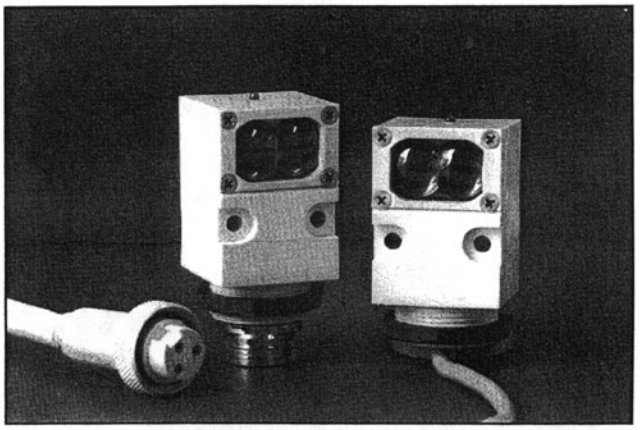
VALU-BEAM® SMA912 Series

3-wire ac self-contained sensors with solid-state outputs

BANNER
the photoelectric specialist

- **Sensors with 3-wire hookup for 24 to 130V ac**
- **All sensing modes available: opposed, retroreflective, diffuse (proximity), convergent, and fiberoptic**
- **Switch selectable for light- or dark-operate**
- **Totally encapsulated circuitry in a rugged, molded plastic housing; NEMA 1, 2, 3, 3S, 4, 4X, 12, and 13**
- **Integral conduit fitting and 6' PVC-covered cable supplied on standard models; NEMA-4 *minifast*™ Quick Disconnect cable/connector combination optional**
- **Adjustable sensitivity**
- **Versatile mounting options**



Banner SMA912 Series VALU-BEAMs are rugged, self-contained photoelectric sensors designed for especially demanding industrial applications where economy, performance, and durability are important.

SMA912 Series VALU-BEAMs have solid state outputs and operate from 24 to 130V ac (50/60 Hz). Hookup is three-wire. NOTE: Emitters operate from either 24 to 130V ac or 10 to 30V dc.

Powerful modulated LED light sources give SMA912 Series VALU-BEAM sensors greater sensing range than competitive units and a high degree of immunity to ambient light. All models are totally epoxy-encapsulated and housed in molded VALOX® housings for the ultimate in shock, vibration, moisture, and corrosion resistance. All VALU-BEAM sensors conform to NEMA standards 1, 2, 3, 3S, 4, 4X, 12, and 13.

The output of VALU-BEAM SMA912 Series three-wire ac sensors is a solid-state switch capable of 500 mA (60VA) continuous load (5 amps inrush). See hookup diagrams, page 2.

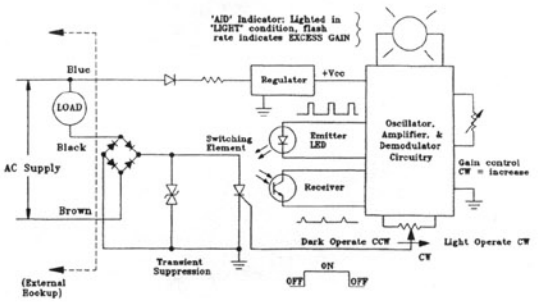
SMA912 Series VALU-BEAM sensors have an easily-visible top-mounted red LED indicator to assist in alignment and system monitoring. SMA912 series sensors have Banner's exclusive, patented* AID™ system (Alignment Indicating Device), which lights the indicator LED whenever the sensor "sees" its modulated light source, and also pulses the LED at a rate proportional to the received light signal strength. This feature greatly simplifies alignment: in most situations, alignment becomes simply a matter of positioning the sensor for maximum LED pulse rate. Emitters have a visible red "tracer beam" that indicates "power on" and enables easy "line-of-sight" alignment.

*US patent #4356393

SMA912 Series sensors offer *a choice of light or dark operate in the same sensor,* switched via a convenient rear panel control.

SMA912 Series sensors may be mounted from either the front or the rear using their two through-mounting holes, or by the outside threads of their base (mounting nut supplied), making them ideal for conveyor and other production line applications. A selection of mounting brackets is available (page 2). The bases of *standard* VALU-BEAMs have a 1/2" NPS integral internal conduit thread, and are supplied with a 6-foot PVC-covered cable. Models with a NEMA 4-rated quick-disconnect connector ("QD" models) are also available (page 5).

Functional Schematic: SMA912 3-wire AC Sensors



NOTE: Emitter units have no receiver phototransistor; receiver units have no emitter LED.

WARNING VALU-BEAM photoelectric presence sensors do NOT include the self-checking redundant circuitry necessary to allow their use in personnel safety applications. A sensor failure or malfunction can result in *either* an energized or a de-energized sensor output condition.

Never use these products as sensing devices for personnel protection. Their use as safety devices may create an unsafe condition which could lead to serious injury or death.

Only MACHINE-GUARD and PERIMETER-GUARD Systems, and other systems so designated, are designed to meet OSHA and ANSI machine safety standards for point-of-operation guarding devices. No other Banner sensors or controls are designed to meet these standards, and they must NOT be used as sensing devices for personnel protection.

