

**canfield connector**  
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## MODEL OSV

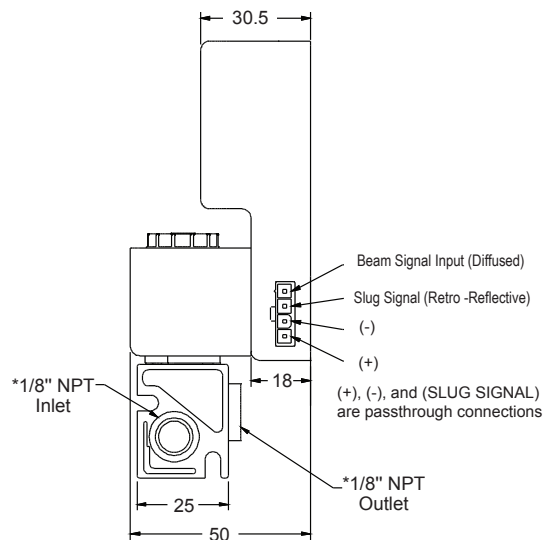
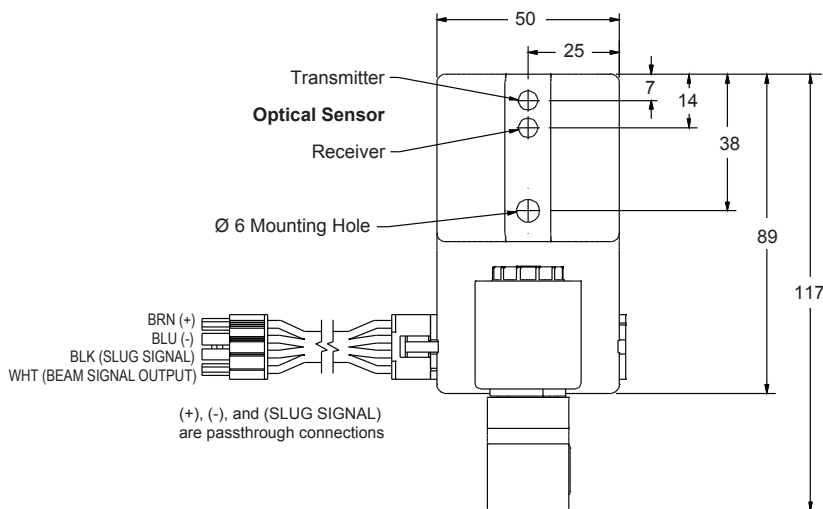
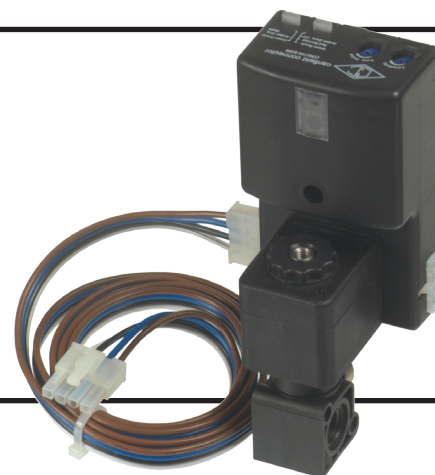
## OPTICAL SENSOR VALVE PHOTO-EYE ACCUMULATION SYSTEM

