

## P Style Meter with Single Optical Sensor Switch

**GENERAL DESCRIPTION**

The Optical Sensor Switch is a non-invasive means for detection of a HI or LOW flow. This sensor is ideal for signaling an alarm, cutoff valve, or other device when the float passes the detector (alarm, valve, etc. are not included). The Optical Sensor Switch helps protect processes and equipment from damage caused by extreme flow rates.

Used in conjunction with P, S and T Style Flow Meters.

Its compact design and ease of operation make it a non-obtrusive, simple to use addition to your flow meter. Perfect for OEM applications, use whenever maximum or minimum flow levels need to be monitored automatically. It also can be used in conjunction with a control relay to power alternate equipment or monitoring devices.

**PRINCIPLE OF OPERATION**

A self-contained miniature photoelectric sensor (Thrubeam type) consisting of a transmitter and receiver are mounted at opposite sides of the flow tube on a solid carrier. The float inside the flow tube is detected as it passes across the beam of light. The sensor can be used to detect the float passage beyond the setpoint of the sensor and can also be set to monitor the float position at a specific level, signaling when the float is outside of the range of the sensor light beam.

PICTURE SHOWING  
OPTICAL SENSOR SWITCHES  
INSTALLED ON A  
TYPICAL ROTAMETER

Configure and Order Online:

[Optical Sensor Switch for Rotameters \(Single\)](#)

To order a flow meter with a single Optical Sensor Switch add "O1-" to P, S, or T Model Numbers.  
Example: O1-P11A4-BA0-032-41-ST-VN.





# OPTICAL SENSOR SWITCH

OPTICAL SENSOR SWITCH CONNECTION	
WIRE LEAD COLOR	CONNECTION
BLACK	Positive Power Lead (+10 to 30 VDC)
YELLOW	Negative Power Lead
GREEN	NPN output #1
RED	NPN output #2 (Complementary to Output #1)

ORDERING INFORMATION FOR OPTICAL SENSOR SWITCH ACCESSORY	
PART NUMBER	DESCRIPTION
OSV1-6-P	Optical Sensor Switch for 65mm P Style Meters
OSV1-1-P	Optical Sensor Switch for 150mm P Style Meters
OSV1-6-S	Optical Sensor Switch for 65mm S Style Meters
OSV1-1-S	Optical Sensor Switch for 150mm S Style Meters
OSV1-6-T	Optical Sensor Switch for 65mm T Style Meter
OSV1-1-T	Optical Sensor Switch for 150mm T Style Meter

The sensor consists of two parts: transmitter and receiver. When power is properly connected the power supply indicator (green LED) on the transmitter is constantly on.

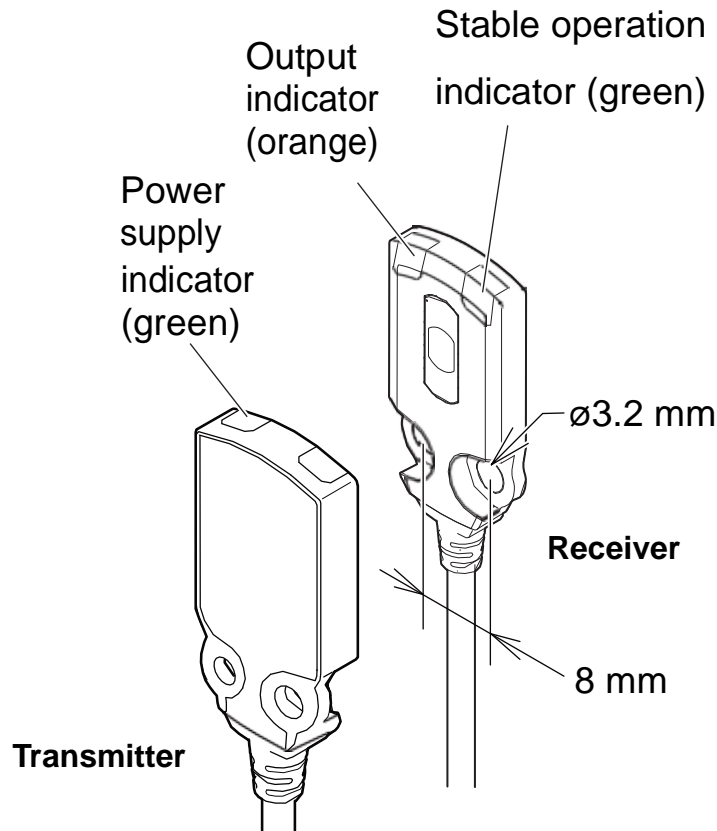
The receiver has two indicators:

