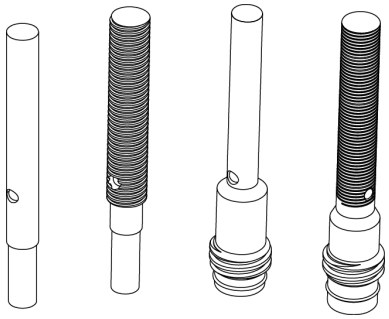
VSM-2 Series Micro Sensor

more sensors, more solutions

Datasheet

Miniature self-contained sensor in a stainless steel housing



- Available with 4 mm diameter smooth barrel or 5 mm threaded barrel for mounting in the smallest spaces
- Diffuse and opposed mode sensing options to meet a wide variety of application requirements
- IO-Link communication for remote configuration and monitoring, simple device replacement, and advanced diagnostics
- Visible red beam for easy alignment
- Dual color LED indicator for clear visualization of sensor status
- Focused beam allows for reliable presence detection even when the sensor is fully embedded within the machine

WARNING:

- **Do not use this device for personnel protection**
- Using this device for personnel protection could result in serious injury or death.
- This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A device failure or malfunction can cause either an energized (on) or de-energized (off) output condition.

Models with a 4 mm Smooth Barrel

Opposed Mode Models must be purchased in pairs: one emitter and one receiver					
NPN Models	**PNP Models with IO-Link**	**Emitter Models**	**Range**	**Output Type**	**Connection**
VSM-2S4RNR500-2M	VSM-2S4RPR500-2M	VSM-2S4NAEL-2M	0 to 500 mm (0 to 19.7 in)	DO	2 m (6.5 ft) unterminated 3-wire PUR-jacketed cable
VSM-2S4RNR500-Q3	VSM-2S4RPR500-Q3	VSM-2S4NAEL-Q3			150 mm (6 in) PUR cable with a 3-pin M8/Pico-style quick disconnect
VSM-2S4RNR500-Q7	VSM-2S4RPR500-Q7	VSM-2S4NAEL-Q7			Integral 3-pin M8/Pico-style quick disconnect

Diffuse Mode Models				
NPN Models	**PNP Models with IO-Link**	**Range**	**Output Type**	**Connection**
VSM-2S4AND10-2M	VSM-2S4APD10-2M	0 to 10 mm (0 to 0.39 in)	LO	2 m (6.5 ft) unterminated 3-wire PUR-jacketed cable
VSM-2S4AND10-Q3	VSM-2S4APD10-Q3			150 mm (6 in) PUR cable with a 3-pin M8/Pico-style quick disconnect
VSM-2S4AND10-Q7	VSM-2S4APD10-Q7			Integral 3-pin M8/Pico-style quick disconnect
VSM-2S4AND20-2M	VSM-2S4APD20-2M	0 to 20 mm (0 to 0.79 in)		2 m (6.5 ft) unterminated 3-wire PUR-jacketed cable
VSM-2S4AND20-Q3	VSM-2S4APD20-Q3			150 mm (6 in) PUR cable with a 3-pin M8/Pico-style quick disconnect
VSM-2S4AND20-Q7	VSM-2S4APD20-Q7			Integral 3-pin M8/Pico-style quick disconnect
VSM-2S4AND50-2M	VSM-2S4APD50-2M	0 to 50 mm (0 to 2 in)		2 m (6.5 ft) unterminated 3-wire PUR-jacketed cable
VSM-2S4AND50-Q3	VSM-2S4APD50-Q3			150 mm (6 in) PUR cable with a 3-pin M8/Pico-style quick disconnect
VSM-2S4AND50-Q7	VSM-2S4APD50-Q7			Integral 3-pin M8/Pico-style quick disconnect
VSM-2S4AND100-2M	VSM-2S4APD100-2M	0 to 100 mm (0 to 4 in)		2 m (6.5 ft) unterminated 4-wire PUR-jacketed cable
VSM-2S4AND100-Q3	VSM-2S4APD100-Q3			150 mm (6 in) PUR cable with a 4-pin M8/Pico-style quick disconnect

