

BANNER[®]

more sensors, more solutions

VALU-BEAM[®] 912 Series

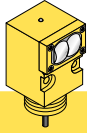
AC- and DC-powered sensors with solid-state outputs



Features

- Choose models for 10 to 30V dc or 24 to 250V 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 hookup.
- 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') cable or Mini-style QD (quick-disconnect) connector; 9 m (30') cables are also available.

VALU-BEAM® Sensors – 912 Series



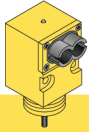
Retroreflective Mode Models

Models	Range [†]	Cable*	Supply Voltage	Output Type	Excess Gain	Beam Pattern
Non-Polarized						
SM912LV SM912LVQD	0.15 to 9 m (6" to 30')	2 m (6.5') 4-Pin Mini QD	10-30V dc	Bipolar NPN/PNP		
SM2A912LV SM2A912LVQD		2 m (6.5') 3-Pin Mini QD		24-250V ac		
Polarized^{††}						
SM912LVAG SM912LVAGQD	0.3 to 4.5 m (1' to 15')	2 m (6.5') 4-Pin Mini QD	10-30V dc	Bipolar NPN/PNP		
SM2A912LVAG SM2A912LVAGQD		2 m (6.5') 3-Pin Mini QD		24-250V ac		

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

^{††}Use polarized models when shiny objects will be sensed.

VALU-BEAM® Sensors – 912 Series



Watertight o-ring-sealed sensor/fiber interface.



Infrared, 880 nm

Glass Fiber Optic Models

Models	Range	Cable*	Supply Voltage	Output Type	Excess Gain	Beam Pattern
					Performance based on 90% reflectance white test card	
SM912F SM912FQD	Range varies with sensing mode and fiber optics used.	2 m (6.5') 4-Pin Mini QD	10-30V dc	Bipolar NPN/PNP		
SM2A912F SM2A912FQD		2 m (6.5') 3-Pin Mini QD	24-250V ac	SPST SCR Solid-state 2-Wire		

* 9 m (30') cables are available by adding suffix "W/30" to the model number of any cabled sensor (e.g., SM912F W/30).
A model with a QD connector requires a mating cable; see page 7.

Dimensions

Cabled Models

QD Models

Rear View


NOTE: Control potentiometers are behind cover screws; remove screws to access controls

Convergent Sensing Mode (model suffix LVAG, C and CV)

Glass Fiber Optic (model suffix F, EF and RF)

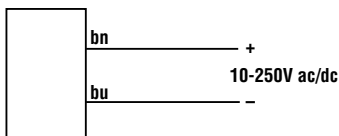
VALU-BEAM® Sensors – 912 Series

Specifications – AC Models

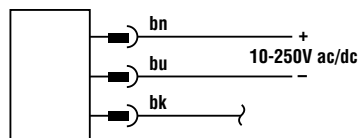
Supply Voltage and Current	24 to 250V ac (50/60 Hz), except for SMA91E, ESR and EF emitters, which operate from 10 to 250V ac or dc
Supply Protection Circuitry	Protected against transient voltages
Output Configuration	SPST SCR solid-state relay with either normally closed or normally open contact (light/dark operate selectable); 2-wire hookup
Output Rating	Minimum load current 10 mA, max. steady-state load capability 750 mA to 50° C ambient (122° F), 500 mA to 70° C ambient (158° F) Inrush capability: 4 amps for 1 second (non-repetitive) Off-state leakage: current less than 1.7 mA rms On-state voltage drop: 5 volts rms at 750 mA load, 10 volts rms at 15 mA load
Output Protection Circuitry	Protected against false pulse on power-up
Output Response Time	Receivers only: 8 milliseconds ON and 4 milliseconds OFF, independent of signal strength All other models: 8 milliseconds ON and OFF OFF time does not include load response of up to 1/2 ac cycle (8.3 milliseconds). Response time specification of the load should be considered when total response time is important. NOTE: 300 millisecond delay on power-up; outputs do not conduct during this delay.
Repeatability	Opposed and Glass Fiber Optic Emitter-Receiver pairs: 1.0 millisecond Retro, Diffuse, Convergent and Glass Fiber Optic: 2.6 milliseconds
Adjustments	Light/Dark Operate select switch and Sensitivity control potentiometer, both located at rear of sensor
Indicators	Top-mounted red LED indicator lights when output is conducting. Model SMA91E and SM91ESR emitters: visible-red “tracer beam” indicates “Power ON” and enables line-of-sight alignment.
Construction	Reinforced thermoplastic polyester housing, totally encapsulated, molded acrylic lenses and stainless steel hardware
Environmental Rating	Meets NEMA standards 1, 2, 3, 3S, 4, 4X, 12 and 13; IEC IP66
Connections	PVC-jacketed 2 m (6.5') or 9 m (30') cables or 3-pin Mini-style (QD) fitting available. See page 7.
Operating Conditions	Temperature: -20° to +70° C (-4° to +158° F) Maximum relative humidity: 90% at 50° C (non-condensing)
Application Notes	i) 912 Series ac sensors can be destroyed from overload conditions. ii) Use on low voltage requires careful analysis of the load to determine if the leakage current or on-state voltage of the sensor will interfere with proper operation of the load. iii) The false-pulse protection feature may cause momentary drop-out of the load when the sensor is wired in series or parallel with mechanical switch contacts.
Certifications	

AC Hookups

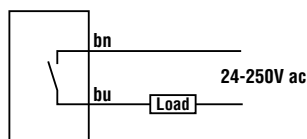
Emitters – Cabled



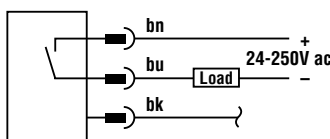
Emitters – QD
(3-Pin Mini-Style)



Other AC Models – Cabled



Other AC Models – QD
(3-Pin Mini-Style)



3-Pin Mini-Style Pinout
(Cable Connector Shown)