Stable operation indicator (green LED) turns on with a stable incoming beam and with a stable blocked light. Output indicator (orange LED) turns on when the beam from emitter is blocked by the float.

TROUBLESHOOTING		
PROBLEM	CAUSE	CHECK & ACTION
All indicators are off.	The power supply is not connected.	Connect the power supply.
The output indicators turn on and off but output does not turn on or off.	Incorrect wiring.	Check the wiring for the output wires.
	The input device has failed. Sensor output has failed or an output wire is broken.	Try connecting the sensor output to a separate input device.
The output indicator is flashing.	Overcurrent has passed through an output.	Check that the rated current for the input device has not exceeded 50 mA.
		Check that the output wires are not shorted by any other wires.
	The sensor is affected by ambient light.	When there are light sources nearby (sensors, lighting), adjust the sensor installation.

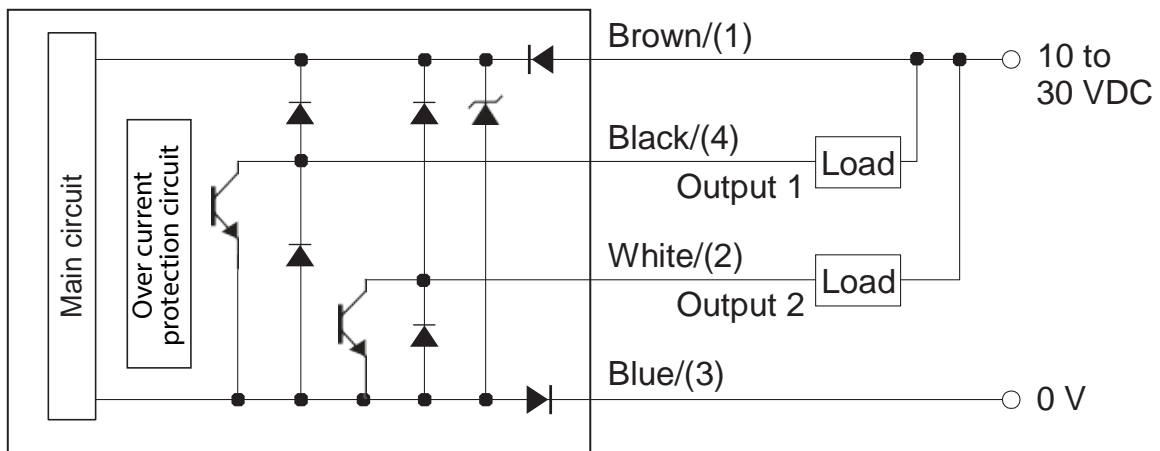


PR-F



Output Wiring Diagram

• NPN



P Style Meter  
with Double Optical Sensor Switches



## GENERAL DESCRIPTION

The Optical Sensor Switch Hi-Lo is a non-invasive means for detection of a HI or LOW flow. This set of sensors is ideal for signaling an alarm, cutoff valve, or other device when the float passes the detector (alarm, valve, etc. are not included). The Optical Sensor Switch helps protect processes and equipment from damage caused by extreme flow rates.

Its compact design and ease of operation make it a non-obtrusive, simple to use addition to your flow meter. Perfect for OEM applications, use whenever maximum or minimum flow levels need to be monitored automatically. It also can be used in conjunction with a control relay to power alternate equipment or monitoring devices.

