

ULTRA-BEAM Ultrasonic Proximity Sensors

925 Series with switched (electromechanical relay) output



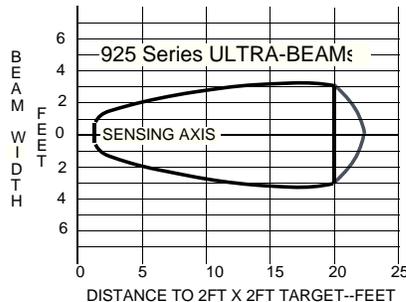
Models: SUA925QD 105 to 130V ac, 50/60Hz

SUB925QD 210 to 260V ac, 50/60Hz

Response Pattern

NOTES:

- 1) Response pattern is drawn for the maximum range setting of the ULTRA-BEAM.
- 2) Response pattern is drawn for a 2 square foot solid surface.
- 3) Symmetry of the pattern may be assumed in all sensing planes.
- 4) The rounded portion of the curve past the 20 foot point indicates an area where sensing is unreliable. Effective range is from 20 inches to 20 feet (0,5 to 6 meters).



The Banner 925 Series ULTRA-BEAM is an economical ultrasonic sensor with relay output and a sensing range of 20 inches to 20 feet (0,5 to 6 meters). ULTRA-BEAM 925 Series sensors are ideal for long-range proximity requirements which fall beyond the limits of photoelectric response, and are the solution for many applications which require reflective sensing of non-reflective materials. Popular applications include bin-level sensing/control and presence sensing of transparent materials.

Sensing range is easily adjusted using the top-mounted 15-turn clutched range control. When the range is set, objects passing through the sensor's area of response will be reliably sensed from the set range down to 16 inches from the face of the ULTRA-BEAM. The minimum range setting is 20 inches (0,5m). Objects which pass beyond the set range will be ignored. The ULTRA-BEAM has an easily-visible top mounted red LED indicator which lights whenever an object is detected.

For reliable detection, objects to be sensed must present at least one square foot (0,1 square meter) of surface area for each 10 feet of sensor-to-object distance. The response curve (above) illustrates the sensing pattern which results for a 2 square foot target approaching from either side. The pattern is drawn for the maximum range setting of the ULTRA-BEAM. Symmetry of this pattern may be assumed in all sensing planes.

The ULTRA-BEAM is ruggedly constructed with epoxy-encapsulated circuitry and housed in a tough, corrosion-proof VALOX® enclosure. The ultrasonic transducer is protected by a stamped metal screen. The transducer will not be damaged by temporary contact with moisture, but must be kept free of heavy contamination for efficient operation. The output is an SPDT form "C" relay for easy interfacing to most loads (see specifications). An integral 5-pin connector is standard. A mating industrial duty 12 foot cable, model MBCC-512, is sold separately.

Specifications, 925 Series Ultrasonic Sensors with Electromechanical Relay Output

SUPPLY VOLTAGE: model SUA925QD 105 to 130V ac, 50/60Hz; model SUB925QD 210 to 260V ac, 50/60Hz. 6VA.

SENSING RANGE: 20 inches to 20 feet (0,5 to 6 meters). Minimum required target area is 1 square foot (0,1 square meter) for each 10 feet (3 meters) of sensing range.

SENSING HYSTERESIS: 5% of range setting.

RANGE ADJUSTMENT: 15-turn clutched potentiometer with slotted brass element, located under o-ring gasketed access screw on top of sensor. Use small, flat-blade screwdriver to adjust.

INDICATOR LED: red LED indicator on top of sensor lights when object is sensed (when output relay is energized).

RESPONSE TIME: 100 milliseconds ON and OFF.

OUTPUT: one form "C" SPDT relay, silver-nickel alloy contacts.

Capacity: 150 watts or 600VA maximum power (resistive load).

Maximum voltage: 250V ac or 30V dc (resistive load).

Maximum current: 5 amps (resistive load).

Minimum load: 5V dc @ 100 milliamps.

Mechanical life: 10,000,000 operations.

NOTE: install suitable value metal oxide varistor (MOV) across contact(s) used to switch an inductive load.

OUTPUT CONNECTOR: integral threaded 5-pin quick-disconnect. 12-foot mating cable, model MBCC-512, is sold separately (see page 2).

CONSTRUCTION: Epoxy-encapsulated circuitry. Rugged, glass-filled VALOX® housing. NEMA 1, 3, and 12.

OPERATING TEMPERATURE: 0 to 50°C (32 to 122°F).



