

Datasheet

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.

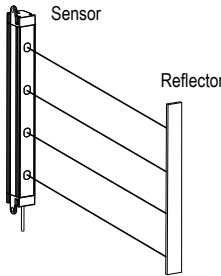
Models

Model Number	Description	Cable	Output ¹
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, NC
PVL225N			NPN, NC
PVL225PQ		2 m (6.5 ft), cable terminated in 12 mm QD	PNP, NC
PVL225NQ			NPN, NC
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, NC
PVL500N			NPN, NC
PVL500PQ		2 m (6.5 ft), cable terminated in 12 mm QD	PNP, NC
PVL500NQ			NPN, NC

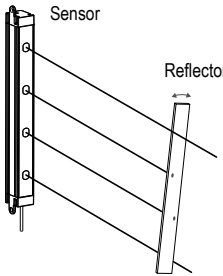
Installation

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



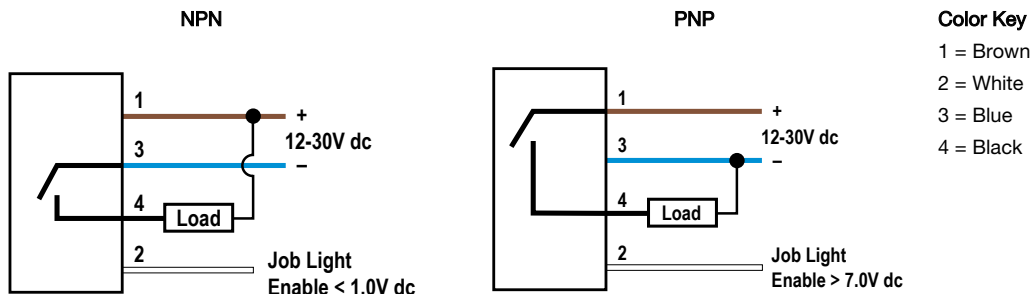
Incorrect Alignment



¹ NC = normally closed

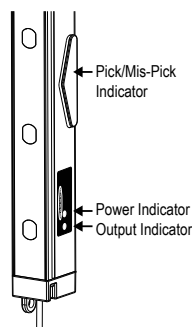


Wiring Diagram



Note: Pin 5 (center) is not used.

Status Indicators/Troubleshooting



Target *	Job Enable (white wire)	Pick/Mis-pick Indicator	Power Indicator	Output Indicator	Output
Not sensed	inactive	off	green	off	inactive
Sensed	inactive	flashing red	green	amber	active
Not sensed	active	green	green	off	inactive
Sensed	active	green	green	amber	active

Target not sensed = All beams are unbroken.

Target sensed = One or more beams are broken.

Specifications

Supply Voltage

12 V dc to 30 V dc

Supply Current

PVL225:

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

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

PVL500:

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

< 100 mA max current at 30 V 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: < 2 V dc at 10 mA; < 2.5 V dc at 150 mA

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

OFF-state leakage current: <10 μ A at 30 V dc

Indicators

Job (pick) indicator: green

Mispick indicator: flashing red

Green LED: Power ON/OFF

Amber LED: Output ON/OFF

Output Response Time

Less than 2 milliseconds ON and OFF

Beam Spacing

70 mm

PVL225: 4 beams

PVL500: 8 beams

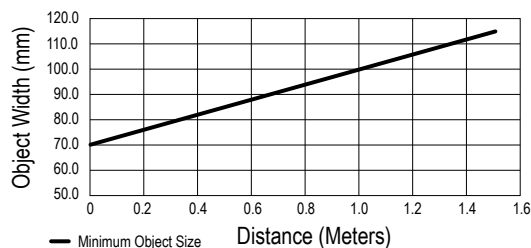
Sensing Range

1.5 m (4.9 ft) with retroreflective tape

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

IEC IP50

Operating Conditions

0 °C to +50 °C (+32 °F to +122 °F)

90% at 50 °C maximum relative humidity (non-condensing)

