

# QS30

## DC-Operated Long-Range Sensors



- The QS30 DC sensor is a specialized photoelectric sensor that has high performance and long range with a consistent voltage source.
- Ability to work reliably in low contrast applications
- Ability to detect liquid in translucent and opaque bottles
- Rated to IP67 for use in harsh environments
- Cordsets and brackets see page 62

### Opposed QS30

Infrared LED

Sensing Mode	Range	Connection	Output Type	Model
 OPPOSED	60 m	2 m	Bipolar NPN/PNP	QS30E Emitter*
		5-pin Euro QD		QS30EQ Emitter*
		2 m		QS30R
		5-pin Euro QD		QS30RQ
 HIGH-POWERED OPPOSED	213 m	2 m	Bipolar NPN/PNP LO	QS30EX Emitter
		5-pin Euro QD		QS30EXQ Emitter
		2 m		QS30ARX
		5-pin Euro QD		QS30ARXQ
		2 m		QS30RRX
		5-pin Euro QD		QS30RRXQ



### Case Entry Detection Using Polar Retroreflective Sensors

The QS30LP verifies that there is a box present to be picked up before being sent to the palletizer. Shrink wrap is placed around the boxes on the pallet before being shipped.

### Retro & Polar Retro QS30

Visible Red LED

Sensing Mode	Range	Connection	Output Type	Model
 RETRO	12 m†	2 m	Bipolar NPN/PNP	QS30LV
		5-pin Euro QD		QS30LVQ
 POLAR RETRO	8 m†	2 m	Bipolar NPN/PNP	QS30LP
		5-pin Euro QD		QS30LPQ

For more specifications see page 63.



Connection options: A model with a QD requires a mating cordset (see page 62).

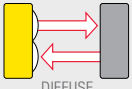
For 9 m cable, add suffix W/30 to the 2 m model number (example, QS30R W/30).

\* Standard emitters will only work with standard receivers.

† Retroreflective range is specified using one model BRT-84 retroreflector.

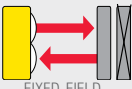
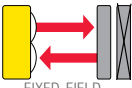
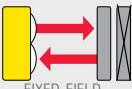
## Diffuse QS30

 Infrared LED

Sensing Mode	Range	Connection	Output Type	Model
	1 m	2 m	Bipolar NPN/PNP	QS30D
		5-pin Euro QD		QS30DQ

## Fixed-Field QS30

 Visible Red LED

Sensing Mode	Range	Connection	Output Type	Model
	200 mm Cutoff	2 m	Bipolar NPN/PNP	QS30FF200
		5-pin Euro QD		QS30FF200Q
	400 mm Cutoff	2 m	Bipolar NPN/PNP	QS30FF400
		5-pin Euro QD		QS30FF400Q
	600 mm Cutoff	2 m	Bipolar NPN/PNP	QS30FF600
		5-pin Euro QD		QS30FF600Q

For more specifications see page 63.

 Connection options: A model with a QD requires a mating cordset (see page 62).

For 9 m cable, add suffix W/30 to the 2 m model number (example, QS30D W/30).

\* Super High-Power emitters will only work with Super High-Power receivers.

† Sensors can be used at ranges greater than listed for applications that require less excess gain. Please consult the factory for assistance on your long-range applications. Actual sensing range may differ, depending on the efficiency and reflective area of the retroreflector used. See Accessories for more information.

Euro QD  
(for Q models)  
Straight connector models  
listed; for right-angle, add **RA**  
to the end of the model number  
(example, **MQDC-506RA**)



5-Pin  
**MQDC1-506**  
2 m (6.5')  
**MQDC1-515**  
5 m (15')  
**MQDC1-530**  
9 m (30')

Additional cordset information is available  
See page 758

Reflectors



Additional information is available  
See page 790

Apertures



Additional information is available  
See page 816



SMBQS30L



SMBQS30Y



SMBQS30YL



SMB30A

Additional bracket information is available  
See page 722



Opposed, Retroreflective, Diffuse,  
Fixed-Field and Expert Models  
Suffix E, R, LP, LV, D, AF, FF, LLP, LLPC,  
LVC, EDV, LD and LDL



Opposed High-Power Models  
Suffix EX and RX



Adjustable-Field, Fixed-Field and  
Universal Voltage Models  
Suffix AFF, FF, R, E, LP

