

## Thank You

Thanks for purchasing an IRU ultrasonic sensor from us! We appreciate your business and your trust. Please take a moment to familiarize yourself with the product and this manual before installation. If you have any questions, at any time, don't hesitate to call us at 888-525-7300.

NOTE: Scan the QR code to the right to see the full user manual on your tablet or smartphone. Or visit <https://www.apgsensors.com/support> to find it on our website.



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### 1 Description

The IRU series is APG's line of general purpose ultrasonic sensors. With a choice of operating ranges from just a few inches to as far as 50 feet, the IRU product line is designed to fit a wide range of industrial automation applications. It is certified for installation in hazardous areas in the US and Canada by CSA for Class I, Division 2, Groups C & D and Class I, Zones 2 environments.

### 2 How To Read Your Label

Each label comes with a full model number, a part number, and a serial number. The model number for your IRU will look something like this:

▲ SAMPLE: IRU-6429-C6

The model number tells you exactly what you have. You can also call us with the model, part, or the serial number and we can help you.

You'll also find all hazardous certification information on the label.

### 3 Warranty

This product is covered by APG's warranty to be free from defects in material and workmanship under normal use and service of the product for 24 months. For a full explanation of our Warranty, please visit <https://www.apgsensors.com/about-us/terms-conditions>. Contact Technical Support to receive a Return Material Authorization before shipping your product back.

Scan the QR code below to read the full explanation of our Warranty on your tablet or smartphone.



### 4 Installation Guidelines

Your IRU should be installed in an area--indoors or outdoors--which meets the following conditions:

- Ambient temperature between -40°C and 60°C (-40°F to +140°F)
- Ample space for maintenance and inspection

Additional care must be taken to ensure:

- The sensor has a clear, perpendicular sound path to the surface being monitored.
- The sensor is mounted away from tank or vessel walls and inlets.
- The sound path is free from obstructions and as open as possible for the 9° off axis beam pattern.
- The sensor is tightened by hand to avoid cross-threading.

**\*Important:** For user interface guide and sensor configuration see the full user manual.

**IMPORTANT:** Refer to section 10 for Hazardous Location Wiring.

# IRU Series Ultrasonic Sensors

## Installation Guide

IRU-2000's, IRU-3430's, IRU-5000's, IRU-6420's, & IRU-9420's



Automation Products Group, Inc.  
1025 W 1700 N Logan, UT 84321  
[www.apgsensors.com](http://www.apgsensors.com) | phone: 888-525-7300 | email: [sales@apgsensors.com](mailto:sales@apgsensors.com)

Part # 122950-0017  
Doc #9004254 Rev A

### 5 RST-3002 Programming Module Wiring

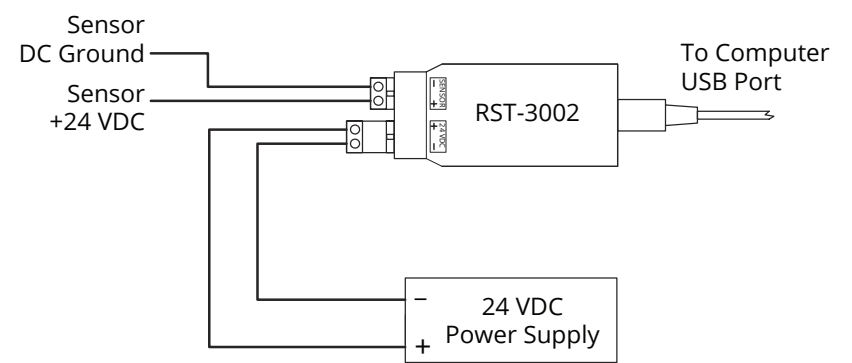


Figure 5.1

All IRU sensors (excluding the IRU-6429S and IRU-9429S) are fully programmable using an RST-3002 programming module.

The RST-3002 is connected in series between the sensor and its power source using the two 2-pin Phoenix connectors on the module (See Figure 5.1). 15-28 VDC from the power source is connected to one 2-pin connector, while the VDC + and DC Ground of the sensor is connected to the module through the second 2-pin connector. When power is applied, the red LED between the Phoenix connectors on the RST should illuminate and the sensor should start audibly "ticking". The operating parameters of the sensor can then be adjusted using the Windows-based utility software (available at [www.apgsensors.com/support](http://www.apgsensors.com/support)).