Used in conjunction with P, S and T Style Flow Meters.

## PRINCIPLE OF OPERATION

The Optical Sensor Switch Hi-Lo consists of two self-contained mini-slim photoelectric sensors (Thrubeam type). Every sensor has a transmitter and receiver. Two sets of sensors are mounted on two solid carriers on opposite sides of the flow tube. The float inside the flow tube is detected as it passes across the beam of light. The sensors can be used to detect the float passage beyond the setpoint of the sensor and can also be set to monitor the float position at a specific level, signaling when the float is outside of the range of the sensor light beam.

Configure and Order Online:

[Optical Sensor Switch for Rotameters \(Double\)](#)

To order a flow meter with Hi-Lo Optical Sensor Switches add "O2-" to P, S, or T Model Numbers.

Example: O2-P11A4-BA0-032-41-ST-VN



Each sensor consists of two parts: transmitter and receiver. When power is properly connected the power supply indicator (green LED) on the transmitter is constantly on.

The receiver has two indicators:

Stable operation indicator (green LED) turns on with a stable incoming beam and with a stable blocked light.  
Output indicator (orange LED) turns on when the beam from emitter is blocked by the float.

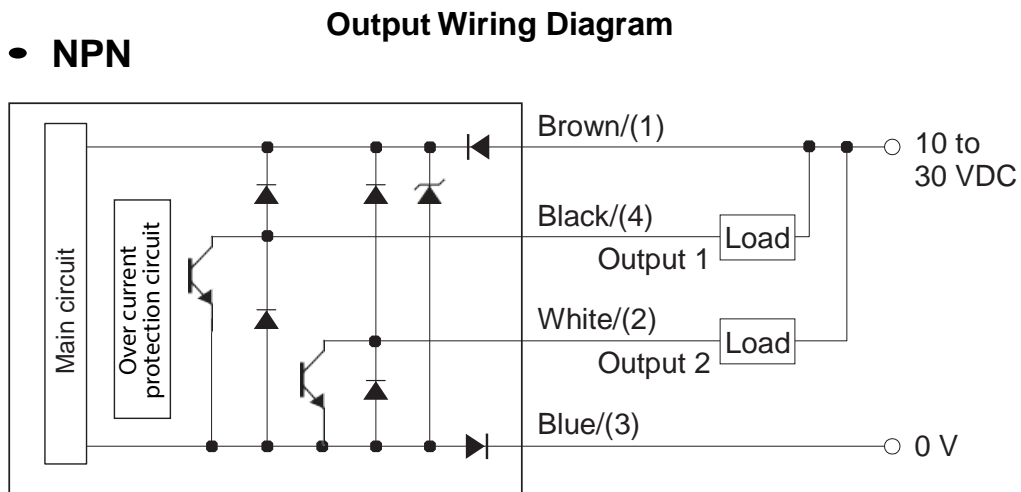
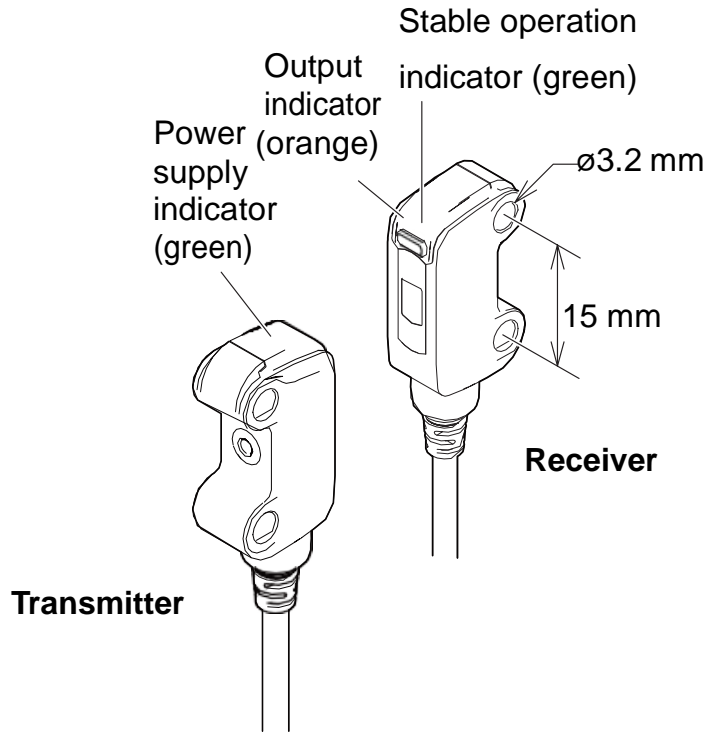
TROUBLESHOOTING		
PROBLEM	CAUSE	CHECK & ACTION
All indicators are off.	The power supply is not connected.	Connect the power supply.
The output indicators turn on and off but output does not turn on or off.	Incorrect wiring.	Check the wiring for the output wires.
	The input device has failed.	Try connecting the sensor output to a separate input device.
	Sensor output has failed or an output wire is broken.	
The output indicator is flashing.	Overcurrent has passed through an output.	Check that the rated current for the input device has not exceeded 50 mA.
		Check that the output wires are not shorted by any other wires.
	The sensor is affected by ambient light.	When there are light sources nearby (sensors, lighting), adjust the sensor installation.

