



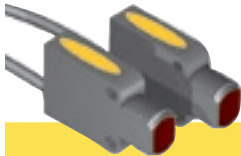
# MINI-BEAM<sup>®</sup>2 – QS12 Series

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.

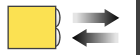


## Opposed-Mode Emitter (E) and Receiver (R) Models

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				

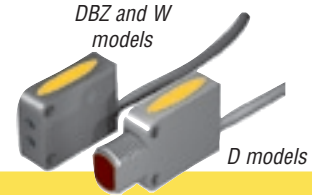
\*9 m (30') cables are available by adding suffix "W/30" to the model number of any cabled sensor (e.g., QS126E W/30). A model with a pigtail QD requires a mating cable (see page 7).

# MINI-BEAM®2 QS12 Series Miniature Photoelectric Sensors



D, DBZ: Visible red, 680 nm  
W: Visible red, 660 nm

These economical single-unit sensors are excellent for sensing objects of adequate size and reflectivity at short range. Divergent (wide-angle) models are useful for sensing small items and translucent or transparent materials at close range. Models are available with or without the 12 mm threaded front.




## Diffuse-Mode Models

Model	Range	Cable*	Supply Voltage	Output Type	Excess Gain	Beam Pattern
					Performance based on 90% reflectance white test card	
<b>Diffuse</b>						
QS12VN6D	180 mm (7")	2 m (6.5')	10 to 30V dc	NPN (sinking)		
QS12VN6DQ		4-pin Pico-style Pigtail QD				
QS12VP6D		2 m (6.5')				
QS12VP6DQ		4-pin Pico-style Pigtail QD				
<b>Diffuse (Flush-Front Profile)</b>						
QS12VN6DBZ	180 mm (7")	2 m (6.5')	10 to 30V dc	NPN (sinking)		
QS12VN6DBZQ		4-pin Pico-style Pigtail QD				
QS12VP6DBZ		2 m (6.5')				
QS12VP6DBZQ		4-pin Pico-style Pigtail QD				
<b>Divergent (Wide-Angle) Diffuse</b>						
QS12VN6W	50 mm (2")	2 m (6.5')	10 to 30V dc	NPN (sinking)		
QS12VN6WQ		4-pin Pico-style Pigtail QD				
QS12VP6W		2 m (6.5')				
QS12VP6WQ		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., QS12VN6D W/30).  
A model with a pigtail QD requires a mating cable (see page 7).

# MINI-BEAM<sup>®</sup> 2 QS12 Series Miniature Photoelectric Sensors

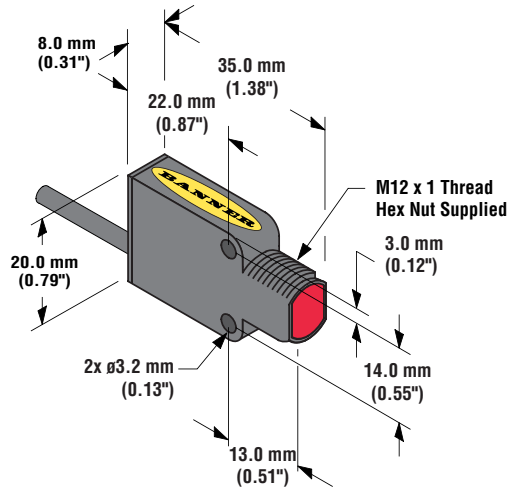
## Specifications

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

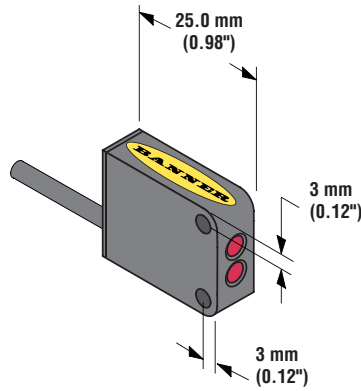
# MINI-BEAM<sup>®</sup> 2 QS12 Series Miniature Photoelectric Sensors

## Dimensions

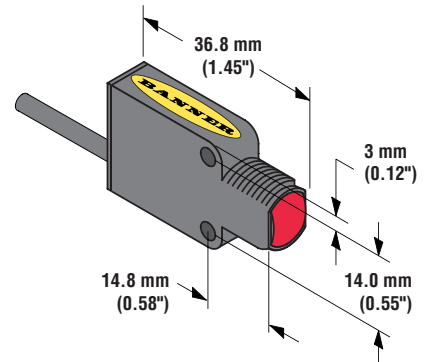
Retroreflective and Diffuse Modes  
(Model suffix D, LV and LP)



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

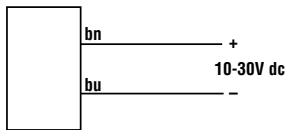


Emitter, Receiver and  
Convergent Mode  
(Model suffix E, R and CV)

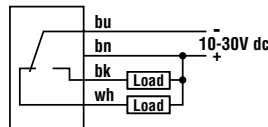


## Hookups

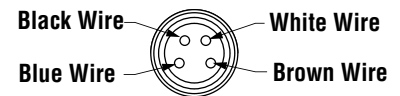
Emitters with Attached Cable



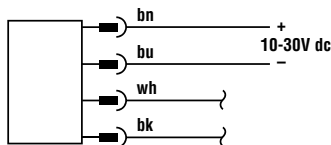
Sensors with  
NPN (Sinking) Outputs



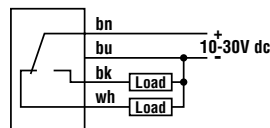
4-Pin Pico-Style Pin-Out  
(Cable Connector Shown)



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.