### 6 IRU Pinouts

IRU-2002		IRU-2003	
+24 VDC		+24 VDC	
DC Ground		DC Ground	
Clock Sync		Clock Sync	
Digital Display Output		Digital Display Output	
Relay		4-20mA Circuit Power (+24 VDC)	
Relay		4-20mA Output	

3/C Cable		IRU-XXX3-C	
Red		+24 VDC	
Black		DC Ground	
White		4-20 mA Out	

5-pin MC		IRU-XXX3-M	
1 Brown		+24 VDC	
2 White		Not used	
3 Blue		DC Ground	
4 Black		4-20 mA Out	
5 Grey		Not used	

6/C Cable		IRU-2004-C		IRU-2005-C	
Red		+24 VDC		+24 VDC	
Black		DC Ground		DC Ground	
Green		Clock Sync		Clock Sync	
White		NPN trip		NPN 2	
Blue		T (+) or (B)		NPN 1	
Orange		T(-) or (A)		4-20 mA Out	

8/C Cable		IRU-XXX9S-C	
Red		+24 VDC	
Black		DC Ground	
Orange		Excitation	
White		Voltage Out	
Green		Analog Ground	
Brown		RS-232 Ground	
Yellow		RS-232 TX	
Blue		RS-232 RX	

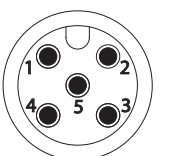
8-pin MC		IRU-XXX9S-M	
1 White		Voltage Out	
2 Brown		+24 VDC	
3 Green		Analog Ground	
4 Yellow		RS-232 TX	
5 Grey		RS-232 Ground	
6 Pink		RS-232 RX	
7 Blue		DC Ground	
8 Red		Excitation	

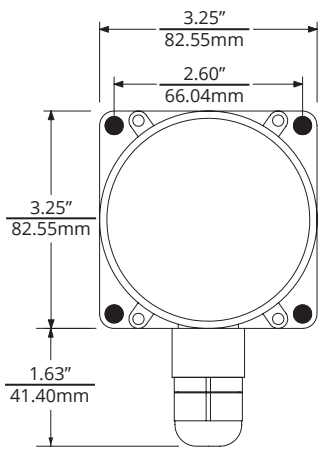
5/C Cable		IRU-XXX5-C		IRU-XXX9-C	
Red		+24 VDC		+24 VDC	
Black		DC Ground		DC Ground	
White		NPN 1		Voltage Out	
Orange		4-20 mA Out		Excitation	
Green		NPN 2		Analog Ground	

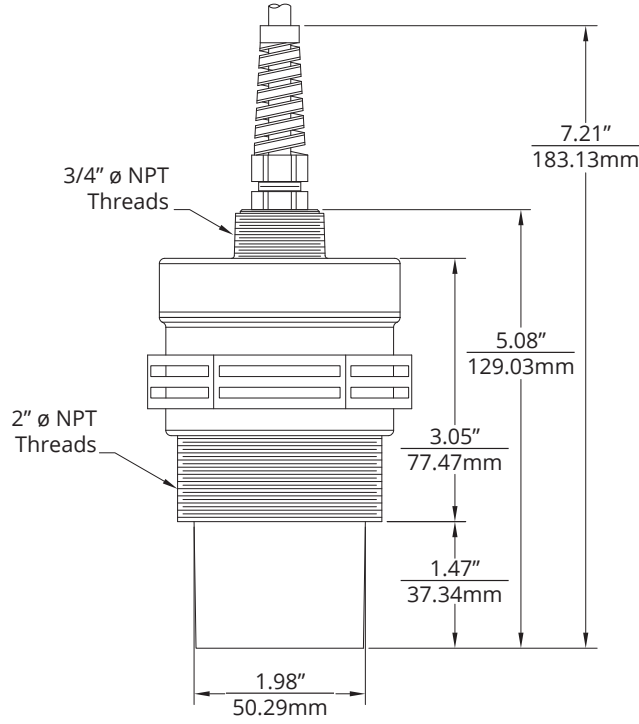
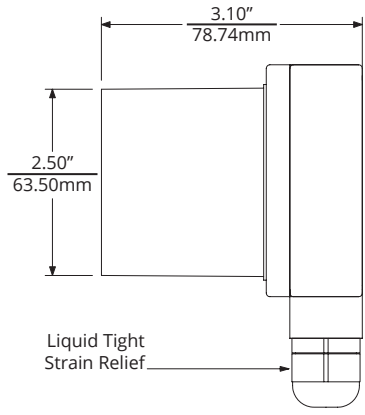
5-pin MC		IRU-2004-M		IRU-2005-M		IRU-XXX5-M		IRU-XXX9-M	
1 Brown		+24 VDC		+24 VDC		+24 VDC		+24 VDC	
2 White		T (+) or (B)		NPN 1		NPN 1		Voltage Out	
3 Blue		DC Ground		DC Ground		DC Ground		DC Ground	
4 Black		T(-) or (A)		4-20 mA Out		4-20 mA Out		Analog Ground	
5 Grey		NPN trip		NPN 2		NPN 2		Excitation	



