Thank You

Thanks for purchasing an LPU-2428 loop-powered ultrasonic sensor and RST-4001 programming module from us! We appreciate your business and your trust. Please take a moment to familiarize yourself with the products 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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LPU-2428 Loop-Powered Ultrasonic Sensor Installation Guide

For LPU-2428 & RST-4001

APG ®

❶ Description

The LPU-2428 loop-powered ultrasonic level sensor provides low-power, non-contact measurement you can count on. The RST-4001 offers a two-line by eight-character LCD display and five-button keypad or USB connection for programming your sensor. The LPU-2428 is certified for installation in hazardous areas in the US and Canada by CSA for Class I, Division 1, Groups C & D and Class I, Division 2, Group environments.
The default Application setting for the LPU-2428 is Distance, which will work in a wide variety of settings. Please refer to the full user manual for further configuration settings.

❷ How To Read Your Label

Each label comes with a full model number, a part number, and a serial number. The model number for the LPU-2428 will look something like this:

> ⚗ SAMPLE: LPU-2428-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.

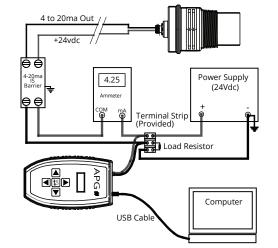You'll also find all hazardous certification information on the label.

❸ Warranty

This product is covered by APG's waranty 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 recieve 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.
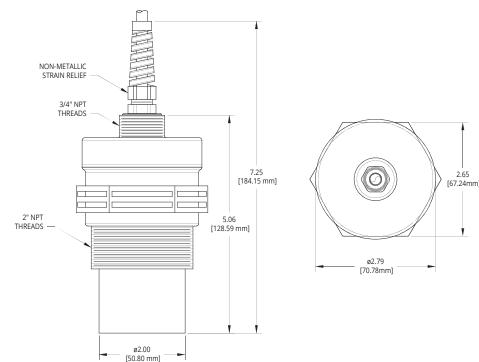
❹ Dimensions

NON-METALLIC STRAIN RELIEF

3/4" NPT THREADS

2" NPT THREADS

7.25 [184.15 mm]

5.06 [128.59 mm]

ø2.00 [50.80 mm]

2.65 [67.24mm]

ø2.79 [70.78mm]

❺ Installation Guidelines

The LPU-2428 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.

❻ Sensor and System Wiring Diagram

LPU-2428 & RST-4001 Wiring

4 to 20ma Out

+24vdc

4-20ma IS Barrier

4.25 Ammeter

COM   mA

Power Supply (24Vdc)

Terminal Strip (Provided)

Load Resistor

APG

Computer

USB Cable

For normal operation, connect the provided cable to your control system:
- Connect the red wire to +24 VDC.
- Connect the black wire to 4-20 mA input. Circuit load resistance + input resistence must be greater than 150Ω. **249Ω is recommended for optimal signal tranmission**.
- Refer to drawing 9002747 (section 10) for Intrinsically Safe installation.
- Refer to drawing 9002745 (section 10) for Hazardous Location installation.

For programming:
- Connect (+) terminal of RST-4001 to +24 VDC supply of sensor (red wire).
- Connect (-) terminal of RST-4001 to 4-20 mA signal from sensor (black wire).
- Ensure that load resistor is between RST-4001 and control network or PLC, rather than between sensor and RST-4001.

> ❶ IMPORTANT: Refer to section 10 for Hazardous Location Wiring.

❼ RST-4001 User Interface & Menu Navigation

User Interface

The RST-4001 user interface is made up of a two-line by eight-character LCD screen and five buttons.

The LCD display shows the current measurement (Distance is the default Applicaiton setting). The display is also used to navigate menus, and view and edit parameters when programming. Menus appear on the top line in ALL CAPS. Parameters cycle on the bottom line with Initial Caps. Parameter values are shown on the top line, and are numeric values or ALL CAPS.

The RST has five programming or navigation buttons: LEFT Arrow, RIGHT Arrow, UP Arrow, DOWN Arrow, and I/O (Enter). The arrow buttons allow the user to move through the menus in order to access and change parameters. Pressing the I/O button saves the displayed value of a parameter.

Menu Navigation

To select a menu, press the UP Arrow or DOWN Arrow button until the desired menu is displayed. Press the Right arrow to move into that menu. Then press the UP or DOWN Arrow button to move to the desired parameter.

To view or change a parameter value, press the RIGHT Arrow button. The display will show the name of this parameter on the lower line and the current value on the upper line of the display. To change the parameter's value, press the UP Arrow or DOWN Arrow button until the desired value is displayed.

To store or save the changed value, press the I/O button once. At this point, the parameter value has been saved to the LPU. The values are stored in nonvolatile memory, and will not be lost when power is turned off.

For a full explanation of each menu and parameter, see full user manual.
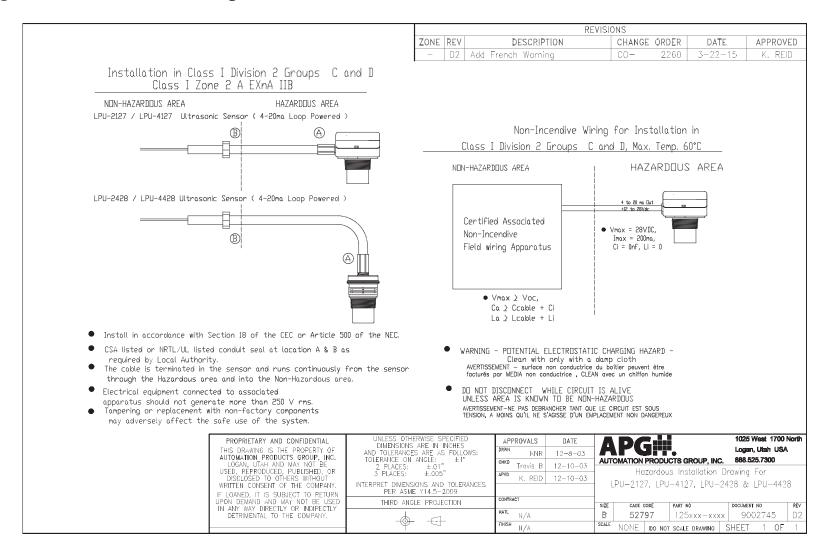
❽ General Care

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 LPU-2428 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.

❾ Repair Information

If your LPU-2428 ultrasonic sensor or RST-4001 programming module need 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

❿ Hazardous Location Wiring