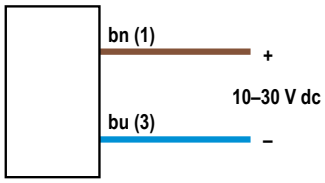
Models with a 5 mm Threaded Barrel

Opposed Mode Models must be purchased in pairs: one emitter and one receiver					
NPN Models	**PNP Models with IO-Link**	**Emitter Models**	**Range**	**Output Type**	**Connection**
VSM-2M5RNR500-2M	VSM-2M5RPR500-2M	VSM-2M5NAEL-2M	0 to 500 mm (0 to 19.7 in)	DO	2 m (6.5 ft) unterminated 3-wire PUR-jacketed cable
VSM-2M5RNR500-Q3	VSM-2M5RPR500-Q3	VSM-2M5NAEL-Q3			150 mm (6 in) PUR cable with a 3-pin M8/Pico-style quick disconnect
VSM-2M5RNR500-Q7	VSM-2M5RPR500-Q7	VSM-2M5NAEL-Q7			Integral 3-pin M8/Pico-style quick disconnect

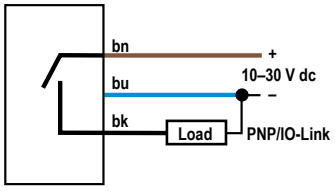
Diffuse Mode Models				
NPN Models	**PNP Models with IO-Link**	**Range**	**Output Type**	**Connection**
VSM-2M5AND10-2M	VSM-2M5APD10-2M	0 to 10 mm (0 to 0.39 in)	LO	2 m (6.5 ft) unterminated 3-wire PUR-jacketed cable
VSM-2M5AND10-Q3	VSM-2M5APD10-Q3			150 mm (6 in) PUR cable with a 3-pin M8/Pico-style quick disconnect
VSM-2M5AND10-Q7	VSM-2M5APD10-Q7			Integral 3-pin M8/Pico-style quick disconnect
VSM-2M5AND20-2M	VSM-2M5APD20-2M	0 to 20 mm (0 to 0.79 in)		2 m (6.5 ft) unterminated 3-wire PUR-jacketed cable
VSM-2M5AND20-Q3	VSM-2M5APD20-Q3			150 mm (6 in) PUR cable with a 3-pin M8/Pico-style quick disconnect
VSM-2M5AND20-Q7	VSM-2M5APD20-Q7			Integral 3-pin M8/Pico-style quick disconnect
VSM-2M5AND50-2M	VSM-2M5APD50-2M	0 to 50 mm (0 to 2 in)		2 m (6.5 ft) unterminated 3-wire PUR-jacketed cable
VSM-2M5AND50-Q3	VSM-2M5APD50-Q3			150 mm (6 in) PUR cable with a 3-pin M8/Pico-style quick disconnect
VSM-2M5AND50-Q7	VSM-2M5APD50-Q7			Integral 3-pin M8/Pico-style quick disconnect
VSM-2M5AND100-2M	VSM-2M5APD100-2M	0 to 100 mm (0 to 4 in)		2 m (6.5 ft) unterminated 4-wire PUR-jacketed cable
VSM-2M5AND100-Q3	VSM-2M5APD100-Q3			150 mm (6 in) PUR cable with a 4-pin M8/Pico-style quick disconnect

Wiring

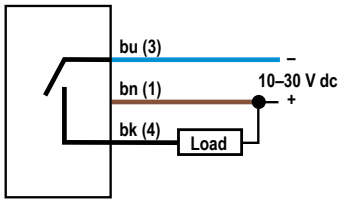
Emitters



PNP/IO-Link Models



NPN Models

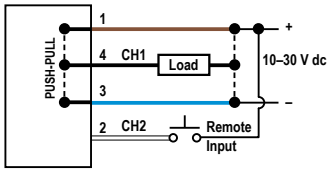


Integral 3-pin M8/Pico-style quick disconnect (male) Models

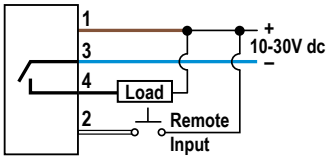
Key
1 - Brown
2 - White
3 - Blue
4 - Black

Integral 4-pin M8/Pico-style male quick disconnect Models

PNP/IO-Link Models



NPN Models



Remote Configuration Instructions—100 mm Diffuse Mode Models Only

One-Point TEACH

A one-point TEACH sets the threshold for ON/OFF using a single target.

A target that returns the same or more light to the sensor turns the output ON. A target that returns less light than the configured target turns the output OFF.

1. Position the target.
2. Hold the remote input wire (white) high for 1 to 3 seconds.
3. Release the remote input wire before 3 seconds.
   The amber LED is on for 3 seconds, indicating a valid configuration. After the configuration, the green/output LED is on.

When presenting a darker target than the one that was configured, the amber LED turns on as the threshold is approached. With a darker target, the green/output LED is off.

Two-Point TEACH

A two-point TEACH sets the threshold between two different targets.

A target that returns the same or more light to the sensor turns the output ON. A target that returns less light than the configured target turns the output OFF.

1. Position the target at the desired ON condition.