</p>
MQDC-415	4.57 m (15 ft)			
MQDC-430	9.14 m (30 ft)			
MQDC-450	15.2 m (50 ft)			
MQDC-406RA	1.83 m (6 ft)	Right-Angle		
MQDC-415RA	4.57 m (15 ft)			
MQDC-430RA	9.14 m (30 ft)			
MQDC-450RA	15.2 m (50 ft)			

**Mounting Brackets**

<p><b>SMBPVL1</b></p> <ul style="list-style-type: none"> <li>• Right-angle bracket for mounting the pick-to-light array</li> <li>• 7 mm mounting hole</li> <li>• 14 gauge cold rolled steel</li> </ul> <p>A = ø 3, B = ø 7, C = ø 4.8</p>	<p><b>SMBPVL2-225</b></p> <ul style="list-style-type: none"> <li>• Flat bracket for mounting reflector inside bin</li> <li>• 7 mm mounting hole</li> <li>• 14 gauge cold rolled steel</li> <li>• Includes retroreflective tape</li> </ul>
<p><b>SMBPVL2-500</b></p> <ul style="list-style-type: none"> <li>• Flat bracket for mounting reflector inside bin</li> <li>• 7 mm mounting hole</li> <li>• 14 gauge cold rolled steel</li> <li>• Includes retroreflective tape</li> </ul>	<p><b>SMBPVL3-225</b></p> <ul style="list-style-type: none"> <li>• Right-angle bracket for mounting reflector outside bin</li> <li>• 7 mm mounting hole</li> <li>• 14 gauge cold rolled steel</li> <li>• Includes retroreflective tape</li> </ul>

<p><b>SMBPVL3-500</b></p> <ul style="list-style-type: none"> <li>• Right-angle bracket for mounting reflector outside bin</li> <li>• 7 mm mounting hole</li> <li>• 14 gauge cold rolled steel</li> <li>• Includes retroreflective tape</li> </ul> 	<p><b>SMBPVL4</b></p> <ul style="list-style-type: none"> <li>• 28 mm tubular mount bracket for mounting outside bin</li> <li>• Clearance for M6 (1/4 in) hardware</li> <li>• Painted cold rolled steel</li> </ul> <p>A = <math>\varnothing</math> M6 <math>\times</math> 1, B = <math>\varnothing</math> M6 <math>\times</math> 1, C = <math>\varnothing</math> 28</p> 
<p><b>SMBPVL5</b></p> <ul style="list-style-type: none"> <li>• 28 mm tubular mount bracket for mounting inside bin</li> <li>• Clearance for M6 (1/4 in) hardware</li> <li>• Painted cold rolled steel</li> </ul> <p>A = <math>\varnothing</math> M6 <math>\times</math> 1 ISO 6H</p> 	

### Retroreflectors

Model	Reflectivity Factor	Range	Size
<b>Replacement Tape</b> BRT-THG-1-100	0.7	1.5 m (4.9 ft)	25 mm (1 in) wide 2.5 m (8.2 ft) long
<b>Long Range Reflectors</b> BRT-84X84A	2.0	6 m (19.7 ft)	84x84 mm

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