

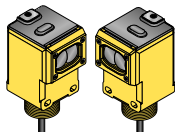
Q45VR3 Series Sensors

Universal voltage photoelectric sensors with electromechanical relay output



Q45VR3 Series Features

- Advanced one-piece photoelectric sensors with outstanding optical performance and extremely rugged design
- Universal supply voltage: 12 to 250V dc or 24 to 250V ac
- Electromechanical relay for economical, high-capacity switching and immunity to electrical noise
- Full line includes opposed, diffuse, retroreflective, convergent, and glass and plastic fiber optic sensing modes
- Switchable light/dark operate
- Versatile plug-in modules available for output timing logic and/or signal strength display
- Highly visible Power, Signal (AID™ System), and Output indicator LEDs
- Choice of prewired 2 m (6.5') or 9 m (30') unterminated cable or Mini-style quick-disconnect fitting
- Versatile mounting options
- Designed to withstand 1200 psi washdown; exceeds its NEMA 6P and IEC IP67 rating



Because of their extremely high excess gain, these opposed-mode sensors are an excellent option for sensing in contaminated or dirty areas, and are also the best choice for long-range sensing.



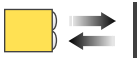
Infrared, 880 nm

Q45VR3 Series Opposed-Mode Emitter (E) and Receiver (R) Models

Models	Range	Cable*	Supply Voltage	Output Type	Excess Gain	Beam Pattern
Q453E Emitter	60 m (200')	2-wire 2m (6.5')	Universal 12 - 250V dc or 24 - 250V ac	SPDT Electro- mechanical Relay		<p>Effective Beam: 13 mm</p>
Q45VR3R Receiver		5-wire 2m (6.5')				
Q453EQ Emitter		3-Pin Mini-style QD				
Q45VR3RQ Receiver		5-Pin Mini-style QD				

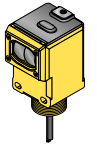
* 9 m (30') cables are available by adding suffix "W/30" to the model number of any cabled sensor (e.g., Q453E W/30)
A model with a QD connector requires a mating cable; see page 10.

Q45VR3 Series



Infrared, 880 nm

These diffuse-mode models detect objects by sensing the reflection of their own emitted light. Ideal for use when the reflectivity and profile of the object to be sensed are sufficient to return a large percentage of emitted light back to the sensor. Model Q45VR3DX is the first choice for diffuse-mode applications when there are no background objects to falsely return light.




Q45VR3 Series Diffuse-Mode Models

Models	Range	Cable*	Supply Voltage	Output Type	Excess Gain	Beam Pattern
					Performance based on 90% reflectance white test card	
Short Range						
Q45VR3D Q45VR3DQ	45 cm (18")	5-wire 2 m (6.5') 5-Pin Mini-style QD	Universal 12 - 250V dc or 24 - 250V ac	SPDT Electro- mechanical Relay		
Long Range						
Q45VR3DL Q45VR3DLQ	1.8 m (6')	5-wire 2 m (6.5') 5-Pin Mini-style QD	Universal 12 - 250V dc or 24 - 250V ac	SPDT Electro- mechanical Relay		
High Power						
Q45VR3DX Q45VR3DXQ	3 m (10')	5-wire 2 m (6.5') 5-Pin Mini-style QD	Universal 12 - 250V dc or 24 - 250V ac	SPDT Electro- mechanical Relay		

Q45VR3 Series

Q45VR3 Series Specifications

Supply Voltage and Current	Universal voltage: 24 to 250V ac, 50/60 Hz or 12 to 250V dc (1.5 watts maximum)
Supply Protection Circuitry	Protected against transient voltages. DC hookup is without regard to polarity.
Output Configuration	SPDT (Single-Pole, Double-Throw) electromechanical relay output. All models except emitters.
Output Rating	<p>Max. switching power (resistive load): 1250VA, 150W</p> <p>Max. switching voltage (resistive load): 250V ac, 125V dc</p> <p>Max. switching current (resistive load): 5A @ 250V ac, 5A @ 30V dc derated to 200 mA @ 125V dc</p> <p>Min. voltage and current: 5V dc, 10mA</p> <p>Mechanical life of relay: 50,000,000 operations</p> <p>Electrical life of relay at full resistive load: 100,000 operations</p>
Output Protection Circuitry	Protected against false pulse on power-up
Output Response Time	15 milliseconds ON and OFF (NOTE: 100 millisecond delay on power-up. Relay is de-energized during this time.)
Repeatability	<p>Opposed mode: 0.25 milliseconds</p> <p>All other sensing modes: 0.5 milliseconds</p> <p>Response time and repeatability specifications are independent of signal strength.</p>
Adjustments	Light/Dark Operate select switch; and multi-turn Sensitivity control on top of sensor beneath a transparent o-ring-sealed Lexan® cover, allows precise sensitivity setting (turn clockwise to increase gain). Optional logic and logic/display modules have adjustable timing functions (see page 10).
Indicators	<p>Indicator LEDs are clearly visible beneath a raised transparent Lexan® dome on top of the sensor.</p> <p>Power (green) LED lights whenever 24 to 250V ac, or 12 to 250V dc power is applied</p> <p>Signal (red) AID™ System LED lights whenever the sensor sees its modulated light source, and pulses at a rate proportional to the strength of the received light signal</p> <p>Load (yellow) LED lights whenever the output relay is energized</p> <p>Optional 7-element LED signal strength display module</p>
Construction	Molded reinforced thermoplastic polyester housing, o-ring-sealed transparent Lexan® cover, molded acrylic lenses, and stainless steel hardware. Q45s are designed to withstand 1200 psi washdown. The base of cabled models has a 1/2" NPS integral internal conduit thread.
Environmental Rating	NEMA 6P, IEC IP67
Connections	PVC-jacketed 2 m (6.5') or 9 m (30') unterminated cables, or Mini-style quick-disconnect (QD) fittings are available ("Q"- suffix models). QD cables are ordered separately. See page 10.
Operating Conditions	<p>Temperature: -25° to +55° C (-13° to +131°F)</p> <p>Maximum relative humidity: 90% at 50°C (non-condensing)</p>
Application Notes	Transient suppression is recommended for contacts switching inductive loads. Optional output timing modules are available. See page 10 for more information.
Certifications	

