Thank You

Thanks for purchasing an MPX 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.

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

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
1. Description
2. How To Read Your Label
3. Warranty
4. Dimensions
5. Installation Guidelines & Instructions
6. Sensor and System Wiring
7. General Care
8. Repair Information
9. Hazardous Location Wiring

1. Description

The MPX 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 hazardous areas in the US and Canada by CSA for Class I, Division 1 & 2 and Class I, Zones 1 and 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 the MPX will look something like this:

SAMPLE: MPX-R3-ZY-F2.5WB-120

The model number correlates with all the configurable options and 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. Read the full explanation of our Warranty on your tablet or smartphone.

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

4. Dimensions

MPX-E Chemical Housing Dimensions

MPX-E Housing Dimensions

MPX-R Housing Dimensions

For MPX-E, MPX-E Chemical, and MPX-R

The MPX 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)
- The medium is free from metallic substances and other foreign material.
- No chemical corrosive to stainless steel (such as NH₄, SO₂, Cl₂ etc.) (Not applicable to plastic-type stem options.)
- Ample space for maintenance and inspection

Addition 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 probe is not exposed to excessive vibration.
- The probe is situated away from strong electrical fields, such as those produced by transformers, solenoid valves, etc.

5. Installation Guidelines & Instructions

**Installation Instructions:**

- If your sensor’s stem and floats fit through the mounting hole, carefully lower the assembly into the vessel, then secure the sensor 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.

**Warning!** The Kyner stem is susceptible to thermal expansion when the process temperature exceeds 7°F / 3°C. This expansion can be calculated as follows: Expansion = (Max Process Temperature °F - 32°F) x 0.0001 x Kyner Stem Length. This is the distance that must be left between the end of the Kyner stem and the tank bottom at the maximum process temperature.

**Electrical Installation Instructions:**

- Remove the housing cover of your MPX.
- Feed system wires into MPX through 3/4” or 1” conduit openings. Fittings must be UL/CSA Listed for CS A installation and IP66 Rated or better.
- Connect wires to MPX terminals. Use crimped ferrules on wires, if possible.
- Replace housing cover.
- Ensure that the grounding screw is tight. (See Dimensions section 4) to an earth ground, and ensure that tank mounting of MPX is grounded.

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

**AVERTISSEMENT** – UN SCELLEMENT DOIT ETRE INSTALLÉ A MOINS DE 18 INCHES DE L’ENCLOSURE.

**WARNING** – A SEAL SHALL BE INSTALLED WITHIN 18 INCHES OF THE ENCLOSURE.

For high temperature applications, refer to the Assembly Drawing included with the sensor for float stop installation locations.

**Hazardous Location Wiring:**

- If your sensor’s stem and floats fit through the mounting hole, carefully lower the assembly into the vessel, then secure the sensor 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.

**Warning!** The Kyner stem is susceptible to thermal expansion when the process temperature exceeds 7°F / 3°C. This expansion can be calculated as follows: Expansion = (Max Process Temperature °F - 32°F) x 0.0001 x Kyner Stem Length. This is the distance that must be left between the end of the Kyner stem and the tank bottom at the maximum process temperature.

**Electrical Installation Instructions:**

- Remove the housing cover of your MPX.
- Feed system wires into MPX through 3/4” or 1” conduit openings. Fittings must be UL/CSA Listed for CS A installation and IP66 Rated or better.
- Connect wires to MPX terminals. Use crimped ferrules on wires, if possible.
- Replace housing cover.
- Ensure that the grounding screw is tight. (See Dimensions section 4) to an earth ground, and ensure that tank mounting of MPX is grounded.

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

**AVERTISSEMENT** – UN SCELLEMENT DOIT ETRE INSTALLÉ A MOINS DE 18 INCHES DU BOITIER.

For high temperature applications, refer to the Assembly Drawing included with the sensor for float stop installation locations.

**Warning!** The Kyner stem is susceptible to thermal expansion when the process temperature exceeds 7°F / 3°C. This expansion can be calculated as follows: Expansion = (Max Process Temperature °F - 32°F) x 0.0001 x Kyner Stem Length. This is the distance that must be left between the end of the Kyner stem and the tank bottom at the maximum process temperature.

**Electrical Installation Instructions:**

- Remove the housing cover of your MPX.
- Feed system wires into MPX through 3/4” or 1” conduit openings. Fittings must be UL/CSA Listed for CS A installation and IP66 Rated or better.
- Connect wires to MPX terminals. Use crimped ferrules on wires, if possible.
- Replace housing cover.
- Ensure that the grounding screw is tight. (See Dimensions section 4) to an earth ground, and ensure that tank mounting of MPX is grounded.

**IMPORTANT:** Floats must be oriented properly on the stem, or sensor readings will be inaccurate and unreliable. Unstpped floats will have a sticker or “N” indicating the top of the float. Remove sticker prior to use.
# 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 MPX 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 MPX, 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 MPX level sensor needs repair, contact us via email, phone, or online chat on our website.

