

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.

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IRU SERIES ULTRASONIC SENSORS

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

Installation Guide



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Part # 122950-0017
Doc #9004254 Rev B

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 www.apgsensors.com/resources/warranty-certifications/warranty-returns/. Contact Technical Support to recieve a Return Material Authorization before shipping your product back.

4 Installation Guidelines

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

- Ambient temperature between -20° to 140°F (-30° to 60°C).
- 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.

5 RST-3002 Programming Module Wiring

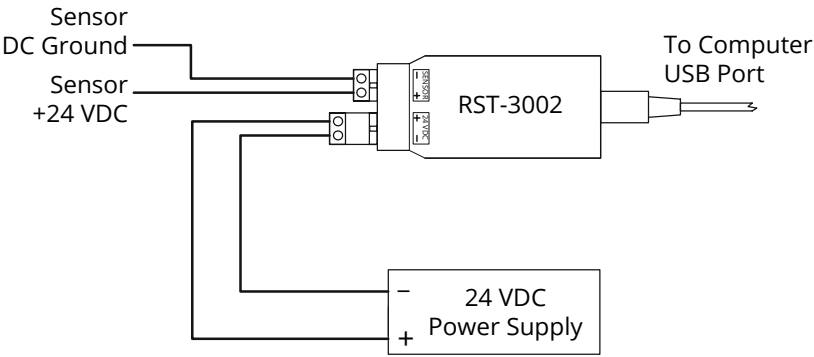


Figure 5.1

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/resources/product-resources/software-downloads).

6 IRU Pinouts

IRU-2002

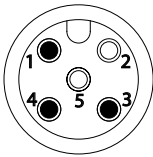
| | |
|------------------------|---|
| +24 VDC | ⊗ |
| DC Ground | ⊗ |
| Clock Sync | ⊗ |
| Digital Display Output | ⊗ |
| Relay | ⊗ |
| Relay | ⊗ |

IRU-2003

| | |
|--------------------------------|---|
| +24 VDC | ⊗ |
| DC Ground | ⊗ |
| Clock Sync | ⊗ |
| Digital Display Output | ⊗ |
| 4-20mA Circuit Power (+24 VDC) | ⊗ |
| 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 |

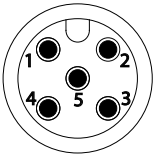
| 8/C Cable | IRU-XXX9S-C |
|-----------|---------------|
| Red | +24 VDC |
| Black | DC Ground |
| Orange | Excitation |
| White | Voltage Out |
| Green | Analog Ground |
| Brown | RS-232 Ground |
| Yellow | RS-232 TX |
| Blue | RS-232 RX |

| 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 |

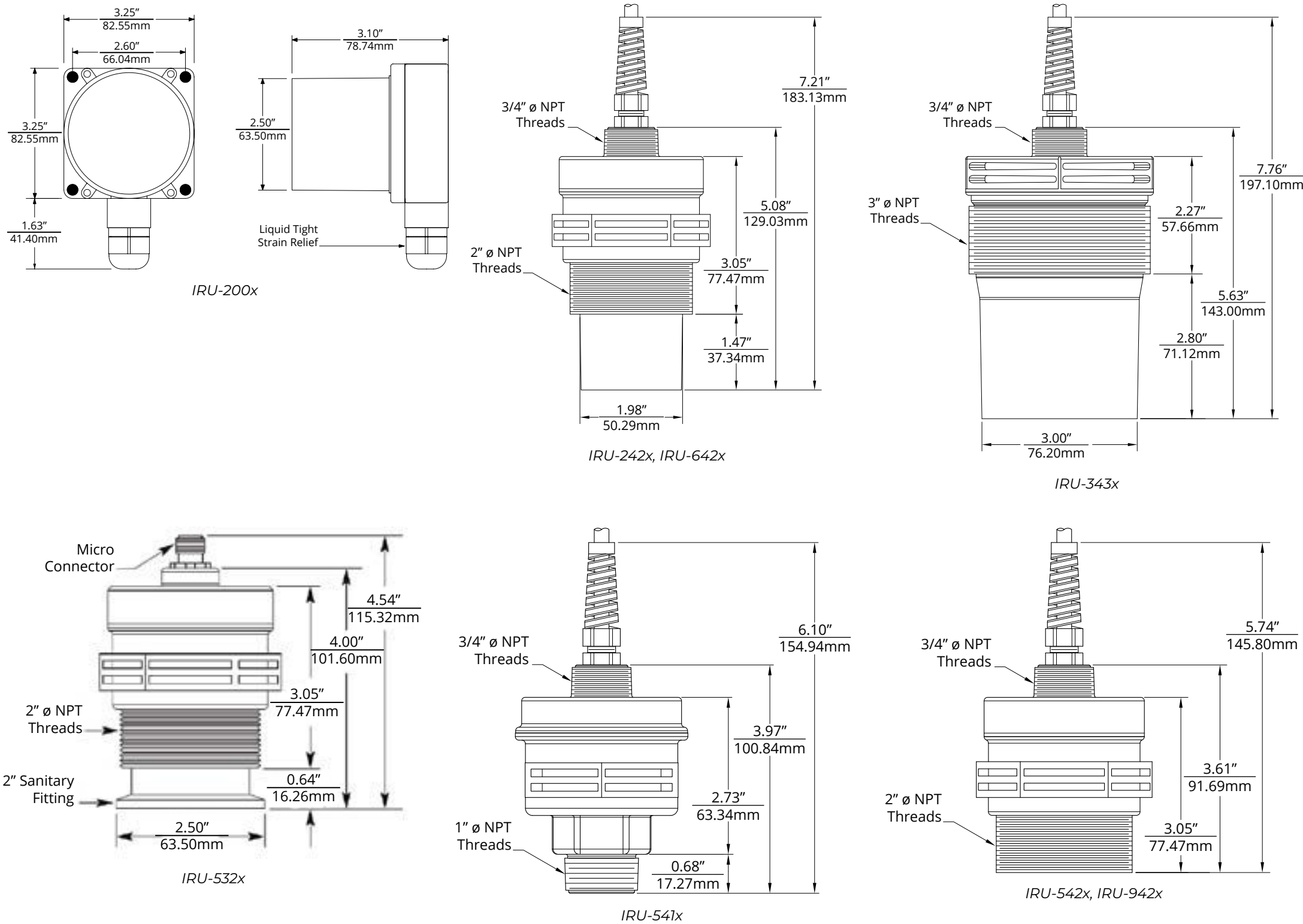


| 5/C Cable | IRU-XXX5-C | IRU-XXX9-C |
|-----------|-------------|---------------|
| Red | +24 VDC | +24 VDC |
| Black | DC Ground | DC Ground |
| White | NPN 1 | Voltage Out |
| Orange | 4-20 mA Out | Excitation |
| Green | NPN 2 | Analog Ground |

| 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



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

