

Q40 Right-Angle Rectangular Sensors

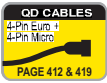
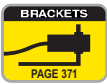
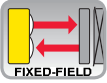
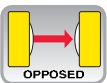
- Features EZ-BEAM® technology, with specially designed optics and electronics for reliable sensing without adjustments
- Features rectangular 40 mm plastic housing with 30 mm threaded mounting base in opposed, retroreflective and fixed-field modes
- Completely epoxy-encapsulated to provide superior durability, even in harsh sensing environments rated to IP69K
- Uses an innovative dual-indicator system to take the guesswork out of monitoring sensor performance
- Available in models for ac or dc power
- Uses advanced diagnostics to warn of marginal sensing conditions or output overload (dc models)

MINIATURE

COMPACT

MIDSIZE

FULLSIZE



Q40 AC and DC Sensors

- Dual LED multi-function indicators
- 30 mm threaded mounting base
- 2 or 9 m attached cable, or Euro- or Micro-style quick-disconnect
- Green LED Power indicator



Opposed, Polarized Retroreflective
and Fixed-field Models
Suffix E, R, LP and FF



Q40, 10-30V dc

MINIATURE
COMPACT
MIDSIZE
FULLSIZE

Models	Sensing Mode/LED*	Range	Cable**	Output Type	Excess Gain	Beam Pattern	Data Sheet
Q406E Emitter		60 m	2 m	-	EGCO-32 (p. 469)	BP0-31 (p. 493)	121516
Q406EQ Emitter			4-Pin Euro QD				
Q40SN6R			2 m	NPN			
Q40SN6RQ			4-Pin Euro QD				
Q40SP6R			2 m	PNP			
Q40SP6RQ			4-Pin Euro QD				
Q40SN6LP		6 m†	2 m	NPN	EGCR-39 (p. 473)	BPR-36 (p. 497)	
Q40SN6LPQ			4-Pin Euro QD				
Q40SP6LP			2 m	PNP			
Q40SP6LPQ			4-Pin Euro QD				
Q40SN6FF200		0 - 200 mm Cutoff	2 m	NPN	EGCF-33 (p. 484)	-	
Q40SN6FF200Q			4-Pin Euro QD				
Q40SP6FF200			2 m	PNP			
Q40SP6FF200Q			4-Pin Euro QD				
Q40SN6FF400		0 - 400 mm Cutoff	2 m	NPN	EGCF-34 (p. 484)	-	
Q40SN6FF400Q			4-Pin Euro QD				
Q40SP6FF400			2 m	PNP			
Q40SP6FF400Q			4-Pin Euro QD				
Q40SN6FF600		0 - 600 mm Cutoff	2 m	NPN	EGCF-35 (p. 484)	-	
Q40SN6FF600Q			4-Pin Euro QD				
Q40SP6FF600			2 m	PNP			
Q40SP6FF600Q			4-Pin Euro QD				

Q40, 20-250V ac



Models	Sensing Mode/LED*	Range	Cable**	Output Type	Excess Gain	Beam Pattern	Data Sheet
Q403E Emitter		60 m	2 m	-	EGCO-32 (p. 469)	BP0-31 (p. 493)	121515
Q403EQ1 Emitter			4-Pin Micro QD				
Q40AW3R			2 m	LO			
Q40AW3RQ1			4-Pin Micro QD				
Q40RW3R			2 m	DO			
Q40RW3RQ1			4-Pin Micro QD				
Q40AW3LP		6 m†	2 m	LO	EGCR-39 (p. 473)	BPR-36 (p. 497)	
Q40AW3LPQ1			4-Pin Micro QD				
Q40RW3LP			2 m	DO			
Q40RW3LPQ1			4-Pin Micro QD				

* Infrared LED Visible Red LED

** For 9 m cable, add W/30 to the 2 m model number (example, Q40SN6LP W/30). A QD model requires a mating cable (see pages 412 and 419).

† Retroreflective range is specified using one model BRT-3 retroreflector. Actual sensing range may differ, depending on efficiency and reflective area of the retroreflector in use. See Accessories for more information.





Q40, 20-250V ac (cont'd)

Models	Sensing Mode/LED*	Range	Cable**	Output Type	Excess Gain	Beam Pattern	Data Sheet	
Q40AW3FF200		0 - 200 mm Cutoff	2 m	LO	EGCF-33 (p. 484)	—	121515	
Q40AW3FF200Q1			4-Pin Micro QD					
Q40RW3FF200			2 m	DO				
Q40RW3FF200Q1			4-Pin Micro QD					
Q40AW3FF400		0 - 400 mm Cutoff	0 - 400 mm Cutoff	2 m	LO	EGCF-34 (p. 484)		—
Q40AW3FF400Q1				4-Pin Micro QD				
Q40RW3FF400				2 m	DO			
Q40RW3FF400Q1				4-Pin Micro QD				
Q40AW3FF600		0 - 600 mm Cutoff	0 - 600 mm Cutoff	2 m	LO	EGCF-35 (p. 484)		—
Q40AW3FF600Q1				4-Pin Micro QD				
Q40RW3FF600				2 m	DO			
Q40RW3FF600Q1				4-Pin Micro QD				

* Infrared LED

** For 9 m cable, add W/30 to the 2 m model number (example, Q40AW3FF200 W/30). A QD model requires a mating cable (see page 419).

