



APG Sensors MPX Magnetostrictive Level Sensors Installation Guide

[Home](#) » [APG Sensors](#) » APG Sensors MPX Magnetostrictive Level Sensors Installation Guide



**Sensors MPX Magnetostrictive Level Sensors
Installation Guide
For Custody Transfer API 18.2 Compliant Probes**

Contents [[hide](#)]

- [1 MPX Magnetostrictive Level Sensors](#)
- [2 Description](#)
- [3 How To Read Your Label](#)
- [4 Warranty](#)
- [5 Dimensions](#)
- [6 Installation Guidelines & Instructions](#)
- [7 Sensor and System Wiring Diagrams](#)
- [8 General Care](#)
- [9 Repair Information](#)
- [10 Hazardous Location Wiring](#)
- [11 Documents / Resources](#)
 - [11.1 References](#)
- [12 Related Posts](#)

MPX Magnetostrictive Level Sensors

Thank You

Thanks for purchasing a 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 **888525-7300**.



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.



<https://www.apgsensors.com/sites/default/files/manuals/MPX-API-182-manual.pdf>

Description

The MPX series magnetostrictive level sensor provides highly accurate and repeatable level and temperature readings in a wide variety of liquid level measurement applications, including API 18.2 Custody Transfer. It is certified for installation in hazardous areas in the US and Canada for Class I, Division 1 & 2 and Class I, Zones 1 and 2 environments.

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-T5-JI-P2ST-180-AP

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.

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.

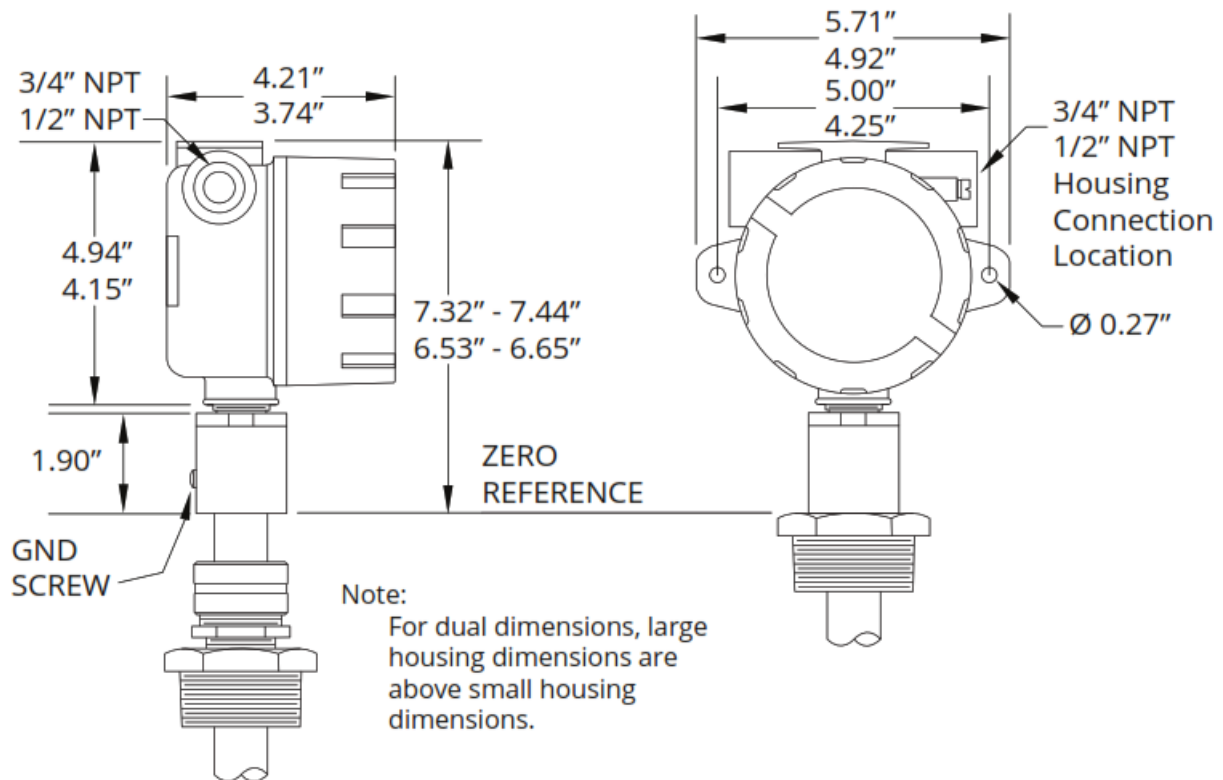
Scan the QR code below to read the full explanation of our Warranty on your tablet or smartphone.