## QS30 Specifications

Supply Voltage and Current	<b>Emitters (High-Power):</b> 10 to 30 V dc (10% max. ripple) at less than 70 mA <b>Receivers (High-Power):</b> 10 to 30 V dc (10% max. ripple) at less than 22 mA <b>Analog Receivers (water):</b> 15 to 30 V dc (10% max. ripple) at less than 65 mA <b>All others:</b> 10 to 30 V dc (10% max. ripple) at 40 mA, (exclusive of load)		<b>Emitters (Water):</b> 10 to 30 V dc (10% max. ripple) at less than 80 mA <b>Receivers (Water):</b> 10 to 30 V dc (10% max. ripple) at less than 65 mA (exclusive of load)
Supply Protection Circuitry	Protected against reverse polarity and transient voltages		
Output Configuration	<b>Bipolar:</b> One PNP (current sourcing) and one NPN (current sinking); Light Operate (LO) or Dark Operate (DO) selectable or configurable (depending on model)		
Output Response Time	<b>Opposed:</b> 5 milliseconds ON/OFF <b>Opposed (High-Power):</b> 30 milliseconds ON/OFF <b>Opposed (Water): 10 x excess gain or more– Standard:</b> 1 millisecond ON/OFF <b>2x to 10x excess gain– Standard:</b> 3 milliseconds ON/OFF <b>All others:</b> 2 milliseconds ON/OFF		<b>Super High-Power:</b> 10 milliseconds ON/OFF <b>Super High-Power:</b> 30 milliseconds ON/OFF
Delay at Power-Up	100 milliseconds; outputs do not conduct during this time (except Opposed High-Powered and Water)		
Repeatability	<b>Opposed:</b> not applicable <b>Opposed (High-Power):</b> 5 milliseconds <b>Opposed (Water): 10 x excess gain or more– Standard:</b> 500 microseconds <b>2x to 10x excess gain– Standard:</b> 2.5 milliseconds <b>All others:</b> 500 microseconds		<b>Super High-Power:</b> 5 milliseconds <b>Super High-Power:</b> 25 milliseconds
Adjustments	<b>Opposed (High-Power and Water):</b> Light Operate/Dark Operate—dependent on model selected <b>Frequency via gray wire:</b> A: Gray (+) B: Gray (-) <b>Emitter only:</b> LED inhibit, via white wire White (-) turns emitter LED OFF (to allow verification of sensor operation) <b>Opposed, Retroreflective, and Polarized Retroreflective:</b> Selectable Light/Dark Operate is achieved via the gray wire <b>Light Operate:</b> Low (0 to 3 V)* <b>Dark Operate:</b> High (open or 5 to 30 V)* <b>Diffuse:</b> Selectable Light/Dark Operate is achieved via the gray wire <b>Light Operate:</b> High (open or 5 to 30 V)* <b>Dark Operate:</b> Low (0 to 3 V)* <b>Diffuse, Retroreflective, and Polarized Retroreflective (only):</b> Single-turn sensitivity (Gain) adjustment potentiometer  * Input impedance 10 kΩ See datasheet for more detailed information		
Indicators	<b>Opposed (High-Power):</b> 4-LED Signal Strength light bar <b>Green LED:</b> Power ON <b>Frequency indicator:</b> (A or B) <b>Receiver only: Yellow LED:</b> Output conducting  <b>All others (except emitters):</b> Large, oval LED indicator on sensor back <b>Yellow:</b> Output conducting Small indicator on back (adjustable-field only) <b>Blue/Red:</b> End of travel (EOT) LED 2 indicators on top <b>Green:</b> Power ON <b>Yellow:</b> Light sensed		
Construction	ABS plastic housing; acrylic lens cover <b>Opposed High-Power Lenses:</b> Impact resistant lens material		
Environmental Rating	<b>Opposed (High-Power): Cabled:</b> IP67; NEMA 6P <b>Opposed (High-Power) QD:</b> IP69K per DIN 40050-9 <b>Opposed (Water):</b> IEC IP67 (nema 6); PW12 1200 PSI washdown per NEMA PW12 <b>All others:</b> IP67; NEMA 6		
Connections	5-conductor 2 m or 9 m PVC cable, or 5-pin 150 mm pigtail or integral Euro-style quick-disconnect fitting, depending on model. QD cordsets are ordered separately. See page 62.		
Operating Conditions	<b>Opposed (Water), Opposed (High-Power):</b> -20° to +60° C <b>All others:</b> -20° to +70° C		<b>Relative humidity:</b> 90% (non-condensing) <b>Relative humidity:</b> 90% (non-condensing)
Certifications	