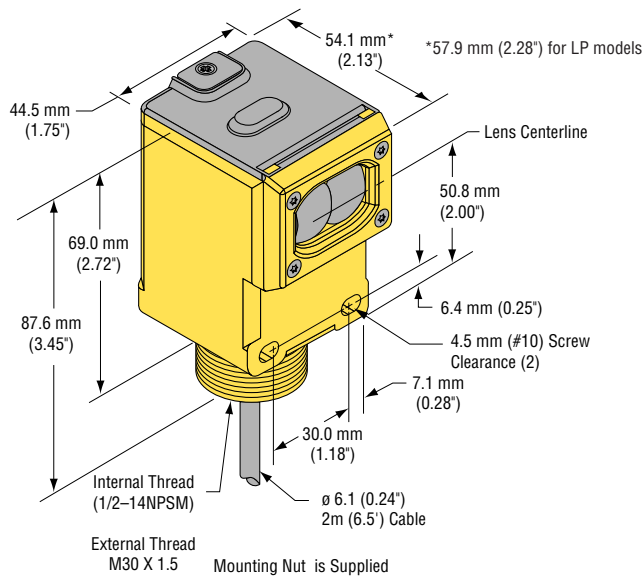
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Q45VR3 Series

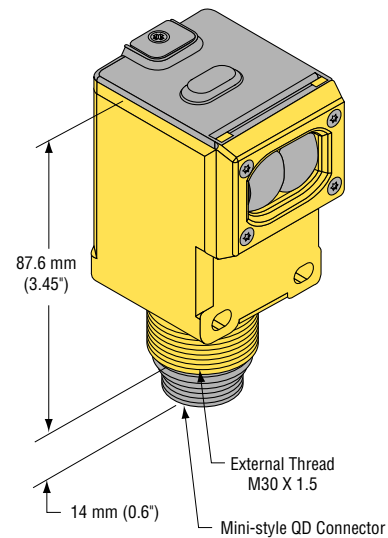
Q45VR3 Series Dimensions

Q45VR3 Series Sensors – Opposed, Retro, and Diffuse Sensing Modes (model suffix E, R, D, DL, DX, LP & LV)

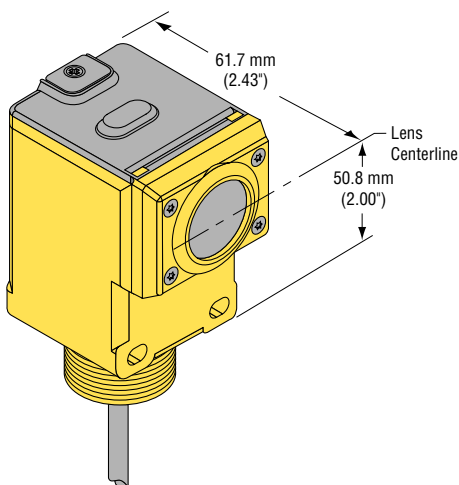
Cabled



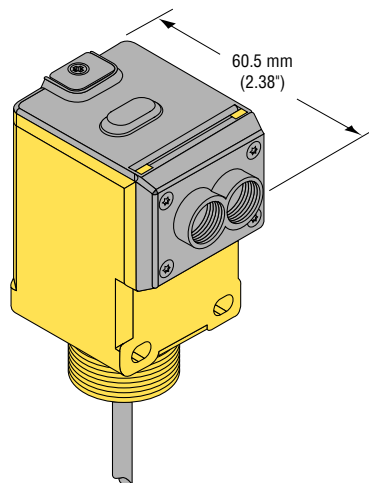
Quick-Disconnect



Convergent Sensing Mode (model suffix CV & CV4)



Glass Fiber Optic (model suffix F and FV)



Plastic Fiber Optic (model suffix FP)

