



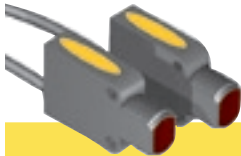
MINI-BEAM[®]2 – QS12 Series

Miniature Photoelectric Sensors

Features



- Patented design allows for a sensor only one-third the size of the original MINI-BEAM.
- 12 mm threaded barrel on most models.
- Uses advanced miniaturized microprocessor-based circuitry.
- Simple setup, using digital push-button sensitivity adjustment.
- Available for opposed, retroreflective, diffuse, and convergent sensing modes.
- 10 to 30V dc operation.
- Complementary outputs (one normally open and one normally closed), each with 150 mA switching capacity.
- IP67 and NEMA 6 environmental ratings.
- Wraparound status indicators.
- Models with either integral, unterminated cable or 150 mm (6") pigtail with 4-pin Pico-style connector.



Their small effective beam size is ideal for accuracy-dependent applications. They provide enough excess gain at short range to burn through even contaminated areas and may even sense opaque materials through a thin-walled container.

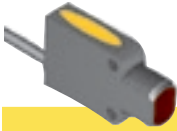


Opposed-Mode Emitter (E) and Receiver (R) Models

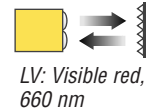
Model	Range	Cable*	Supply Voltage	Output Type	Excess Gain	Beam Pattern
QS126E QS12VN6R	4 m (13')	2 m (6.5')	10 to 30V dc	NPN (sinking)		
QS126EQ QS12VN6RQ		4-pin Pico-style Pigtail QD				
QS126E QS12VP6R		2 m (6.5')		PNP (sourcing)		
QS126EQ QS12VP6RQ		4-pin Pico-style Pigtail QD				

*9 m (30') cables are available by adding suffix "W/30" to the model number of any cabled sensor (e.g., QS126E W/30). A model with a pigtail QD requires a mating cable (see page 7).

MINI-BEAM[®]2 QS12 Series Miniature Photoelectric Sensors



Excellent for sensing small items where opposed-mode sensing is not possible. Recommended for relatively clean environments where substantial excess gain is not required. Polarized models filter out unwanted reflections.

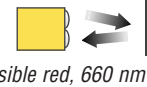


Retroreflective Models

Model	Range**	Cable*	Supply Voltage	Output Type	Excess Gain	Beam Pattern
					Performance based on BRT-50 retroreflector	
Retroreflective						
QS12VN6LV	2 m (6.5')	2 m (6.5')	10 to 30V dc	NPN (sinking)		
QS12VN6LVQ		4-pin Pico-style Pigtail QD				
QS12VP6LV		2 m (6.5')		4-pin Pico-style Pigtail QD		
QS12VP6LVQ		4-pin Pico-style Pigtail QD				
Polarized Retroreflective						
QS12VN6LP	1 m (3')	2 m (6.5')	10 to 30V dc	NPN (sinking)		
QS12VN6LPQ		4-pin Pico-style Pigtail QD				
QS12VP6LP		2 m (6.5')		4-pin Pico-style Pigtail QD		
QS12VP6LPQ		4-pin Pico-style Pigtail QD				



Convergent-mode sensors feature high excess gain and can detect objects of low reflectivity. They are a good choice for counting radiused objects with no space between them, for accurate position sensing, and for sensing clear materials that travel near the beam's focus.



Convergent-Mode Models


Model	Focus	Cable*	Supply Voltage	Output Type	Excess Gain	Beam Pattern
					Performance based on 90% reflectance white test card	
QS12VN6CV10	10 mm (0.4")	2 m (6.5')	10 to 30V dc	NPN (sinking)		
QS12VN6CV10Q		4-pin Pico-style Pigtail QD				
QS12VP6CV10	Spot Size at Focus: 1 mm (0.04")	2 m (6.5')		4-pin Pico-style Pigtail QD		
QS12VP6CV10Q	4-pin Pico-style Pigtail QD					
QS12VN6CV20	20 mm (0.8")	2 m (6.5')	10 to 30V dc	NPN (sinking)		
QS12VN6CV20Q		4-pin Pico-style Pigtail QD				
QS12VP6CV20	Spot Size at Focus: 1.75 mm (0.07")	2 m (6.5')		4-pin Pico-style Pigtail QD		
QS12VP6CV20Q	4-pin Pico-style Pigtail QD					

*9 m (30') cables are available by adding suffix "W/30" to the model number of any cabled sensor (e.g., QS12VN6CV10 W/30). A model with a pigtail QD requires a mating cable (see page 7).

**Range specifications for retroreflective and polarized retroreflective sensors are largely dependent on target size and design.