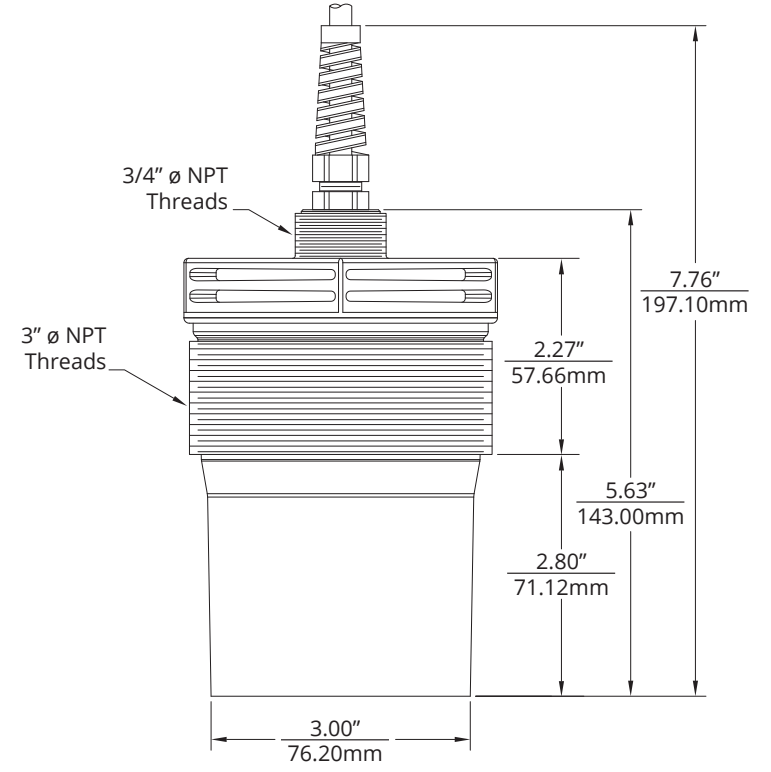
## 7 Dimensions



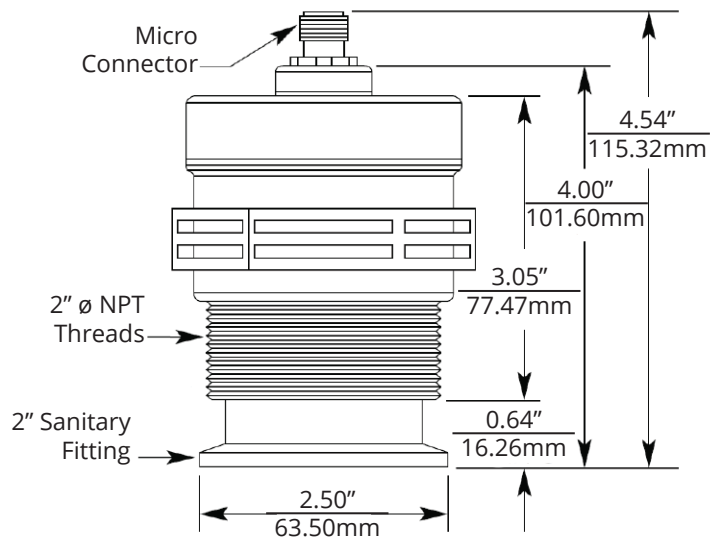
IRU-200x



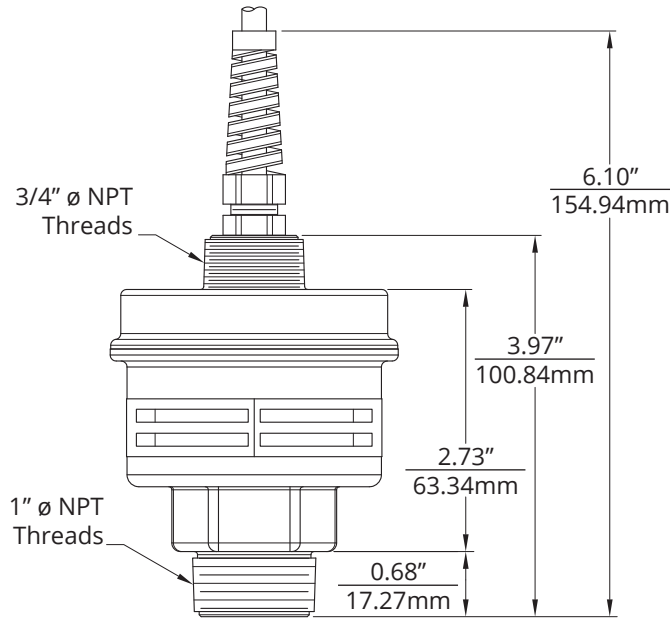
IRU-242x, IRU-642x



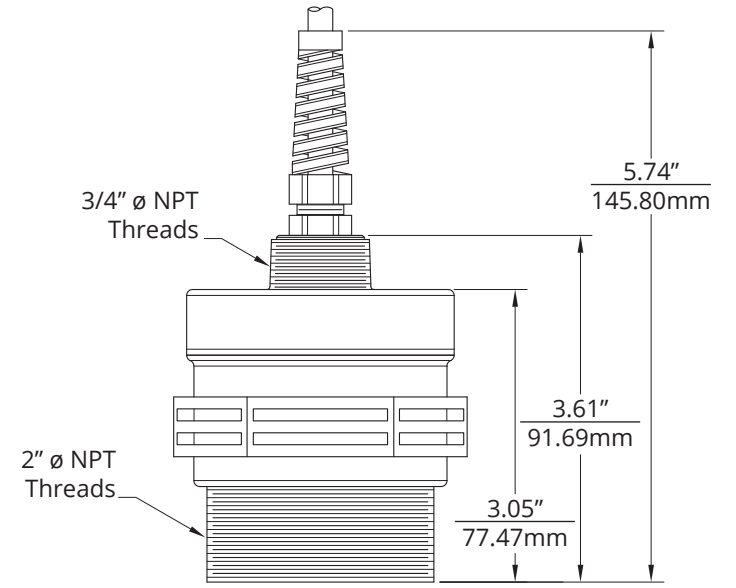
IRU-343x



IRU-532x



IRU-541x



IRU-542x, IRU-942x

## 8 General Care

Your level sensor is very low maintenance and will need little care as long as it was installed correctly. However, in general, you should periodically inspect your IRU sensor to ensure the sensor face is free of any buildup that might impede the function of the sensor. If sediment or other foreign matter becomes trapped on the sensor face, detection errors can occur.

If you need to remove the sensor, be sure to store it in a dry place at a temperature between -40° and 180° F.