<https://www.apgsensors.com/about-us/terms-conditions>

Dimensions

MPX-R & MPX-T Housing Dimensions



IMPORTANT: WARNING — A SEAL SHALL BE INSTALLED WITHIN 18 inches OF THE ENCLOSURE;
DANGER: OPEN CIRCUIT BEFORE REMOVING COVER or KEEP COVER TIGHT WHILE CIRCUITS ARE ALIVE;
DANGER: WARNING — EXPLOSION HAZARD — SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2;

Installation Guidelines & Instructions

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

- Ambient temperature between -40°C 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 chemical corrosive to stainless steel (such as NH₃, SO₂, Cl₂, etc.) for MPX-R
- No chemicals incompatible with Titanium Grade 2 for MPX-T
- 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) is/are oriented properly on the stem (See Figure 5.1 below). MPX-R and MPX-T floats are typically installed by customer.

i IMPORTANT: MPX level sensor MUST be installed according to drawing 9003468 (Hazardous drawing 9003468 (Hazardous Installation and Non-Inc endive Wiring Drawing) in section 9 to meet listed approvals. Faulty installation will invalidate all safety approvals and ratings.

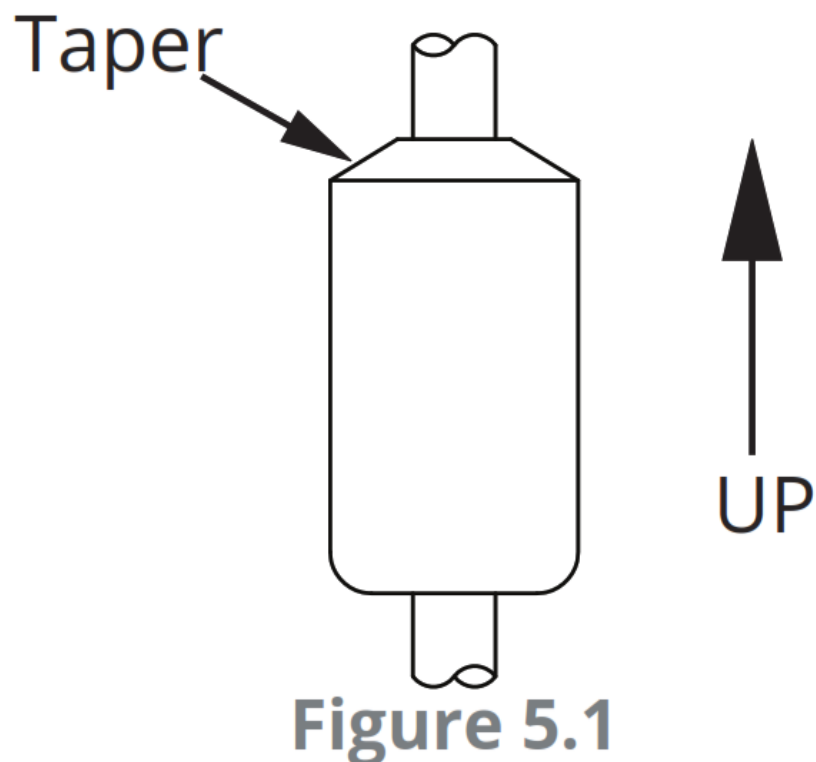
Installation Instructions:

- 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.

Electrical Installation Instructions:

- Remove the housing cover of your MPX.
- Feed system wires into MPX through 3/4" NPT conduit openings. Fittings must be UUCSA Listed for CSA installation.
- Connect wires to MPX terminals. Use crimped ferrules on wires, if possible.
- Replace housing cover.
- For EMI protection, either connect the grounding screw (see Dimensions section 4) to an earth ground, or ensure that tank mounting of MPX is grounded.

