

QS18 Universal Voltage Sensors

Self-contained AC/DC-powered photoelectric sensors in a right-angle housing



Features

- Easily fits or retrofits almost any mounting configuration
- Exceptional optical performance in a compact right-angle housing
- 20 to 140V ac/dc or 20 to 270V ac/dc operation with P-MOSFET[†] or N-MOSFET[†] output, depending on model (see Specifications)
- Bright LED operating status indicators, visible from 360°
- Rugged, sealed housing, protected circuitry, 1200 PSI washdown
- Versatile mounting: front- and base-mount (M18), side-mount, and retrofit brackets

Models

Model*	Sensing Mode / LED	Sensing Range	Output Type [†]	
QS18WE	940 nm Infrared Effective Beam: 10 mm (0.4") OPPOSED	20 m (66')	N/A (Emitter)	
QS18ANWR			L.O.	N-MOSFET (Sinking)
QS18RNWR			D.O.	
QS18APWR			L.O.	P-MOSFET (Sourcing)
QS18RPWR			D.O.	
QS18ANWLP	660 nm Visible Red POLAR RETRO	3.5 m (12')	L.O.	N-MOSFET (Sinking)
QS18RNWLP			D.O.	
QS18APWLP			L.O.	P-MOSFET (Sourcing)
QS18RPWLP			D.O.	
QS18ANWLTV	660 nm Visible Red RETRO	6.5 m (21')	L.O.	N-MOSFET (Sinking)
QS18RNWLTV			D.O.	
QS18APWLTV			L.O.	P-MOSFET (Sourcing)
QS18RPWLTV			D.O.	
QS18ANWDL	624 nm Visible Red DIFFUSE	450 mm (18")	L.O.	N-MOSFET (Sinking)
QS18RNWDL			D.O.	
QS18APWDL			L.O.	P-MOSFET (Sourcing)
QS18RPWDL			D.O.	
QS18ANWDXL	850 nm Infrared DIFFUSE	1 m (39")	L.O.	N-MOSFET (Sinking)
QS18RNWDXL			D.O.	
QS18APWDXL			L.O.	P-MOSFET (Sourcing)
QS18RPWDXL			D.O.	

WARNING . . . Not To Be Used

for Personnel Protection

Never use these products as sensing devices for personnel protection. Doing so could lead to serious injury or death.

These sensors do NOT include the self-checking redundant circuitry necessary to allow their use in personnel safety applications. A sensor failure or malfunction can cause either an energized or de-energized sensor output condition. Consult your current Banner Safety Products catalog for safety products which meet OSHA, ANSI and IEC standards for personnel protection.

* Only standard 2 m (6.5') cable models are listed. For 9 m (30') cable, add suffix "W30" to the model number (e.g., QS18WE W30).

QD models: For 150 mm (6") pigtail cable with 4-pin AC Micro-style QD, add suffix "Q2" to the model number (e.g., QS18WEQ2). A model with a QD connector requires an accessory mating cordset; see page 4.

600V cable models: Standard models are supplied with 300V cable. For 600V cable, add suffix "C1" to the model number (e.g., QS18WEC1).




[†]MOSFET: Metal oxide semiconductor field-effect transistor.



