Thank You

Thanks for purchasing a MPI 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.

Table of Contents

MPI-F Magnetostrictive Level Sensors Installation Guide

For Flexible Stem, Intrinsically Safe Probes

Automation Products Group, Inc.
1025 W 1700 N Logan, UT 84321
www.apgsensors.com | phone: 888-525-7300 | email: sales@apgsensors.com

Part # 200340
Doc #9005626 Rev A

1 Description

The MPI-F 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. A flexible stainless steel sleeve stem makes installation in very tall tanks much easier.

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 will look something like this:

> SAMPLE: MPI-F5-ZY-F2.5WB-120-4D

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.

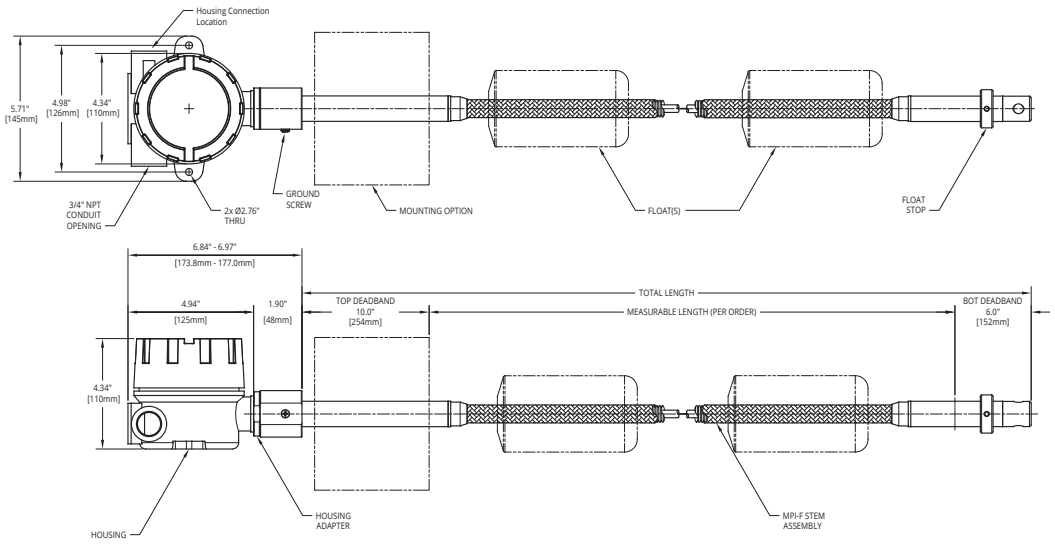
3 Warranty

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. 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 Dimensions

MPI-F Dimensions



5 Installation Guidelines & Instructions

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

- Ambient temperature between -40°F and 185°F (-40°C to 85°C)
- 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 chemical corrosive to stainless steel (such as NH_3, SO_2, Cl_2, etc.)
- 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.
- 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) is/are oriented properly on the stem (See Figure 5.1 below). MPI-F floats are installed by customer.

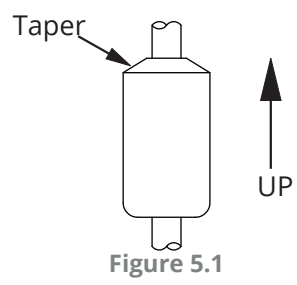


Figure 5.1

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

ATEX Stated Conditions of Use:

- Under certain extreme circumstances, the non-metalic 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.

Assemble sensor mounting, float(s), weight and pins at installation location, if possible.

- Slide mounting option onto stem. Loosen compression cap so it will slide easily on stem.
- Note: If the floats do not fit through the tank/vessel mounting hole, mount them on the stem from inside the vessel being monitored. Then secure the sensor to the vessel.
- Slide floats onto stem. If using two floats, slide the lighter float on first. Tops of floats will be indicated by sticker. After ensure top of float is toward MPI-F sensor head, remove sticker.
- For sensors with float stops, refer to the assembly drawing included with the sensor for float stop installation locations.
- Insert weight on end of stem. Hold in place with clevis pin.
- Insert cotter pin in clevis pin. Bend ends of cotter pin back to lock pins into place.

Install MPI-F sensor on tank

- 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.
- If your sensor's stem and floats fit through the mounting hole, insert the weight and the floats into the mount opening.
- Carefully unroll and feed the MPI-F sensor stem into the tank. Slide the mount up to the top of the stem.
- When the weight is on the bottom of the tank, secure the mounting option to the vessel.
- Take any slack out of the flexible stem. Tighten the compression fitting to hold stem in place.

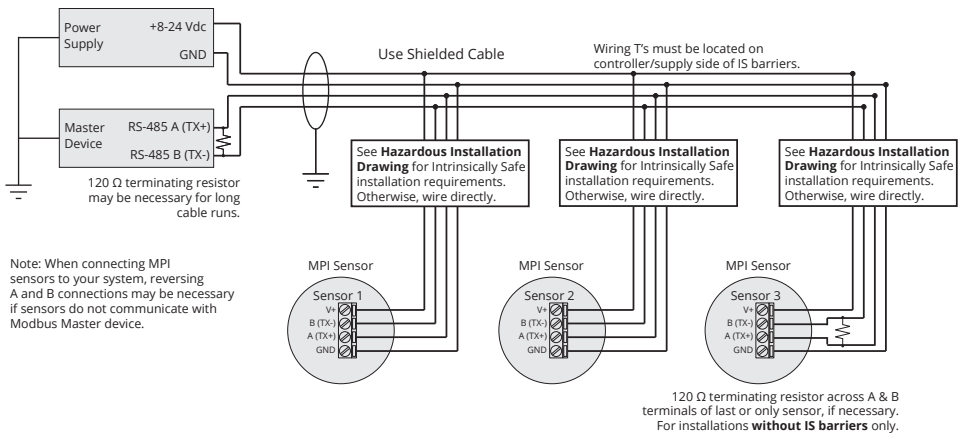
Electrical Installation Instructions:

- Remove the housing cover of your MPI.
- Feed system wires into MPI through 3/4" NPT conduit openings. Any fittings used must be UL/CSA Listed for CSA installation.
- 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 and 4-20 mA wiring examples.

