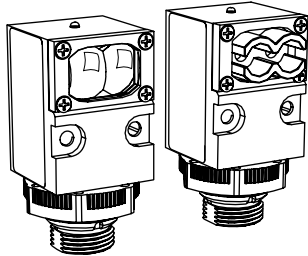


Datasheet

AC- and DC-powered sensors with solid-state outputs

To view or download the latest technical information about this product, including specifications, dimensions, accessories, and wiring, go to www.bannerengineering.com.



- Choose models for 10 to 30 V DC or 24 to 250 V AC operation
- DC models have bipolar solid-state outputs: one NPN (sinking) and one PNP (sourcing)
- AC models have an SPST solid-state output rated for up to 3/4 amp with simple 2-wire connection
- All models have a rear panel sensitivity adjustment and light/dark operate switch
- DC models include Banner's Alignment Indicating Device (AID™) system
- Choose models with integral 2 m (6.5 ft) cable or Mini-style QD (quick-disconnect) connector; 9 m (30 ft) cables are also available



WARNING:

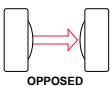
- **Do not use this device for personnel protection**
- Using this device for personnel protection could result in serious injury or death.
- This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A device failure or malfunction can cause either an energized (on) or de-energized (off) output condition.

Models

To order the 9 m (30 ft) PVC cable model, add the suffix "W/30" to the cabled model number. For example, SMA91E W/30. A model with a QD connector requires a mating cable; see [Quick-Disconnect Cables](#) on page 9.

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

Infrared, 880 nm

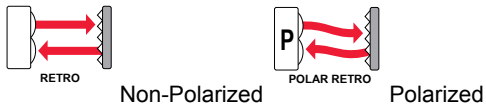


Models	Range	Connection	Supply Voltage	Output Type
SMA91E	60 m (200 ft)	2 m (6.5 ft) cable	10 to 250 V AC/DC	-
SMA91EQD		3-pin 7/8 in-16UNF Quick Disconnect		
SM91R		2 m (6.5 ft) cable	10 to 30 V DC	Bipolar NPN/PNP
SM91RQD		4-pin 7/8 in-16UNF Quick Disconnect		
SM2A91R		2 m (6.5 ft) cable	24 to 250 V AC	SPST SCR Solid-state 2-wire
SM2A91RQD		3-pin 7/8 in-16UNF Quick Disconnect		
SMA91ESR	3 m (10 ft)	2 m (6.5 ft) cable	10 to 250 V AC/DC	-
SMA91ESRQD		3-pin 7/8 in-16UNF Quick Disconnect		
SM91RSR		2 m (6.5 ft) cable	10 to 30 V DC	Bipolar NPN/PNP
SM91RSRQD		4-pin 7/8 in-16UNF Quick Disconnect		
SM2A91RSR		2 m (6.5 ft) cable	24 to 250 V AC	SPST SCR Solid-state 2-wire
SM2A91RSRQD		3-pin 7/8 in-16UNF Quick Disconnect		



Retroreflective Mode Models

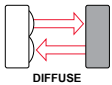
Visible red, 650 nm



Models	Range ¹	Connection	Supply Voltage	Output Type
Non-Polarized				
SM912LV	0.15 to 9 m (6 in to 30 ft)	2 m (6.5 ft) cable	10 to 30 V DC	Bipolar NPN/PNP
SM912LVQD		4-pin 7/8 in-16UNF Quick Disconnect		
SM2A912LV		2 m (6.5 ft) cable	24 to 250 V AC	SPST SCR Solid-state 2-Wire
SM2A912LVQD		3-pin 7/8 in-16UNF Quick Disconnect		
Polarized ²				
SM912LVAG	0.3 to 4.5 m (1 ft to 15 ft)	2 m (6.5 ft) cable	10 to 30 V DC	Bipolar NPN/PNP
SM912LVAGQD		4-pin 7/8 in-16UNF Quick Disconnect		
SM2A912LVAG		2 m (6.5 ft) cable	24 to 250 V AC	SPST SCR Solid-state 2-Wire
SM2A912LVAGQD		3-pin 7/8 in-16UNF Quick Disconnect		

