RPS-409A-IS3

Intrinsically Safe ultrasonic sensor with cUL approval for use in Hazardous (Classified) Locations.

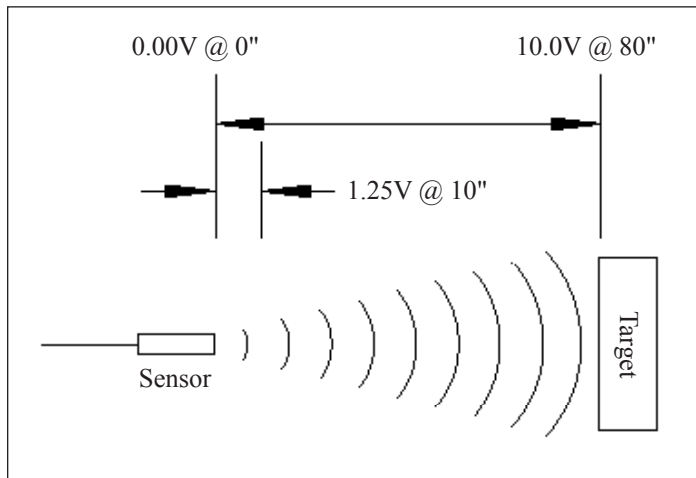## Features

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- Intrinsically Safe
- Various Sensing Ranges
- Temperature Compensation
- Wide Temperature Range
- LED Indicator
- Analog Voltage Output
- PVC Enclosure
- Sync/Tx Input Line

The RPS-409A-IS3 is an intrinsically safe analog ultrasonic sensor available in a variety of ranges. The RPS-409A-IS3 sensors can be used in hazardous gas or dust environments classified as Class I, II, or III when used with approved intrinsic safety barrier(s). See the RPS-409A-IS3 User Manual and Control Drawing No. 14122606 for further information on installation in hazardous locations.

The sensor is self-contained in a 30mm barrel style enclosure, and is powered by 16 - 30 V dc with reverse polarity protection.

The RPS-409A-IS3 has a short circuit protected 0 - 10 V dc analog output. The analog voltage is a fixed volts per inch based on the maximum range of the unit. For example when using the RPS-409A-80-IS3, the output is a linear 0.125 V per inch. A target placed 10 inches from the sensor will result in an output of 1.25 V, and a target placed 80 inches from the sensor will result in an output of 10 V.

The RPS-409A-IS3 has built-in temperature compensation to provide accurate readings throughout the entire operating temperature range.

An LED indicator is provided. The LED is green with no target detected and changes to red when a target is detected.

The sensor is completely sealed and connection must be made with a cable having a rating of IP67 or greater.

In addition to the analog output line the sensor also has a Sync/Tx line. This line can be used for connecting multiple sensors together (Sync) to prevent cross talk, or (Tx) to control when the sensor transmits.

The RPS-409A-IS3 is designed to take advantage of today's PLC and computer analog input cards. The numerical values that are programmed into the PLC or computer will determine the zero and span of the sensor.

0.00V @ 0"   10.0V @ 80"

1.25V @ 10"

Sensor

Target

Specifications:

Model Number:	Sensor Range:	Transducer Frequency:	Response Time:	Volts Per Inch:
RPS-409A-40-IS3	4 - 40"	175kHz	100ms	0.250V
RPS-409A-80-IS3	6 - 80"	135kHz	100ms	0.125V
RPS-409A-144-IS3	10 - 144"	70kHz	200ms	0.069V
RPS-409A-216-IS3	12 - 216"	70kHz	200ms	0.046V

Entity Parameters: See Control Drawing No. 14122606

Power Input: 16 - 30VDC Reverse Polarity Protected
(Note: A minimum of 24VDC must be applied to the safety barrier)