### General Description

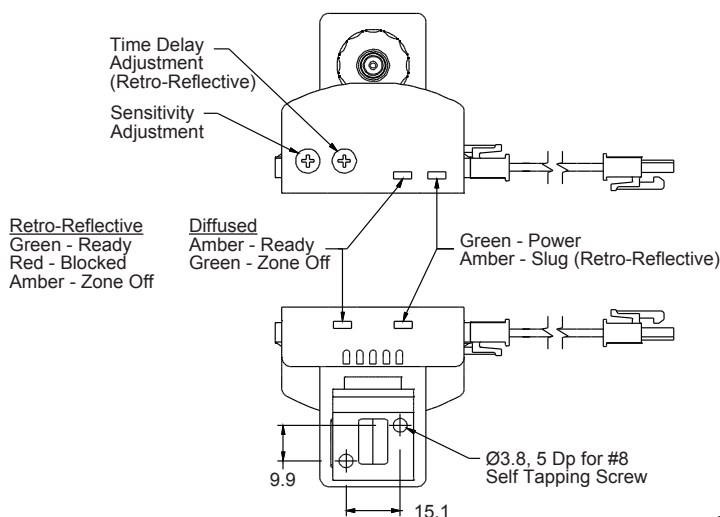
The Canfield Connector Model OSV is a fully-modular, easily-installable, optical sensor and valve combination for conveyor automation. This unit is designed for sensing objects moving through conveyor zones in order to maximize product flow while preventing product damage. By incorporating solid-state electronics and a low wattage solenoid valve, the OSV uses logic and manual inputs to reliably control a pneumatic actuator. The actuator either extends or retracts, controlling the movement of the conveyor zone. Features include adjustable sensitivity and output delay with LEDs to facilitate troubleshooting and a visual display of sensor modes. These LEDs indicate power status, beam alignment, beam clear, object detected, valve output, and slug mode. The modular design allows easy component replacement. The OSV is a reliable alternative to expensive, high-maintenance, pneumatic accumulation zones.

### Dimensional Data

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED



**\*WARNING -**  
 When using metal fittings do not exceed 40 in. lbs. torque or material failure can occur



Consult factory for available versions listed by Canadian Standards Association for use with certified electrical equipment.

## Features

- Designed for minimal installation / setup
- Sensing distances up to 6 ft. (retro-reflective)
- Detection of a wide variety of materials
- Cascadable up to 100 units
- Adjustable (0.02 - 3 sec) valve time delay (retro-reflective)
- Adjustable sensitivity
- Multi-color intelligent indicators for diagnostics / status
- Infrared light technology
- Optional wire lengths

## Technical Data

- Supply Voltage: 20 - 28 VDC
- Supply Current: 65mA with 0.9W coil energized
- Slug Signal (input): 12 $\mu$ A max. per sensor sinking (NPN) (retro-reflective)
- Beam Signal (input): 5mA max. sourcing (PNP) (diffused)
- Beam Signal (output): 200mA max. sinking (NPN)
- Valve Orifice / Pressure: 1.0mm / 0 - 30 psi
- Valve Type: Normally Closed
- Operating Temperature: -10 to 50° C

## Function

### Retro-Reflective Accumulation

#### Retro-Reflective Accumulation

##### Normally Open Operation

When Beam is CLEAR (no object detected)

- 1) Status LED is GREEN
- 2) Valve is OPEN
- 3) Beam Signal is ON (sinking 200mA max)

When Beam is BLOCKED (object detected)

- 1) Status LED turn RED for the set amount of time delay (0.02 - 3sec) then turns AMBER
- 2) Valve CLOSES after the set time delay
- 3) Beam Signal turns off immediately (no time delay)
- 4) If an override is needed, a GND signal to the Slug Input will OPEN all valves connected inline

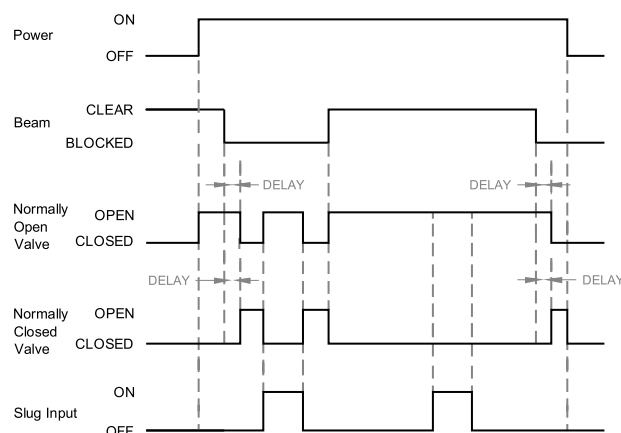
##### Normally Closed Operation

When Beam is CLEAR (no object detected)

- 1) Status LED is GREEN
- 2) Valve is CLOSED
- 3) Beam Signal is ON (sinking 200mA max)

When Beam is BLOCKED (object detected)

- 1) Status LED turn RED for the set amount of time delay (0.02 - 3sec) then turns AMBER
- 2) Valve OPENS after the set time delay
- 3) Beam Signal turns off immediately (no time delay)
- 4) If an override is needed, a GND signal to the Slug Input will CLOSE all valves connected inline