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VALU-BEAM SMA912 Series Sensors

Specifications

SUPPLY VOLTAGE: 24 to 130V ac (50/60Hz), except for SMA91E, ESR, and EF emitters, which operate from 10 to 250V ac or dc.

OUTPUT CONFIGURATION: solid-state switching element.

OUTPUT RATING: 500 mA continuous (60 VA); 5A inrush.

RESPONSE TIME: 4 milliseconds ON, 8 milliseconds OFF (except receiver-only units, which are 4 ms ON and 4 ms OFF). Response time specification of the load should be considered when important.

REPEATABILITY: 1.3 milliseconds, except for receiver-only units, which are 1.0 millisecond.

CONSTRUCTION: reinforced VALOX® housing, totally encapsulated, molded acrylic lenses, stainless steel hardware. Meets NEMA standards 1, 2, 3, 3S, 4, 4X, 12, and 13.

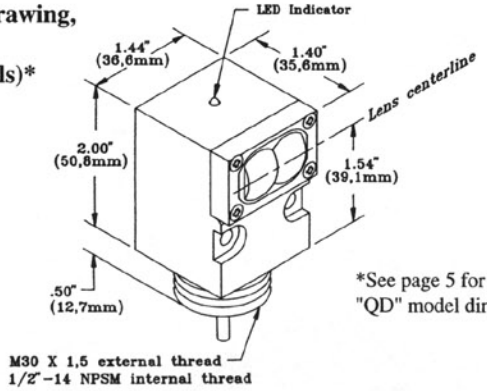
CABLE: 6' of PVC-jacketed 3-conductor cable standard. Three-pin quick-disconnect (QD) models are available optionally (one connector pin goes unused for emitters). Model MBCC-312 3-conductor cable for "QD" models must be purchased separately (see page 5).

ADJUSTMENTS: LIGHT/DARK OPERATE select switch and SENSITIVITY control potentiometer, both located on rear of sensor.

INDICATOR LED: top-mounted red "AID" system (patented) LED indicator lights when the sensor sees its own (or its emitter's) modulated light, and pulses at a rate proportional to the received signal strength. Model SMA91E emitter has a visible-red "tracer beam" which indicates "power on" and enables easy "line-of-sight" alignment.

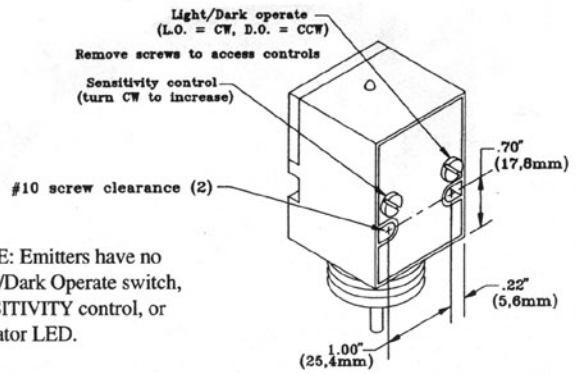
OPERATING TEMPERATURE RANGE: -20 to +70 degrees C (-4 to +158 degrees F).

Dimension Drawing, Front View (cabled models)*



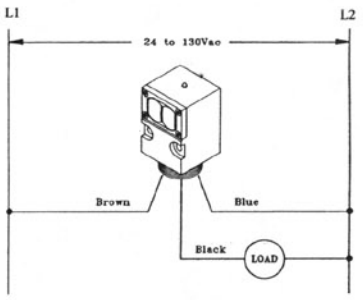
*See page 5 for "QD" model dimensions.

Rear View

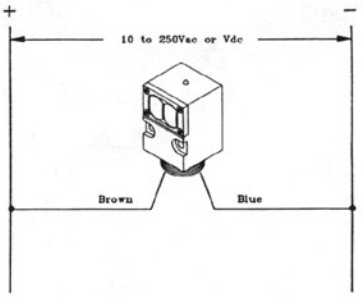


NOTE: Emitters have no Light/Dark Operate switch, SENSITIVITY control, or indicator LED.

Hookup: All except emitters



Hookup: SMA91 Emitters*



**There is no polarity for emitter hookup to ac voltage.*

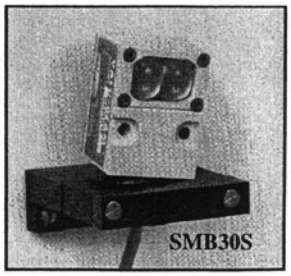
Mounting Brackets


SMB900

Accessory mounting bracket model SMB900 (left) has curved mounting slots for versatility in mounting and orientation. The sensor mounts to the bracket by its threaded base, using a jam nut and lockwasher (both included). The bracket material is 11-gauge zinc-plated steel. The curved mounting slots have clearance for 1/4" screws.

Model SMB30S swivel-mount bracket (right) offers the ultimate in mounting versatility for VALU-BEAM and other sensors with M30 x 1,5 threads. The VALU-BEAM's base threads into the adjustable captive ball of the bracket, which is then locked in place. Bracket material is black VALOX®, and stainless steel mounting hardware is included.

Model SMB30C split-clamp bracket (not shown) is a VALOX® bracket similar to model SMB30S but without the adjustable ball. It grips the sensor by the sensor's threaded base. Hardware (included) is stainless steel.


SMB30S