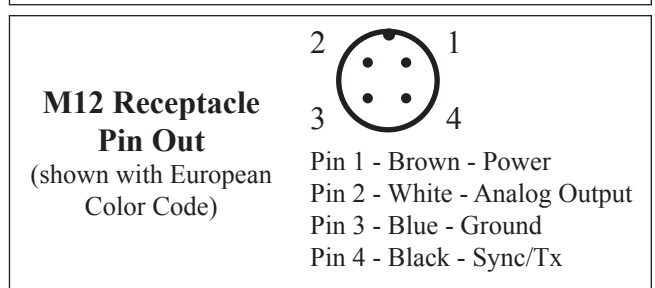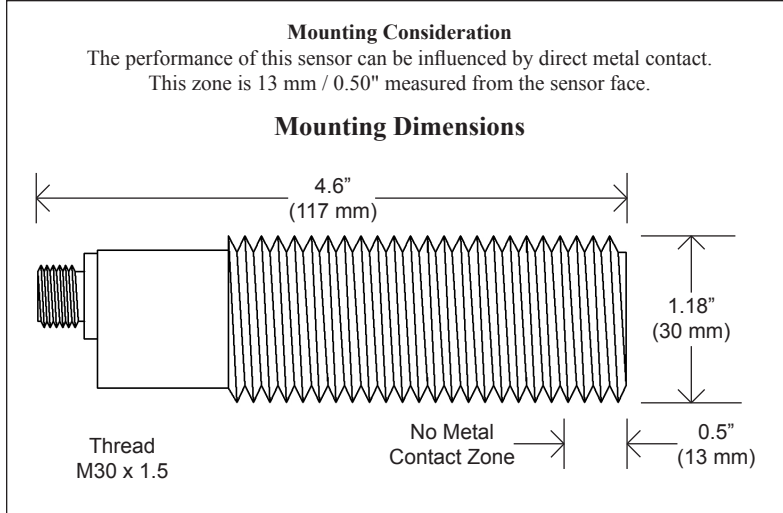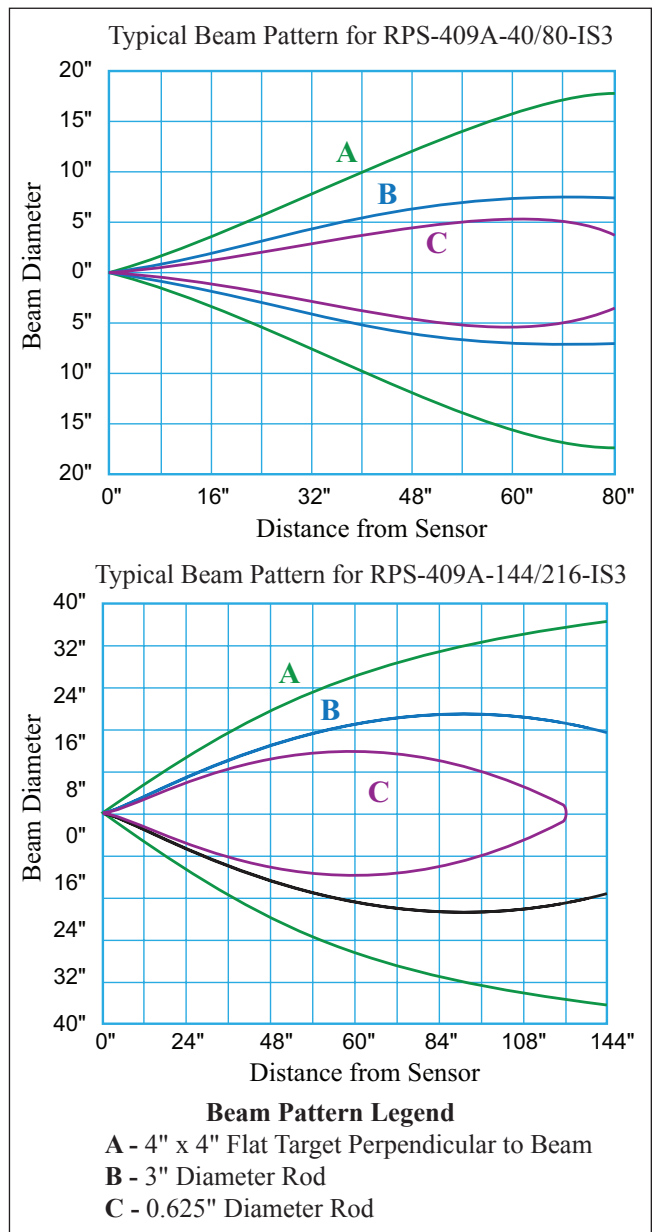**Input Current:** 24mA maximum with 24VDC applied to the safety barrier

Output: Analog Voltage Output 0 - 10V
(Load 100k Ohms to infinity)
Short Circuit Protected

Ambient Temperature: -40 to +60°C or -40 to +140°F

Humidity: 0 - 95% Non-Condensing

Enclosure Material: Polyvinyl Chloride (PVC) Enclosure with PVC sensing face

Approvals: Canada and USA - UL/cUL File # E226209
(Certificate Number: 20150302-E226209)
Class I, Groups A, B, C and D,
Class II, Groups E, F and G, and
Class III hazardous locations.

Mounting Consideration
The performance of this sensor can be influenced by direct metal contact.
This zone is 13 mm / 0.50" measured from the sensor face.

Mounting Dimensions

4.6" (117 mm)

1.18" (30 mm)

Thread M30 x 1.5

No Metal Contact Zone

0.5" (13 mm)

Typical Beam Pattern for RPS-409A-40/80-IS3

Beam Diameter

Distance from Sensor

Typical Beam Pattern for RPS-409A-144/216-IS3

Beam Diameter

Distance from Sensor

Beam Pattern Legend
A - 4" x 4" Flat Target Perpendicular to Beam
B - 3" Diameter Rod
C - 0.625" Diameter Rod

M12 Receptacle Pin Out
(shown with European Color Code)

Pin 1 - Brown - Power
Pin 2 - White - Analog Output
Pin 3 - Blue - Ground
Pin 4 - Black - Sync/Tx

PART NUMBER	RANGE	OUTPUT / DESCRIPTION
RPS-409A-40-IS3	4 - 40"	0 - 10VDC Analog Output
RPS-409A-80-IS3	6 - 80"	0 - 10VDC Analog Output
RPS-409A-144-IS3	10 - 144"	0 - 10VDC Analog Output
RPS-409A-216-IS3	12 - 216"	0 - 10VDC Analog Output
F32-5496302		2 meter Cable, M12 4-Pin IP67 18 AWG - Sold Separately
F32-5496305		5 meter Cable, M12 4-Pin IP67 18 AWG - Sold Separately
F50-9240905		ZSB-409A Safety Barrier - Sold Separately
F33-5441504		DIN Rail Grounding Block - Sold Separately