### Diffused Accumulation (no time delay or slug)

#### Diffused Accumulation

##### Normally Open Operation

When Beam is CLEAR (no object detected)

- 1) Status LED is AMBER
- 2) Valve is OPEN
- 3) Beam Signal is ON (sinking 200mA max)

When Beam is BLOCKED (object detected)

- 1) Status LED is GREEN (no time delay)
- 2) Valve is CLOSED (no time delay)
- 3) Beam Signal turns off immediately (no time delay)

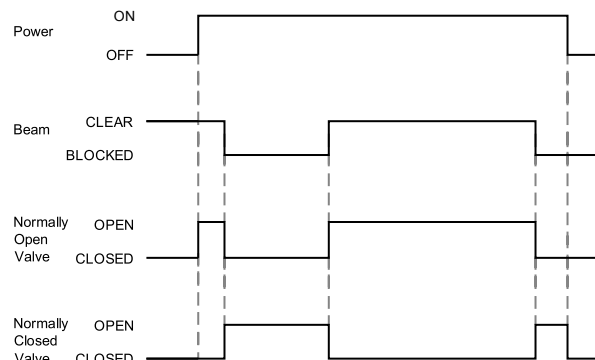
##### Normally Closed Operation

When Beam is CLEAR (no object detected)

- 1) Status LED is AMBER
- 2) Valve is CLOSED
- 3) Beam Signal is ON (sinking 200mA max)

When Beam is BLOCKED (object detected)

- 1) Status LED is GREEN (no time delay)
- 2) Valve is OPEN (no time delay)
- 3) Beam Signal turns off immediately (no time delay)



\*Beam Status Signal follows the pattern as the Beam itself. When the Beam is clear the Beam Status Signal is ON.

## Retro-Reflective Indexing Normally Closed

### Retro-Reflective Indexing

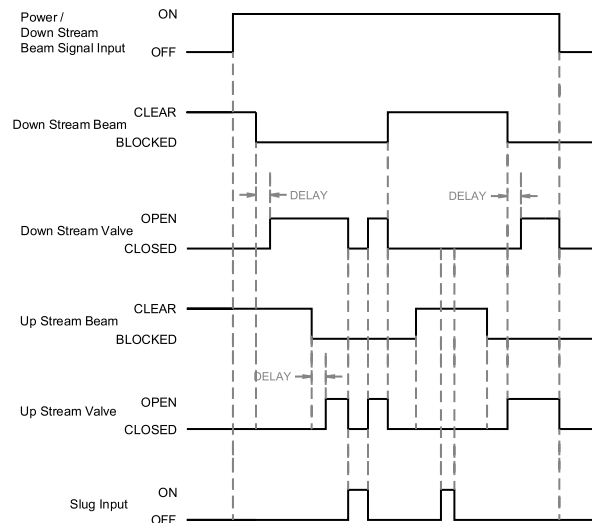
#### Normally Closed Operation

Downstream Sensor Beam is CLEAR (no object detected)

- 1) Downstream Sensor Status LED is GREEN
- 2) Downstream Sensor valve is CLOSED
- 3) Downstream Sensor Beam Signal is LOW providing a CLEAR signal to the Upstream sensor
- 4) Upstream Sensor valve is CLOSED no matter if its beam is CLEAR or BLOCKED

Downstream Sensor Beam is BLOCKED (object detected)

- 1) Downstream Sensor Status LED turns RED for the set time delay (0.02 - 3sec) then turns AMBER
- 2) Downstream Sensor valve OPENS after the set time delay
- 3) Downstream Sensor Beam Signal immediately changes HIGH (no time delay), providing a BLOCKED signal to the Upstream Sensor
- 4) Upstream Sensor valve is CLOSED until its Beam is BLOCKED
- 5) If both Downstream and Upstream sensors are BLOCKED their valves will be OPEN
- 6) If an override is needed, a GND signal to the Slug Input will CLOSE all valves connected inline



