Thank You
Thanks for purchasing an MPI-T series magnetostrictive level 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 www.apgsensors.com/support to find it on our website.

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1 Description
The MPI series magnetostrictive level sensor provides highly accurate and repeatable level readings in a wide variety of liquid level measurement applications. It is certified for installation in Class I, Division 1, and Class I, Zone 0 hazardous areas in the US and Canada by CSA, and ATEX and IECEx for Europe and the rest of the world.

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 the MPI-T will look something like this:

SAMPLE: MPI-RS-XW-P2ST-120-4D-N

The model number correlates with all the configurable options and tells you exactly what you have. Compare the model number to the options on the datasheet to identify your exact configuration. 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 to find it on our website.

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

WARNING -- EXPLOSION HAZARD -- SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY

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AVERTISSEMENT -- COUPEZ LE COURANT AVANT D'ENLEVER LE COUVERCLE, ou GARDER LE COUVERCLE FERME TANT QUE LES CIRCUITS SONT SOUS TENSION.

4 Dimensions

MPI-T Housing Dimensions

DANGER: OPEN CIRCUIT BEFORE REMOVING COVER or KEEP COVER TIGHT WHILE CIRCUITS ARE ALIVE;
AVERTISSEMENT -- COUPER LE COURANT AVANT D'ENLEVER LE COUVERCLE, ou GARDER LE COUVERCLE FERME TANT QUE LES CIRCUITS SONT SOUS TENSION.

DANGER: WARNING -- EXPLOSION HAZARD -- SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY;
AVERTISSEMENT -- RISQUE D'EXPLOSION -- LA SUBSTITUTION DE COMPOSANT PEUT AMÉLIORER LA SÉCURITÉ INTRINSIQUE.

WARNING: The model MPI-T contains titanium in excess of 7.5% for Group II and care needs to be taken to avoid ignition hazards due to impact or friction;
AVERTISSEMENT: Le modèle MPI-T contient plus de 7.5% de tétanieur le groupe II et des précautions doivent être prises pour éviter un risque d'Inflammation due aux chocs ou aux frottements.

5 Installation Guidelines & Instructions

Installation Instructions:

- Remove the housing cover of your MPI.
- Feed system wires into MPI through conduit openings. Fittings must be UL/CSA Listed for CSA installation and IP65 Rated or better.
- Connect wires to MPI terminals. Use crimped ferrules on wires, if possible.
- Replace the housing cover.

See Electrical Connections and System Wiring Diagrams (section 6) for Modbus wiring examples.

DANGER: WARNING -- EXPLOSION HAZARD -- DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS;
AVERTISSEMENT -- RISQUE D'EXPLOSION -- AVANT DE DECONNECTER L'EQUIPEMENT, COUPER LE COURANT OU S'ASSURER QUE L'EMPLOACEMENT EST DESIGNE NON DANGEREUX.

5.1 INSTALLATION GUIDELINES & INSTRUCTIONS

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

- Ambient temperature between -40° and 85°C (-40°F to +185°F)
- Relative humidity up to 100%
- Altitude up to 2000 meters (6560 feet)
- IEC-664-1 Conductive Pollution Degree 1 or 2
- IEC 61010-1 Measurement Category II
- No chemicals incompatible with Titanium Grade 2
- No chemicals corrosive to stainless steel (such as H2SO4, Cl2, etc.) (Not applicable to plastic-type stem options)
- Ample space for maintenance and inspection

Additional care must be taken to ensure:

- The probe is located away from strong magnetic fields, such as those produced by motors, transformers, solenoid valves, etc.
- The medium is free from metallic substances and other foreign matter.
- No ignition hazards exist due to impact or friction with the titanium stem.
- The probe is not exposed to excessive vibration.
- The float(s) fit through the mounting hole. If the float(s) does/do not fit, it/they must be mounted on the stem from inside the vessel being monitored.
- The float(s) are correctly oriented on the stem (See Figure 5.1 below). MPI-T floats are typically installed by customer.

NOTE: Floats must be oriented properly on the stem, or sensor readings will be inaccurate and unreliable. Untapered floats will have a sticker or etching indicating the top of the float. Remove sticker prior to use.