Diffuse Mode Models

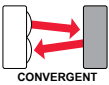
Infrared, 880 nm



Models	Range	Connection	Supply Voltage	Output Type
SM912D	760 mm (30 in)	2 m (6.5 ft) cable	10 to 30 V DC	Bipolar NPN/PNP
SM912DQD		4-pin 7/8 in-16UNF Quick Disconnect		
SM2A912D		2 m (6.5 ft) cable	24 to 250 V AC	SPST SCR Solid-state 2-Wire
SM2A912DQD		3-pin 7/8 in-16UNF Quick Disconnect		
SM912DSR	380 mm (15 in)	2 m (6.5 ft) cable	10 to 30 V DC	Bipolar NPN/PNP
SM912DSRQD		4-pin 7/8 in-16UNF Quick Disconnect		
SM2A912DSR		2 m (6.5 ft) cable	24 to 250 V AC	SPST SCR Solid-state 2-Wire
SM2A912DSRQD		3-pin 7/8 in-16UNF Quick Disconnect		

Convergent Mode Models

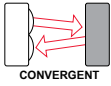
Visible red or infrared



Models (Visible Red, 650 nm)	Range	Cable*	Supply Voltage	Output Type
SM912CV	38 mm (1.5 in) Spot Size at Focus: 1.5 mm (0.06 in)	2 m (6.5 ft) cable	10 to 30 V DC	Bipolar NPN/PNP
SM912CVQD		4-pin 7/8 in-16UNF Quick Disconnect		
SM2A912CV		2 m (6.5 ft) cable	24 to 250 V AC	SPST SCR Solid-state 2-Wire
SM2A912CVQD		3-pin 7/8 in-16UNF Quick Disconnect		

¹ Retroreflective range is specified using one model BRT-3 retroreflector (3-inch diameter). Actual sensing range may be more or less than specified, depending upon the efficiency and reflective area of the retroreflector used.

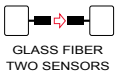
² Use polarized models when shiny objects will be sensed.



Models (Infrared, 880 nm)	Range	Cable*	Supply Voltage	Output Type
SM912C	38 mm (1.5 in)	2 m (6.5 ft) cable	10 to 30 V DC	Bipolar NPN/PNP
SM912CQD		4-pin 7/8 in-16UNF Quick Disconnect		
SM2A912C		2 m (6.5 ft) cable	24 to 250 V AC	SPST SCR Solid-state 2-Wire
SM2A912CQD		3-pin 7/8 in-16UNF Quick Disconnect		

Glass Fiber Optic Individual Emitter or Receiver Models

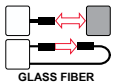
Infrared, 880 nm . Use where the separation between emitting and receiving fibers is more than a few feet, or where it is inconvenient to run both fibers from a single sensor. Watertight o-ring-sealed sensor/fiber interface.



Models	Range	Connection	Supply Voltage	Output Type
SMA91EF	Range varies with fiber used	2 m (6.5 ft) cable	10 to 250 V AC/DC	-
SMA91EFQD		3-pin 7/8 in-16UNF Quick Disconnect		
SM91RF		2 m (6.5 ft) cable	10 to 30 V DC	Bipolar NPN/PNP
SM91RFQD		4-pin 7/8 in-16UNF Quick Disconnect		
SM2A91RF		2 m (6.5 ft) cable	24 to 250 V AC	SPST SCR Solid-state 2-Wire
SM2A91RFQD		3-pin 7/8 in-16UNF Quick Disconnect		

Glass Fiber Optic Models

Infrared, 880 nm . Watertight o-ring-sealed sensor/fiber interface.



Models	Range	Connection	Supply Voltage	Output Type
SM912F	Range varies with sensing mode and fiber optics used	2 m (6.5 ft) cable	10 to 30 V DC	Bipolar NPN/PNP
SM912FQD		4-pin 7/8 in-16UNF Quick Disconnect		
SM2A912F		2 m (6.5 ft) cable	24 to 250 V AC	SPST SCR Solid-state 2-Wire
SM2A912FQD		3-pin 7/8 in-16UNF Quick Disconnect		