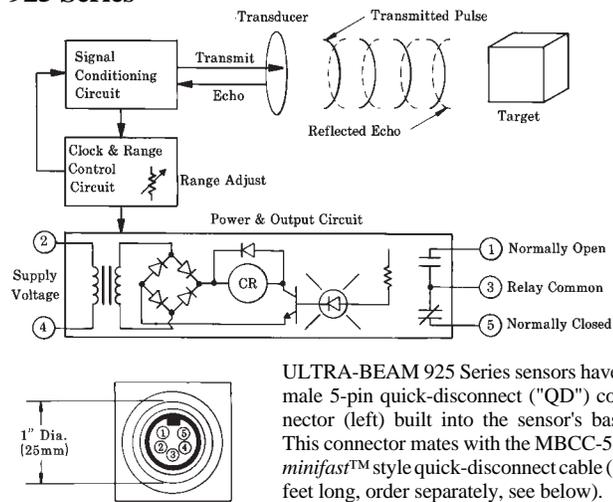
WARNING These ultrasonic presence sensors do NOT include the self-checking redundant circuitry necessary to allow their use in personnel safety applications. A sensor failure or malfunction can result in *either* an energized or a de-energized sensor output condition.

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.

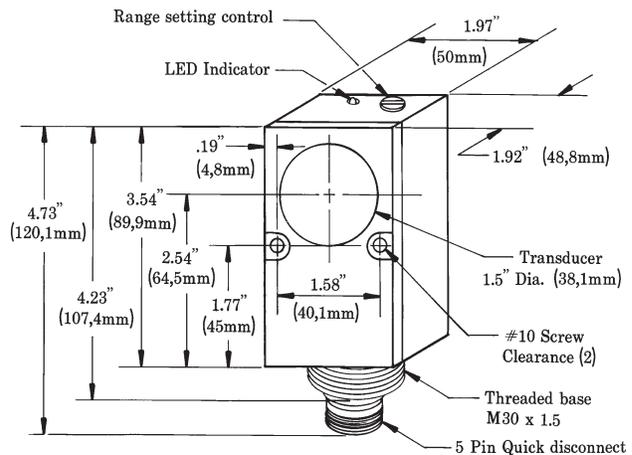
Only MACHINE-GUARD and PERIMETER-GUARD Systems, and other systems so designated, are designed to meet OSHA and ANSI machine safety standards for point-of-operation guarding devices. No other Banner sensors or controls are designed to meet these standards, and they must NOT be used as sensing devices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

ULTRA-BEAM 925 Series Sensors

Functional Schematic and Hookup Information, 925 Series



Dimensions, 925 Series Sensors



Setup Procedure, 925 Series ULTRA-BEAM Sensors

Proper operation of an ULTRA-BEAM 925 Series sensor requires that it be mounted securely, on a firm surface, at least 24 inches away from side walls. At least 48 inches is required between adjacent ULTRA-BEAMs with parallel sensing beams. Greater separation is required if the sensing beams cross. Less than 48 inches of separation is allowable if the adjacent sensing beams point away from each other.

With the ULTRA-BEAM mounted in place, set the object to be detected at the desired distance, with the surface to be detected directly in front of the sensor and perpendicular to the beam.

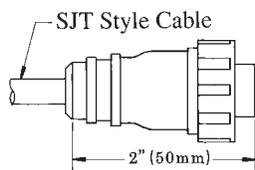
Turn the RANGE potentiometer to the fully counterclockwise position, then turn the control clockwise until the sensor's red LED indicator comes on. Verify this range setting by moving the object away from the sensor (LED should go out), then back towards the sensor (LED should come on again at about the same distance as before). It is best to set the range with the object at the maximum distance at which you expect to detect that object.

Minimum target size required for proper operation of the ULTRA-BEAM 925 Series sensor is about 1 square foot for each 10 feet of sensor-to-object distance.

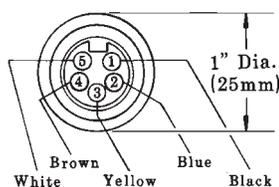
Accessories for 925 Series ULTRA-BEAM Sensors

MBCC-512 *minifast*[™] "QD" Cable (12 feet long)

Connector Side View



Cable End View (female pins)



SMB900 Mounting Bracket



SMB900 Mounting Bracket

Accessory mounting bracket model **SMB900** (photo at left and drawing, above right) 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.

An internal tooth lockwasher and hex mounting nut are supplied with the sensor.