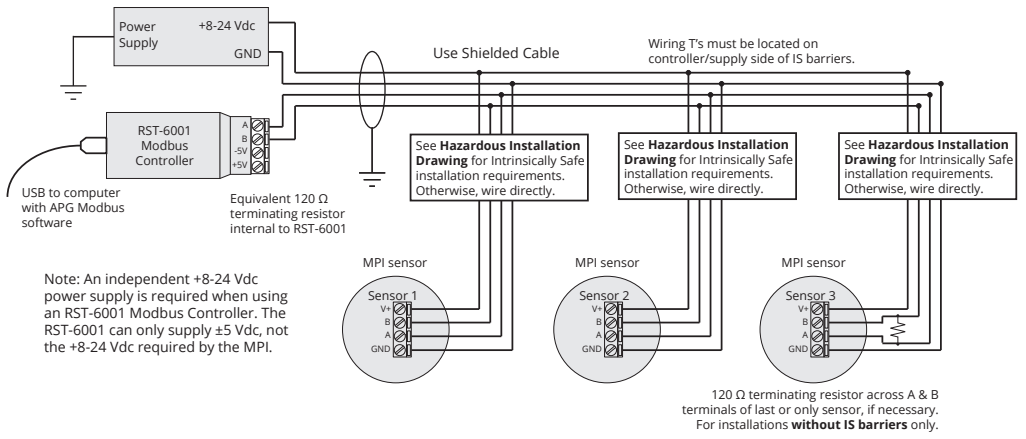
6 Sensor and System Wiring Diagrams

MPI-F Modbus System Wiring



NOTE: For APG Modbus programming instructions, please see MPI-F user manual. APG Modbus software can be downloaded from www.apgsensors.com/support.

MPI-F Modbus System Wiring with RST-6001

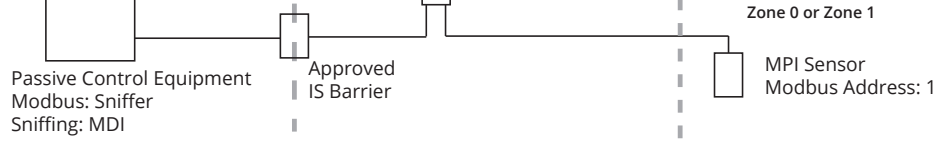


IMPORTANT: Refer to section 9 for Hazardous Location Wiring.

IMPORTANT: MPI level sensor MUST be installed according to drawing 9005491 (Intrinsically Safe Installation Drawing for Hazardous Locations) in section 9 to meet listed approvals. Faulty installation will invalidate all safety approvals and ratings.

MPI - MDI Use Case Diagram

MPI - MDI with Passive Controller Use Case Diagram



7 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 MPI 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 float(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 snuggly secured. If the cover becomes damaged or is misplaced, order a replacement immediately.

IMPORTANT: All repairs and adjustments of the MPI-F level sensor must be made by the factory. Modifying, disassembling, or altering the MPI-F is strictly prohibited.

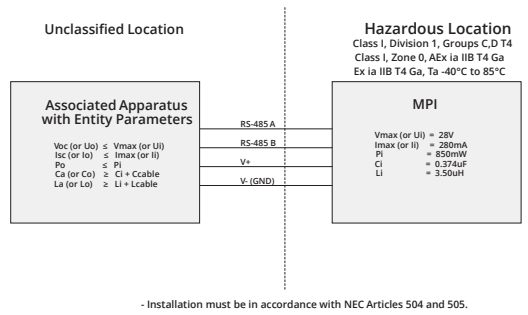
8 Repair Information

If your MPI-F 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

9 Hazardous Location Wiring

REVISIONS					
ZONE	REV	DESCRIPTION	CHANGE ORDER	DATE	APPROVED
--	A	Initial release.	CO-3441	8/29/2018	C. Chidester



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APPROVALS	DATE
DRWN C. Chidester	6/5/2018
CHKD S. Hutchins	8/29/2018
APVD R. Barson	8/29/2018
CONTRACT	
MATL	
FINISH	

APG Automation Products Group, Inc.
1025 West 1700 North
Logan, Utah USA
888.525.7300

MPI Series
Intrinsically Safe Installation Drawing
for Hazardous Locations

SIZE	CAGE CODE	PART NO	DOCUMENT NO	REV
A	52797	VARIOUS	9005491	A

SHEET 1 OF 1

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 SUITABILITY FOR CLASS I, DIVISION 2;
AVERTISSEMENT -- RISQUE D'EXPLOSION -- LA SUBSTITIOND E COMPOSANTSP EUTR ENDRE CE MATERIEL INACCEPTABLE POUR LES EMPLACEMENTS DE CLASSE I, DIVISION 2.

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'EMPLACEMENT EST DESIGNE NON DANGEREUX.