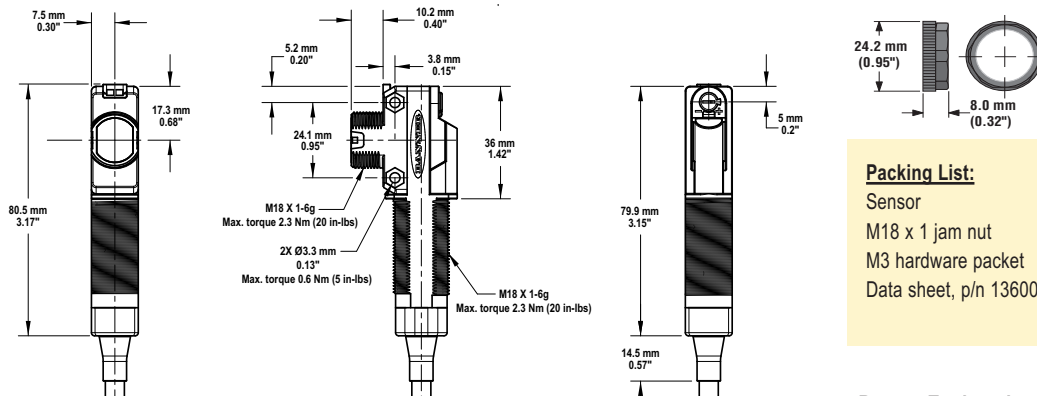
136003

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Specifications

	P-MOSFET Models	N-MOSFET Models									
Supply Voltage	20–140V ac/dc @ < 10 mA, exclusive of load	20–270V ac/dc @ < 10 mA, exclusive of load									
Supply Protection Circuitry	Protected against reverse polarity and transient over-voltages										
Output Configuration	Single Discrete Output, 100 mA load rating N-MOSFET or P-MOSFET, depending on model number Light Operate or Dark Operate, depending on model number										
Output Rating	100 mA with short circuit protection OFF-state leakage current: < 400 μ A ON-state saturation voltage: 2.75V	100 mA with short circuit protection OFF-state leakage current: < 400 μ A ON-state saturation voltage: 2.5V									
Output Protection Circuitry	Protected against output short-circuit and false pulse on power up. Latching short-circuit protection; reset by cycling power. Delay at power up; outputs do not conduct during this time: 100 ms max. dc, 300 ms max. ac										
Repeatability	1.5 ms										
Output Response Time	Opposed mode: 16.6 ms (1 cycle at 60 Hz) All other modes: 8.3 ms ($\frac{1}{2}$ cycle at 60 Hz)										
Adjustments	Diffuse, Retroreflective and Polarized Retroreflective models only: 1-turn potentiometer Sensitivity (Gain) adjustment										
Indicators	Two LED Indicators: Power (green) and Output (yellow) <table border="1" style="margin-top: 10px;"> <thead> <tr> <th></th> <th>ON Steady</th> <th>Flashing</th> </tr> </thead> <tbody> <tr> <td>Green</td> <td>Power ON</td> <td>Sensor output short circuit</td> </tr> <tr> <td>Yellow</td> <td>Light is sensed</td> <td>Marginal excess gain (1 to 1.5x)</td> </tr> </tbody> </table>			ON Steady	Flashing	Green	Power ON	Sensor output short circuit	Yellow	Light is sensed	Marginal excess gain (1 to 1.5x)
	ON Steady	Flashing									
Green	Power ON	Sensor output short circuit									
Yellow	Light is sensed	Marginal excess gain (1 to 1.5x)									
Construction	Housing: ABS Lenses: PMMA Gain Adjuster: acetal 										
Environmental Rating	IEC IP67 (NEMA 6); 1200 PSI washdown NEMA ICS5, Annex F-2002 (PW12); UL Type 1										
Connections	2 m (6.5') 3-conductor, 22 AWG PVC cable (300V ac), or 150 mm (6") pigtail PVC cable with 4-pin threaded Micro-style connector; "C1" suffix models: 2 m (6.5') 3-conductor, 22 AWG PVC cable (600V ac).										
Operating Conditions	Temperature: Less than 140V ac/dc: -25° to +70° C (-13° to +158° F) (N-MOSFET and P-MOSFET models) 140V ac/dc or greater: -25° to +55° C (-13° to +131° F) (N-MOSFET models only) Max. Relative Humidity: 95% @ 55° C (non-condensing)										
Certifications	 										

Dimensions



Packing List:

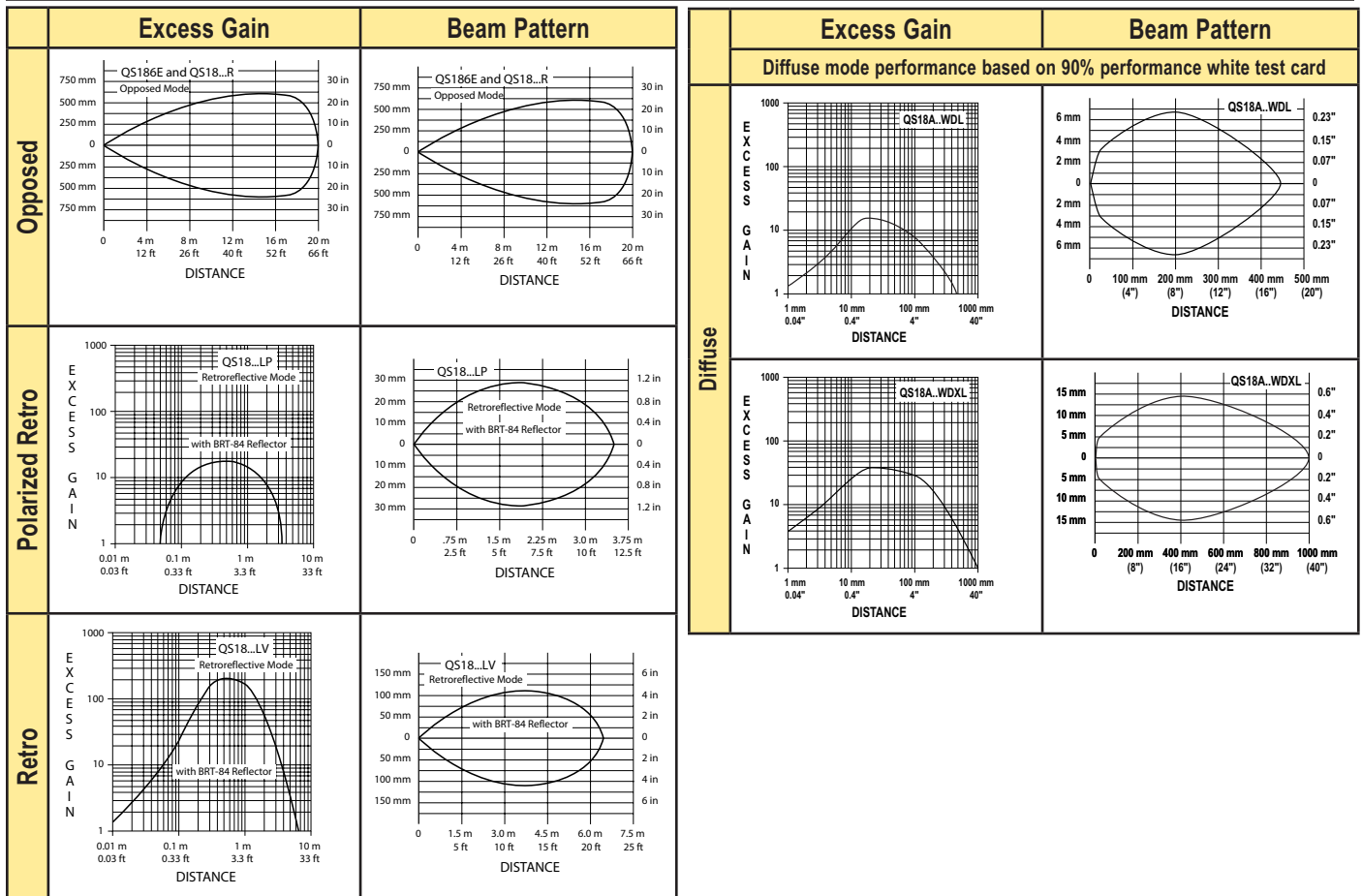
Sensor
M18 x 1 jam nut
M3 hardware packet
Data sheet, p/n 136003

M3 Hardware Packet Contents:

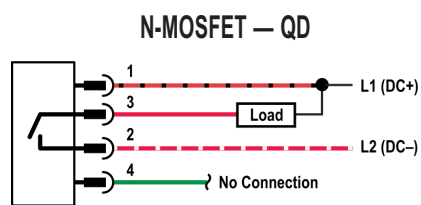
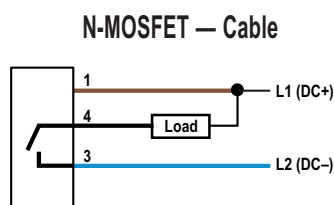
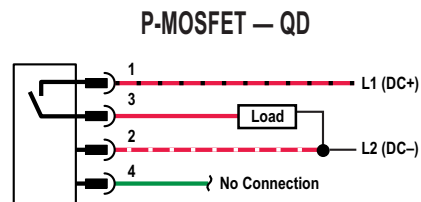
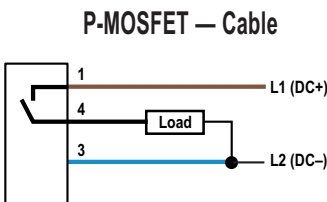
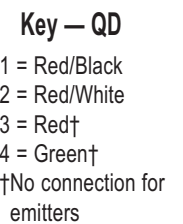
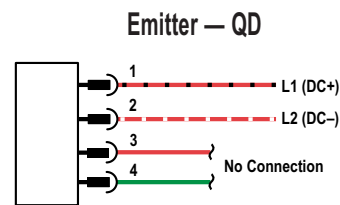
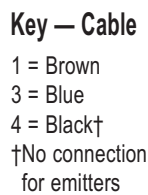
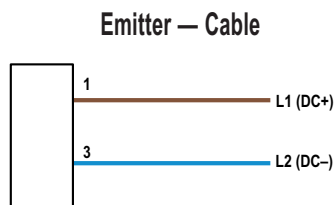
2 – M3 x 0.5 x 20 mm SS Screw
2 – M3 x 0.5 SS Hex Nut
2 – M3 SS Washer

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Performance Curves



Hookups



QS18 Universal Voltage Sensors

Quick-Disconnect (QD) Cordsets

Style	Model	Length	Dimensions	Pinout
4-Pin Threaded Micro-Style, Straight	MQAC-406	2 m (6.5')		<p>Key 1 = Red/Black 2 = Red/White 3 = Red† 4 = Green† †Not used for emitters</p>
	MQAC-415	5 m (16')		
	MQAC-430	9 m (30')		

Retroreflective Targets

See the Accessories section of your current Banner Photoelectric Sensors catalog for complete information.
 NOTE: Polarized sensors require corner cube type retroreflective targets only.

Apertures

Model	Description	Pieces
Circular		
APQS18-020	0.5 mm dia.	6
APQS18-040	1.0 mm dia.	6
APQS18-100	2.5 mm dia.	6
Horizontal Slot		
APQS18-020H	0.5 x 6.4 mm	6
APQS18-040H	1.0 x 6.4 mm	6
APQS18-100H	2.5 x 6.4 mm	6
Vertical Slot		
APQS18-020V	0.5 x 12.7 mm	6
APQS18-040V	1.0 x 12.7 mm	6
APQS18-100V	2.5 x 12.7 mm	6
Kit		
APQS18-DVHX2	2 of each aperture	18

Mounting Brackets

SMB18A

- Right-angle barrel-mount bracket
- 12-gauge stainless steel

* Use 4 mm (#8) screws to mount bracket. Drill screw holes 24.2 mm (0.95") apart.

SMBQS18WRS

- Retrofit bracket for Universal voltage models; sensor base threads into bracket, bracket bolts to flat surface
- PBT construction
- Clearance for M3 or #6-32 hardware

Other sensor model shown with bracket above. Refer to your current Banner Photoelectrics catalog for more mounting bracket options, including:

- SMB312S**
- SMB18SF**
- SMB3018SC**
- SMB18FA**



WARRANTY: Banner Engineering Corp. warrants its products to be free from defects for one year. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture found to be defective at the time it is returned to the factory during the warranty period. This warranty does not cover damage or liability for the improper application of Banner products. This warranty is in lieu of any other warranty either expressed or implied.