## 9 Repair Information

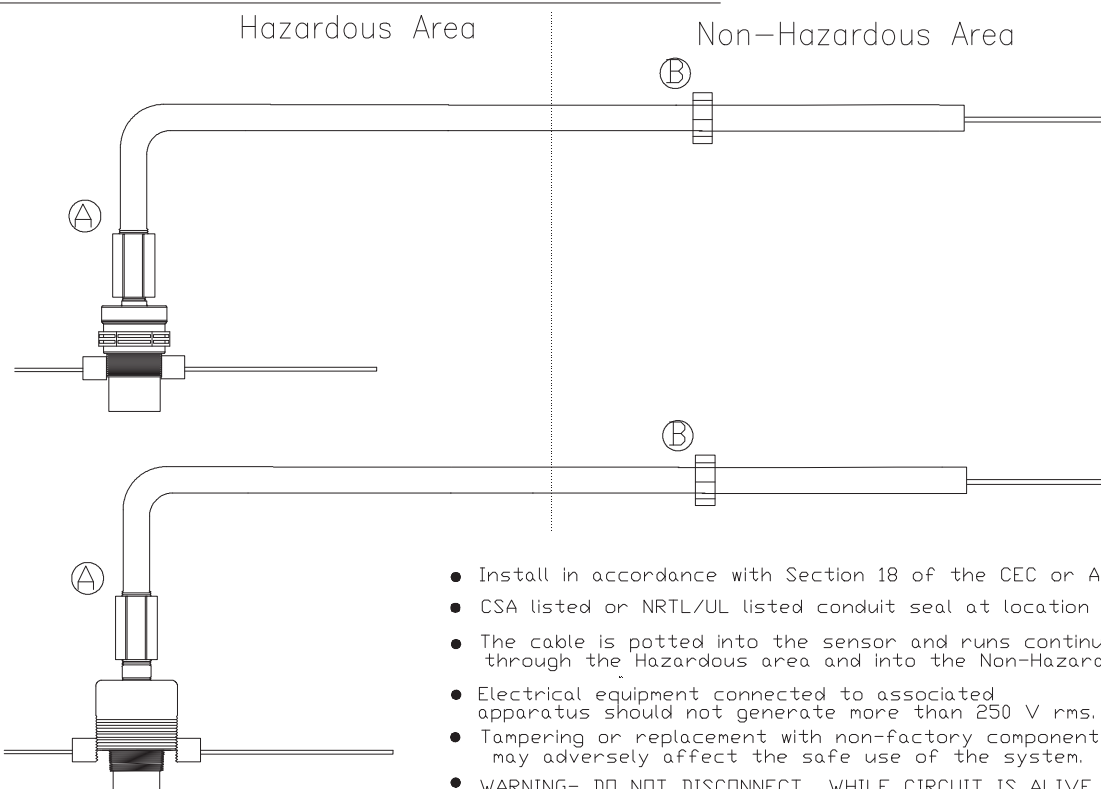
If your IRU ultrasonic level sensor needs repair, contact us via email, phone, or online chat on our website. We will issue you an RMA number with instructions.

- Phone: 888-525-7300
- Email: sales@apgsensors.com
- Online chat at www.apgsensors.com

## 10 Hazardous Location Wiring

Installation In Class I Division 2 Groups C and D  
Class I Zone 2 A Ex nA IIB

REVISIONS					
ZONE	REV	DESCRIPTION	CHANGE ORDER	DATE	APPROVED
-	B1	Add French Translation	CO-	2259 4-8-15	K. REID



- Install in accordance with Section 18 of the CEC or Article 500 of the NEC.
  - CSA listed or NRTL/UL listed conduit seal at location A & B.
  - The cable is potted into the sensor and runs continuously from the sensor through the Hazardous area and into the Non-Hazardous area.
  - Electrical equipment connected to associated apparatus should not generate more than 250 V rms.
  - Tampering or replacement with non-factory components may adversely affect the safe use of the system.
  - WARNING- DO NOT DISCONNECT WHILE CIRCUIT IS ALIVE UNLESS AREA IS KNOWN TO BE NON-HAZARDOUS
- AVERTISSEMENT-NE PAS DEBRANCHER TANT QUE LE CIRCUIT EST SOUS TENSION, A MOINS QU'IL NE S'AGISSE D'UN EMPLACEMENT NON DANGEREUX

- WARNING - POTENTIAL ELECTROSTATIC CHARGING HAZARD - Clean only with a damp cloth
- AVERTISSEMENT - surface non conductrice du boîtier peuvent être facturés par MEDIA non conductrice, CLEAN avec un chiffon humide

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