## Diffused Indexing Normally Closed (no time delay or slug)

### Diffused Indexing

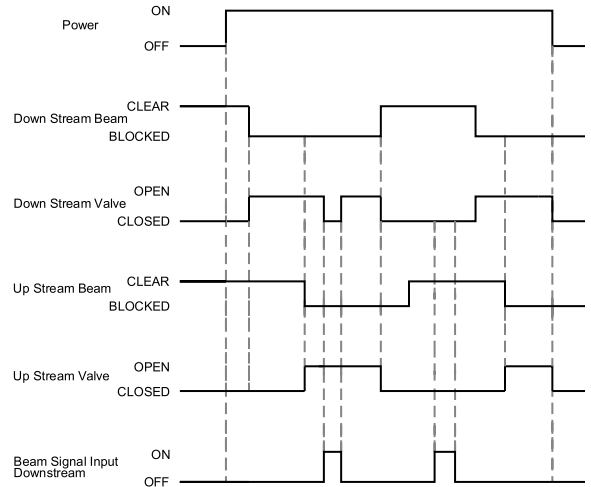
#### Normally Closed Operation

Downstream Sensor Beam is CLEAR (no object detected)

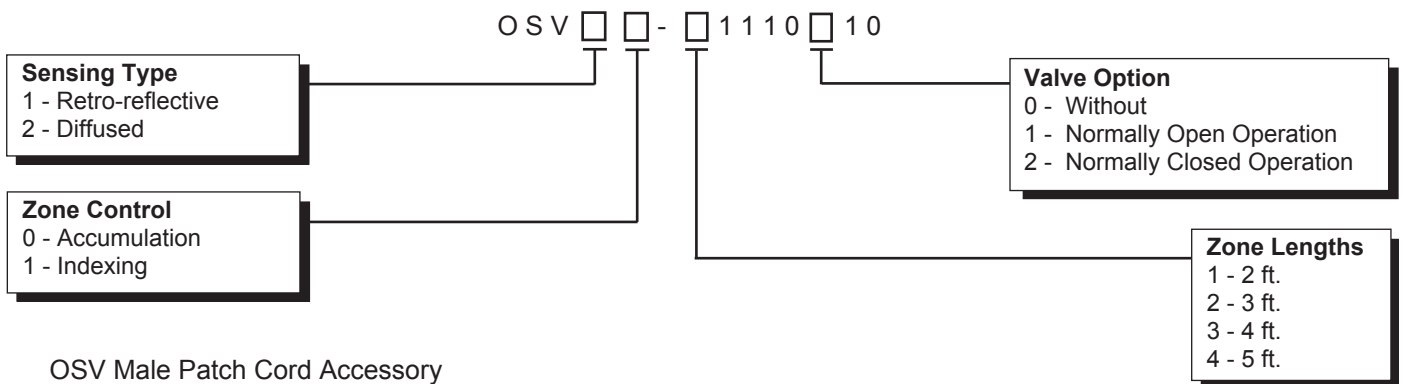
- 1) Downstream Sensor Status LED is AMBER
- 2) Downstream Sensor valve is CLOSED
- 3) Downstream Sensor Beam Signal is LOW, providing a CLEAR signal to the Upstream sensor
- 4) Upstream Sensor valve is CLOSED no matter if its beam is CLEAR or BLOCKED

Downstream Sensor Beam is BLOCKED (object detected)

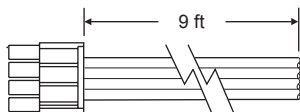
- 1) Downstream Sensor Status LED turns GREEN (no time delay)
- 2) Downstream Sensor valve OPENS (no time delay)
- 3) Downstream Sensor Beam Signal immediately changes HIGH (no time delay), providing a BLOCKED signal to the Upstream Sensor
- 4) Upstream Sensor valve is CLOSED until its Beam is BLOCKED
- 5) If both Downstream and Upstream sensors are BLOCKED their valves will be OPEN
- 6) To release the LAST Downstream sensor, apply a 24VDC signal to the Beam Signal Input wire. (This only releases the last downstream sensor, no other sensors are affected)



## Ordering Information



OSV Male Patch Cord Accessory



**WOSV10-910**

Retro Reflector - **OSVR10-002**

### Ordering Example:

**OSV10-11110010**

Retro-reflective, accumulation,  
2 ft. zone length, without valve