SPECIFICATIONS	
<b>MODE OF DETECTION</b>	Red LED Thrubeam type.
<b>POWER REQUIREMENTS</b>	10 to 30 Vdc @50 mA max.
<b>OUTPUT TRANSISTORS</b>	NPN source up to 50 mA.
<b>RESPONSE TIME</b>	0.5 ms.
<b>LIGHT IMMUNITY</b>	4 Element, point light source, red LED 650 nm.
<b>AMBIENT TEMPERATURE</b>	25 degree C to +55 degree C.
<b>SENSOR CONSTRUCTION</b>	Heavy duty metal housing, IP-67 protection.
<b>SENSOR CERTIFICATION</b>	
<b>UL</b>	File #: E301717; Category: NRKH2/NRKH8; Enclosure type: 1 (UL50)
<b>CE:EMC DIRECTIVE (2004/108/EC)</b>	Applicable Standard: EMI: EN60947-5-2 Class A/EMS:EN60947-5-2

Configure and Order Online: [Optical Sensor Switch for Rotameters \(Single\)](#)  
[Optical Sensor Switch for Rotameters \(Double\)](#)

ORDERING INFORMATION FOR OPTICAL SENSOR SWITCH ACCESSORY	
PART NUMBER	DESCRIPTION
OSV2-6-P	Hi-Lo Optical Sensor Switch for 65mm P Style Meter
OSV2-1-P	Hi-Lo Optical Sensor Switch for 150mm P Style Meter
OSV2-6-S	Hi-Lo Optical Sensor Switch for 65mm S Style Meter
OSV2-1-S	Hi-Lo Optical Sensor Switch for 150mm S Style Meter
OSV2-6-T	Hi-Lo Optical Sensor Switch for 65mm T Style Meter
OSV2-1-T	Hi-Lo Optical Sensor Switch for 150mm T Style Meter

## PR-M



### OPTICAL SENSOR SWITCH CONNECTION

WIRE LEAD COLOR	CONNECTION
BLACK	Positive Power Lead (+10 to 30 VDC)
YELLOW	Negative Power Lead
GREEN	NPN output #1
RED	NPN output #2 (Complementary to Output #1)

## **MOMENTARY OR LATCH OPERATION**

Optionally the, Hi-Lo Optical Sensor Switch could be supplied with OSSM Module, allowing each sensor to be separately set for momentary or latch operation of buzzer, LED and relay.

The OSSM module is equipped with the 8 position DIP switch and requires a +12 VDC power supply with a minimum current rating of 250 mA.