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



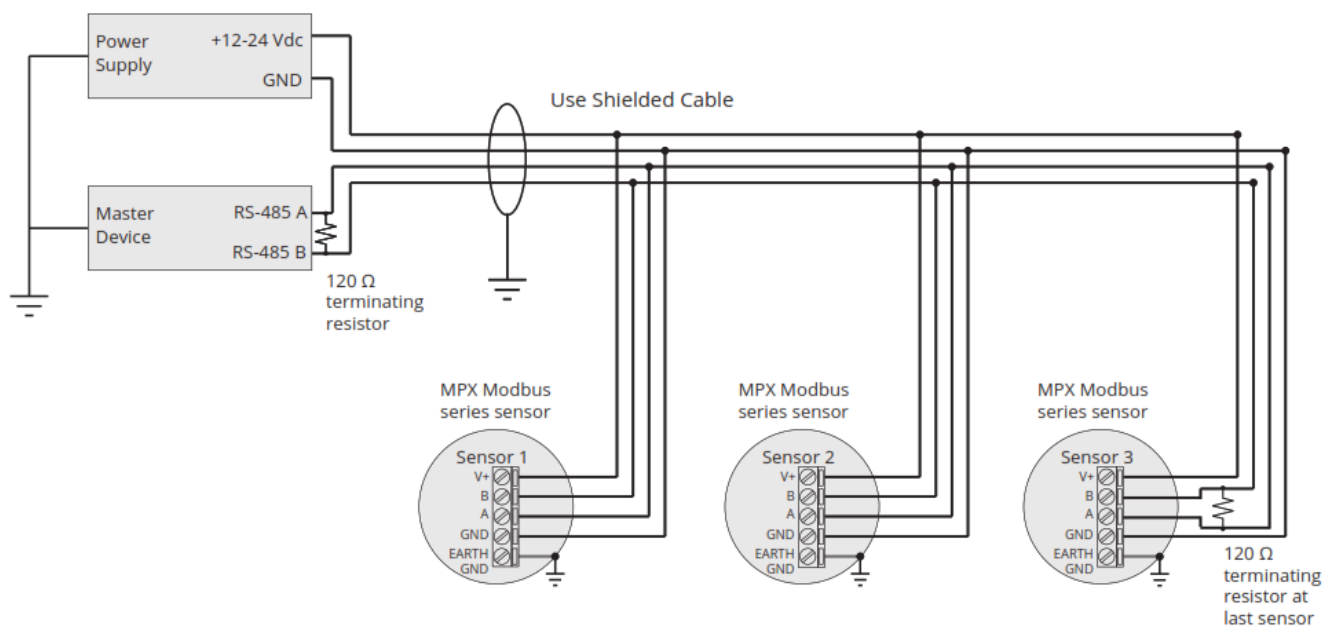
i IMPORTANT: Floats must be oriented properly on the stem, or sensor readings will be inaccurate and unreliable. Untapered floats will have a sticker or “N” indicating the top of the float. Remove sticker prior to use.

DANGER: WARNING — EXPLOSION HAZARD — DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS;

Warning: — The model MPX-T contains titanium in excess of 7.5% for Group II and care needs to be taken to avoid an ignition hazards due to impact or friction;

Sensor and System Wiring Diagrams

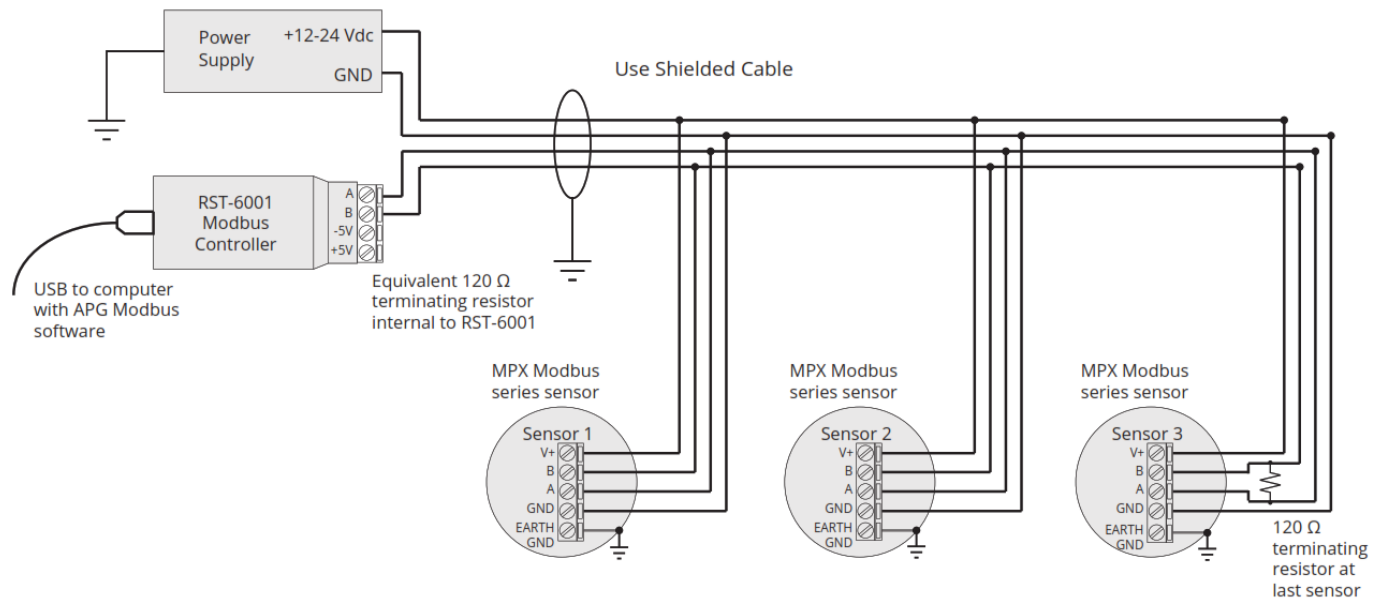
Modbus System Wiring



Note: Earth Ground terminal is factory connected to internal housing ground lug.