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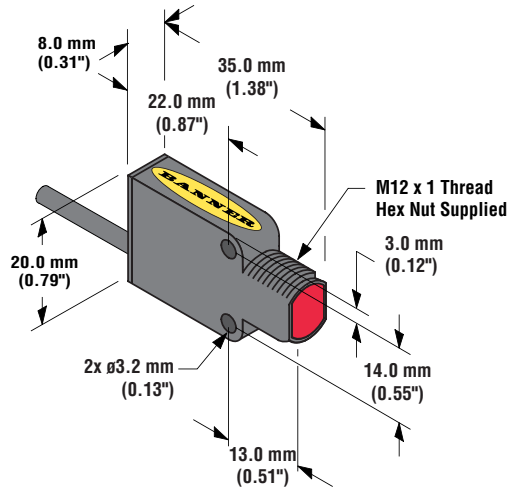
Specifications

Supply Voltage	10 to 30V dc (10% maximum ripple) at less than 25 mA, exclusive of load
Supply Protection Circuitry	Protected against reverse polarity and transient voltages
Output Configuration	Solid state complementary (SPDT): NPN or PNP (current sinking or sourcing) output models available
Output Rating	150 mA maximum each output at 25°C OFF-state leakage current: less than 10 µA @ 30V dc ON-state saturation voltage: less than 1V @ 10 mA; less than 2.0V @ 150 mA
Output Protection Circuitry	Protected against false pulse on power-up and continuous overload or short circuit of outputs
Output Response	Opposed Mode: 8 milliseconds ON, 4 milliseconds OFF All others: 1.5 milliseconds NOTE: 500 millisecond delay on power-up, outputs do not conduct during this time
Repeatability	Opposed Mode: 1 millisecond All others: 175 microseconds
Adjustments	One rubber-sealed push button Hold: Maximum gain Click: Reduce gain one increment
Indicators	2 LEDs, visible from back and sides of sensor: 1 green, 1 amber Green steady: Power ON Yellow steady: Light sensed Green flashing rapidly 5 times: Maximum gain Single Green flash: Click registered, gain reduced by one increment (total of 8) Yellow/Green alternating: Minimum gain (can not reduce further)
Construction	Black polycarbonate/ABS alloy housing; totally encapsulated circuitry
Environmental Rating	IEC IP67; NEMA 6
Connections	2 m (6.5') 4-wire PVC cable, 9 m (30') PVC cable, or 4-pin Pico-style 150 mm (6") pigtail QD
Operating Conditions	Temperature: -20° to +55° C (-4° to +131° F) Relative Humidity: 90% @ 50° C (non-condensing)
Certifications	

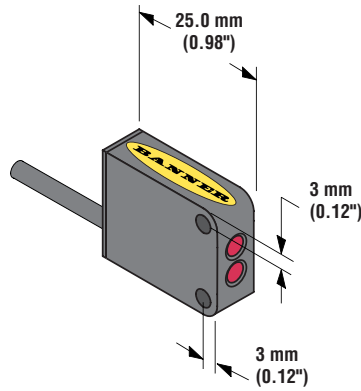
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Dimensions

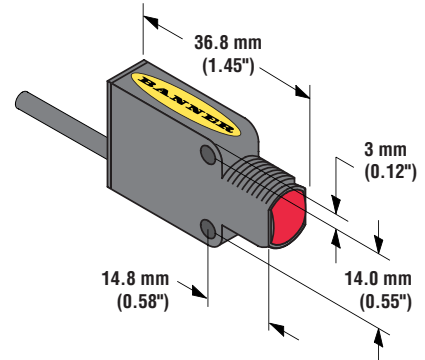
**Retroreflective and Diffuse Modes
(Model suffix D, LV and LP)**



**Diffuse and Divergent Diffuse Modes
(Model suffix DBZ and W)**

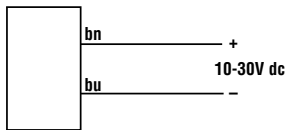


**Emitter, Receiver and
Convergent Mode
(Model suffix E, R and CV)**

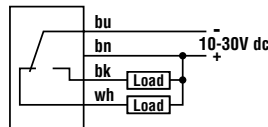


Hookups

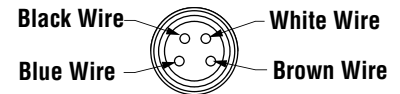
Emitters with Attached Cable



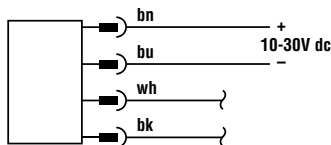
**Sensors with
NPN (Sinking) Outputs**



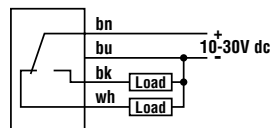
**4-Pin Pico-Style Pin-Out
(Cable Connector Shown)**



**Emitters with Quick-Disconnect
(4-Pin Pico-Style)**



**Sensors with
PNP (Sourcing) Outputs**



NOTE: Hookups are functionally the same for either integral cable or QD models.