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

Construction

Aluminum anodized housing; polycarbonate translucent dome

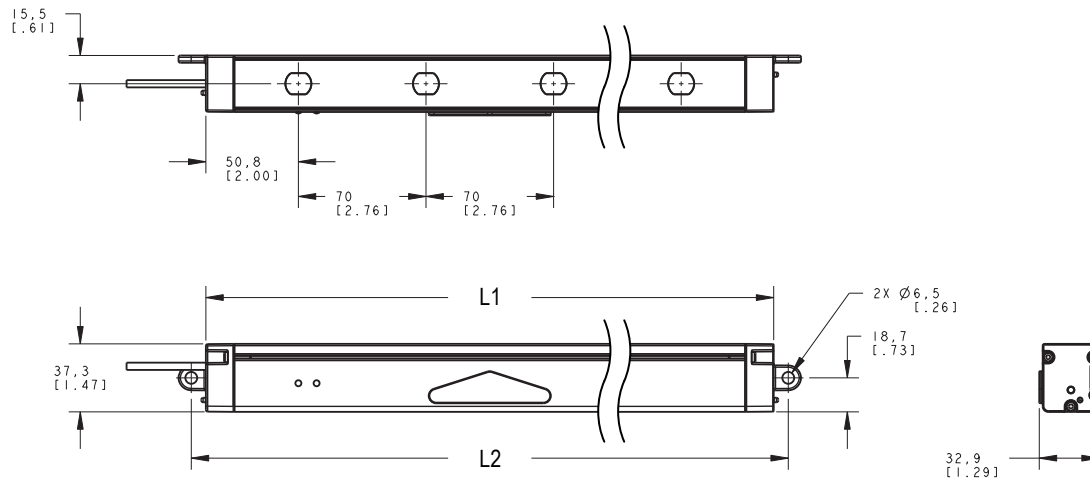
Vibration and Mechanical Shock

All models meet Mil. Std. 202F requirements method 201A (vibration: 10 Hz to 60 Hz max., double amplitude 0.06 in. maximum acceleration 10G). Also meets IEC 947-5-2; 30G 11 ms duration, half sine wave.

Certifications



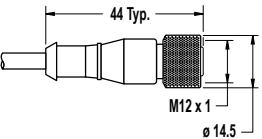
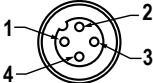
Dimensions



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)

Accessories

Cordsets

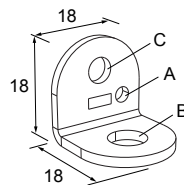
4-Pin Threaded M12/Euro-Style Cordsets					
Model	Length	Style	Dimensions	Pinout (Female)	
MQDC-406	1.83 m (6 ft)	Straight		 1 = Brown 2 = White 3 = Blue 4 = Black	
MQDC-415	4.57 m (15 ft)				
MQDC-430	9.14 m (30 ft)				
MQDC-450	15.2 m (50 ft)	Right-Angle	 32 Typ. [1.26"] 30 Typ. [1.18"] M12 x 1 ø 14.5 [0.57"]		
MQDC-406RA	1.83 m (6 ft)				
MQDC-415RA	4.57 m (15 ft)				
MQDC-430RA	9.14 m (30 ft)				
MQDC-450RA	15.2 m (50 ft)				

Mounting Brackets

SMBPVL1

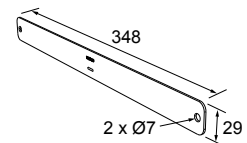
- Right-angle bracket for mounting the pick-to-light array
- 7 mm mounting hole
- 14 gauge cold rolled steel

A = ø 3, B = ø 7, C = ø 4.8



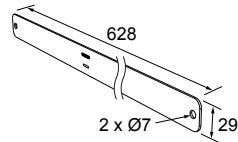
SMBPVL2-225

- Flat bracket for mounting reflector inside bin
- 7 mm mounting hole
- 14 gauge cold rolled steel
- Includes retroreflective tape

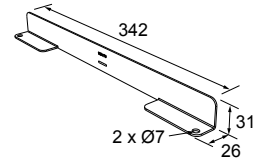


SMBPVL2-500

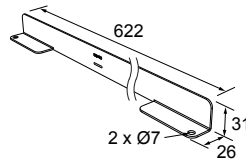
- Flat bracket for mounting reflector inside bin
- 7 mm mounting hole
- 14 gauge cold rolled steel
- Includes retroreflective tape

**SMBPVL3-225**

- Right-angle bracket for mounting reflector outside bin
- 7 mm mounting hole
- 14 gauge cold rolled steel
- Includes retroreflective tape

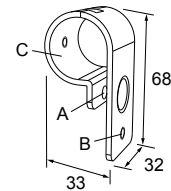
**SMBPVL3-500**

- Right-angle bracket for mounting reflector outside bin
- 7 mm mounting hole
- 14 gauge cold rolled steel
- Includes retroreflective tape

**SMBPVL4**

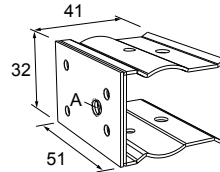
- 28 mm tubular mount bracket for mounting outside bin
- Clearance for M6 (1/4 in) hardware
- Painted cold rolled steel

A = $\varnothing$ M6 $\times$ 1, B = $\varnothing$ M6 $\times$ 1, C = $\varnothing$ 28

**SMBPVL5**

- 28 mm tubular mount bracket for mounting inside bin
- Clearance for M6 (1/4 in) hardware
- Painted cold rolled steel

A = $\varnothing$ M6 $\times$ 1 ISO 6H



Retroreflectors

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

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