MINIATURE

COMPACT




MIDSIZE

FULLSIZE

Q40 DC Specifications

Supply Voltage and Current	10 to 30V dc (10% max. ripple); Supply current (exclusive of load current): Opposed Emitters: 25 mA Opposed Receivers: 20 mA Polarized Retroreflective: 30 mA Fixed-field: 35 mA
Supply Protection Circuitry	Protected against reverse polarity and transient voltages
Output Configuration	Solid-state complementary; choose NPN (current sinking) or PNP (current sourcing) models. The Dark Operate (DO) output may be wired as a normally open marginal signal alarm output, depending upon hookup to the power supply.
Output Rating	150 mA max. (each) in standard hookup; When wired for alarm output, the total load may not exceed 150 mA OFF-state leakage current: less than 1 µA at 30V dc ON-state saturation voltage: less than 1V at 10 mA dc; less than 1.5V at 150 mA dc
Output Protection Circuitry	Protected against false pulse on power-up and continuous overload or short circuit of outputs
Output Response Time	Opposed: 3 milliseconds ON; 1.5 milliseconds OFF Polarized Retroreflective and Fixed-field: 3 milliseconds ON/OFF NOTE: 100 millisecond delay on power-up; outputs are non-conducting during this time
Repeatability	Opposed: 375 microseconds Polarized Retroreflective, Non-Polarized Retroreflective, Fixed-field and Diffuse: 750 microseconds. Repeatability and response are independent of signal strength.
Indicators	Two LEDs: Green and Yellow Green ON steady: power ON Green flashing: output overloaded Yellow ON steady: Light Operate (LO) output energized Yellow flashing: excess gain marginal (1-1.5x) in light condition, LO output energized
Construction	Housings are thermoplastic polyester. Lenses are polycarbonate or acrylic; one jam nut included.
Environmental Rating	Leakproof design rated NEMA 6P; DIN 40050 (IP69K)
Connections	2 m or 9 m attached cable, or 4-pin Euro-style quick-disconnect fitting. QD cables are ordered separately. See page 412.
Operating Conditions	Temperature: -40° to +70° C Relative humidity: 90% at 50° C (non-condensing)
Vibration and Mechanical Shock	All models meet Mil. Std. 202F requirements. Method 201A (Vibration; frequency 10 to 60 Hz, max., double amplitude 0.06-inch acceleration 10G). Method 213B conditions H&I (Shock: 75G with unit operating; 100G for non-operation)
Certifications	
Hookup Diagrams	Emitters: DC02 (p. 520) NPN Models: DC05 (p. 521) PNP Models: DC06 (p. 521)

- MINIATURE
- COMPACT
- MIDSIZE
- FULLSIZE

Q40 AC Specifications	
Supply Voltage and Current	20 to 250V ac (50/60 Hz) Average current: 20 mA Peak current: 200 mA at 20V ac, 500 mA at 120V ac, 750 mA at 250V ac
Supply Protection Circuitry	Protected against transient voltages
Output Configuration	Solid-state ac switch; three-wire hookup; choose light operate (LO) or dark operate (DO) models Light operate: Output conducts when the sensor sees its own (or the emitter's) modulated light Dark operate: Output conducts when sensor sees dark
Output Rating	300 mA max. (continuous) Fixed-field: derate 5 mA/° C above +50° C Inrush capability: 1 amp for 20 milliseconds, non-repetitive OFF-state leakage current: less than 100 µA ON-state voltage drop: 3V at 300 mA ac; 2V at 15 mA ac
Output Protection Circuitry	Protected against false pulse on power-up
Output Response Time	Opposed: 16 milliseconds ON; 8 milliseconds OFF Polarized Retroreflective and Fixed-field: 16 milliseconds ON/OFF NOTE: 100 millisecond delay on power-up
Repeatability	Opposed: 2 milliseconds Polarized Retroreflective and Fixed-field: 4 milliseconds Repeatability and response are independent of signal strength.
Indicators	Two LEDs: Green and Yellow Green ON steady: power ON Yellow ON steady: light sensed Yellow flashing: excess gain marginal (1-1.5x) in light condition
Construction	Housings are thermoplastic polyester. Lenses are polycarbonate or acrylic; one jam nut included.
Environmental Rating	Leakproof design rated NEMA 6P; DIN 40050 (IP69K)
Connections	2 m or 9 m attached cable, or 4-pin Micro-style quick-disconnect fitting. QD cables are ordered separately. See page 419.
Operating Conditions	Temperature: -40° to +70° C Relative humidity: 90% at 50° C (non-condensing)
Vibration and Mechanical Shock	All models meet Mil. Std. 202F requirements. Method 201A (Vibration; frequency 10 to 60 Hz, max, double amplitude 0.06-inch acceleration 10G). Method 213B conditions H&I (Shock: 75G with unit operating; 100G for non-operation)
Certifications	  
Hookup Diagrams	Cabled Emitters: AC03 (p. 525) Cabled Models: AC05 (p. 526) QD Emitters: AC07 (p. 526) QD Models: AC06 (p. 526)