Email: sales@apgsensors.com

Phone: 888-525-7300

Online chat at www.apgsensors.com

# Sensor and System Wiring Diagrams

## Modbus System Wiring

**Modbus System Wiring with RST-6001**

- **Power Supply**: 12-24 Vdc
- **USB to computer**: with APG Modbus software

**Note**: Refer to section 9 for Hazardous Location Wiring.

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

### IMPORTANT: For EMI protection on an MPX-E4 or -R4, either connect the grounding screw (see section 4) to an earth ground, or ensure tank mounting of the MPX is grounded.

**IMPORTANT**: MPX level sensor MUST be installed according to drawing 9003468 hazardous installation and Non-Incendive Wiring Drawing) in section 9 to meet listed approvals. Faulty installation will invalidate all safety approvals and ratings.

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

**WARNING -- EXPLOSION HAZARD -- DO NOT DISCONNECT EQUIPMENT OR GARDEN LE Couvercle BIEN TETE TANT QUE LES CIRCUITS SONT SOUS TENSION.

**AVERTISSEMENT -- RISQUE D’EXPLOSION -- AVANT DE DECONNECTER L’EQUIPEMENT, OUVRIR LE CIRCUIT AVANT D’ENLEVER LE COUVERCLE, or GARDER LE COUVERCLE BIEN FERME TANT QUE LES CIRCUITS SONT SOUS TENSION.

**WARNING -- EXPLOSION HAZARD -- SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2; AVERTISSEMENT -- RISQUE D’EXPLOSION -- LA SUBSTITION DES COMPOSANTS PEUT IMPAIR LA SUIVANCE DES EQUIPEMENTS DE CLASSE I, DIVISION 2.

**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 SASSUIER QUE L’EMPLACEMENT EST DESIGNE NON HAZARDOUS.

**WARNING -- POTENTIAL ELECTROSTATIC CHARGING HAZARD -- CLEAN ONLY WITH A DAMP CLOTH; AVERTISSEMENT -- DANGER DE CHARGE ELECTROSTATIQUE POTENTIEL - NETTOYER SEULEMENT AVEC UN CHIFFON HUMIDE.

**DANGER**: OPEN CIRCUIT BEFORE REMOVING COVER OR KEEP COVER TIGHT WHILE CIRCUITS ARE ALIVE; AVERTISSEMENT -- OUVRIR LE CIRCUIT AVANT D’ENLEVER LE COUVERCLE, or GARDER LE COUVERCLE BIEN TETE 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 SUBSTITION DES COMPOSANTS PEUT IMPAIR LA SUIVANCE DES EQUIPEMENTS 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.

**DANGER**: WARNING -- POTENTIAL ELECTROSTATIC CHARGING HAZARD -- CLEAN ONLY WITH A DAMP CLOTH.

**AVERTISSEMENT -- DANGER DE CHARGE ELECTROSTATIQUE POTENTIEL - NETTOYER SEULEMENT AVEC UN CHIFFON HUMIDE.

### 4-20 mA Wiring

**4-20 mA Single Float Loop Wiring** (MPX-E2 and MPX-R2 Series)

**4-20 mA Dual Float Loop Wiring** (MPX-E3 and MPX-R3 Series)

**4-20 mA Programming Wiring**

Programming configuration is for programming ONLY. After programming, sensor must be reintegrated to 4-20 mA loop for proper system operation.

**USB to computer**: with APG Modbus software

**Programming Module** and APG Modbus software required for programming MPX-E2, -R2 and MPX-E3, -R3 series sensors.

**WARNING -- EXPLOSION HAZARD -- DO NOT DISCONNECT EQUIPMENT OR GARDER LE COUVERCLE BIEN TETE TANT QUE LES CIRCUITS SONT SOUS TENSION.

**AVERTISSEMENT -- RISQUE D’EXPLOSION -- AVANT DE DECONNECTER L’EQUIPEMENT, OUVRIR LE CIRCUIT AVANT D’ENLEVER LE COUVERCLE, or GARDER LE COUVERCLE BIEN FERME TANT QUE LES CIRCUITS SONT SOUS TENSION.

**WARNING -- EXPLOSION HAZARD -- SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2; AVERTISSEMENT -- RISQUE D’EXPLOSION -- LA SUBSTITION DES COMPOSANTS PEUT IMPAIR LA SUIVANCE DES EQUIPEMENTS DE CLASSE I, DIVISION 2.

**WARNING -- EXPLOSION HAZARD -- DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS.

**WARNING -- POTENTIAL ELECTROSTATIC CHARGING HAZARD -- CLEAN ONLY WITH A DAMP CLOTH.

**AVERTISSEMENT -- DANGER DE CHARGE ELECTROSTATIQUE POTENTIEL - NETTOYER SEULEMENT AVEC UN CHIFFON HUMIDE.**