Figures 5.1

ATEX Stated Conditions of Use:

- Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall not be installed in a location where the external conditions are conducive to the build up of electrostatic charge on such surfaces. In addition, the equipment shall only be cleaned with a damp cloth.
- The enclosure is manufactured from Aluminum. In rare cases, ignition sources due to impact and friction sparks could occur. This shall be considered during installation.

Installation Instructions:

- When lifting and installing the sensor be sure to minimize the bending angle between the rigid stem at the top and bottom of the sensor and the flexible stem in-between. Sharp bends at those points could damage the sensor. (Not applicable for non-flexible probe stems.)
- If your sensor's stem and floats fit through the mounting hole, carefully lower the assembly into the vessel, then secure the sensor's mounting option to the vessel.
- If the floats do not fit, mount them on the stem from inside the vessel being monitored. Then secure the sensor to the vessel.
- For sensors with float stops, refer to the assembly drawing included with the sensor for float stop installation locations.

Electrical Installation Instructions:

- Feed system wires into MPI through conduit openings. Fittings must be UL/CSA Listed for CSA installation and IP65 Rated or better.
- Connect wires to MPI terminals. Use crimped ferrules on wires, if possible.
- Replace the housing cover.

See Electrical Connections and System Wiring Diagrams (section 6) for Modbus wiring examples.

6 Repair Information

Hardware:

1. Pack returns must be pre-approved by APG before being shipped back.
2. Customer is responsible for return freight and insurance.
3. No returns will be accepted on custom equipment.
4. APG is not responsible for product lost or damaged in transit.
5. APG will inspect returns for the following:
6. APG will inspect returns for the following:
7. APG will inspect returns for the following:
8. APG will inspect returns for the following:
9. APG will inspect returns for the following:
10. APG will inspect returns for the following:

Software:

1. For current software, sign up for APG’s web portal at www.apgsensors.com/portal.
3. For support, call APG at 888-525-7300.

7 Hazardous Location Wiring

Hazardous Location Wiring:

1. Class I, Division 1, Zone 0, IIC, G Group IIC, Zone 1 To Zone 2
2. Enclosure must be suitable for the hazard and environment
3. Wire must be suitable for the hazard and environment
4. Wire size must be suitable for the hazard and environment
5. Terminal connections must be suitable for the hazard and environment
6. Junction box must be suitable for the hazard and environment
7. Insulation must be suitable for the hazard and environment
8. Wiring diagram must be suitable for the hazard and environment
9. CIRCUITS ARE ALIVE;
10. DANGER: EXPLOSION HAZARD

Installation Guide
Automation Products Group, Inc.
1025 W. 1700 N Logan, UT 84321
www.apgsensors.com | phone: 888-525-7300 | email: sales@apgsensors.com
### Sensor and System Wiring Diagrams

**MPI-T Intrinsically Safe Modbus System Wiring**

![Wire Diagram](image)

**MPI-T Intrinsically Safe Modbus System Wiring with RST-6001**

![Wire Diagram](image)

**MPI - MDI Use Case Diagram**

![Diagram](image)

**MPI - MDI with Passive Controller Use Case Diagram**

![Diagram](image)

### General Care

Your MPI 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 MPI-T unit to ensure the stem is free of any heavy buildup that might impede the movement of the float(s). If sediment or other foreign matter becomes trapped between the stem and float(s), detection errors can occur.

If you need to remove the floats(s) from the stem of your MPI, be sure to note the orientation of the float(s) prior to removal. This will help ensure proper re-installation of the float(s).

Also, ensure that the housing cover is snugly secured. If the cover becomes damaged or is misplaced, order a replacement immediately.

### Repair Information

If your MPI-T level sensor needs repair, contact us via email, phone, or online chat on our website. We will issue you a Return Material Authorization (RMA) number with instructions.

- **Phone:** 888-525-7300
- **Email:** sales@apgsensors.com
- **Online chat:** www.apgsensors.com/support

### Hazardous Location Wiring

![Diagram](image)