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

Modbus System Wiring with RST-6001



Note: An independent +12-24 Vdc power supply is required when using an RST-6001 Modbus Controller. The RST-6001 can only supply ± 5 Vdc, not the +12-24 Vdc required by the MPX.

Note: Earth Ground terminal is factory connected to internal housing ground lug.

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

i IMPORTANT: Refer to section 9 for Hazardous Location Wiring.

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 floats(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.

DANGER: WARNING — POTENTIAL ELECTROSTATIC CHARGING HAZARD – CLEAN ONLY WITH A DAMP CLOTH;

Repair Information

If your MPX 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

i 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.

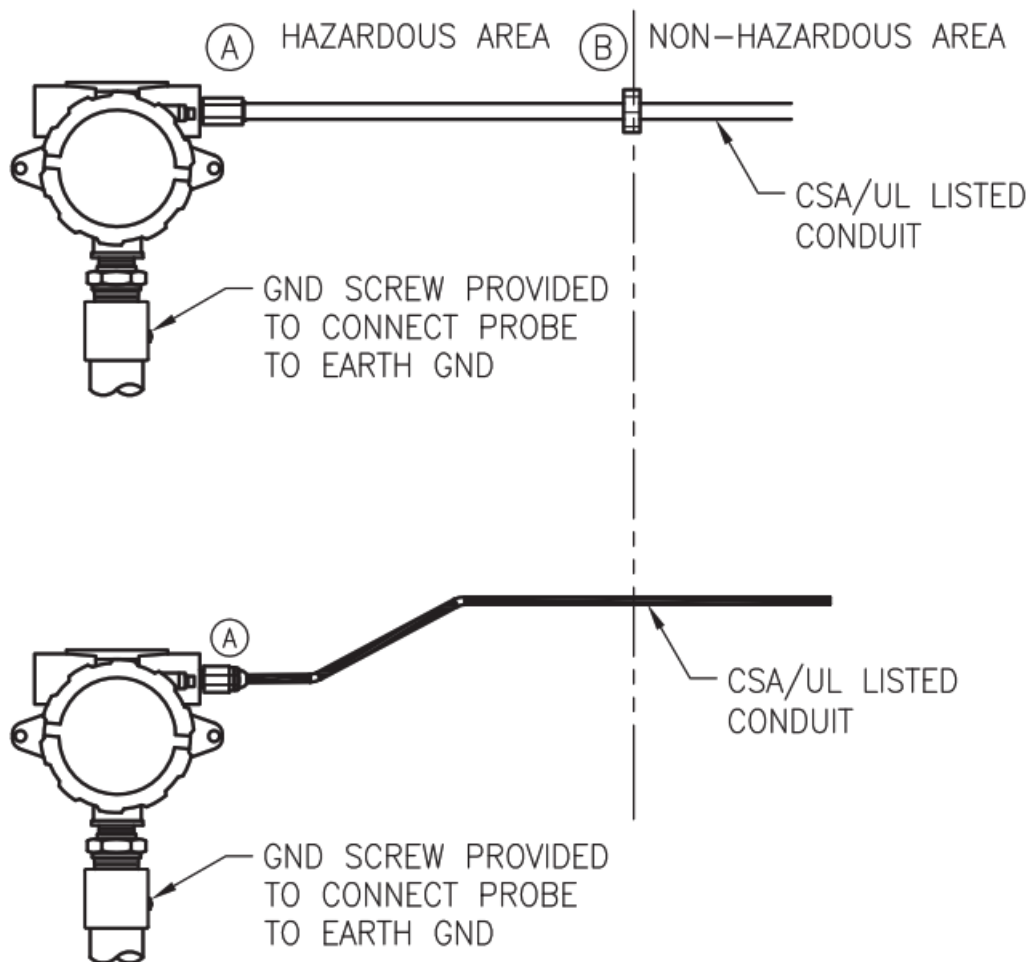
Hazardous Location Wiring

INSTALLATION IN:

CLASS I, DIV 1 & 2, GROUPS C & D, MAX. TEMP. 85° C

Ex d IIB : Ex nA IIB

CLASS I, ZONE 1; AEx d IIB : C_ASS I, ZONE 2; AEx nA IIB



WARNING — OPEN CIRCUIT BEFORE REMOVING COVER OR KEEP COVER TIGHT WHILE CIRCUITS ARE ALIVE.

WARNING EXPLOSION HAZARD — SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS 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.

SENSORS WITH COATING OR SLEEVE OPTION:

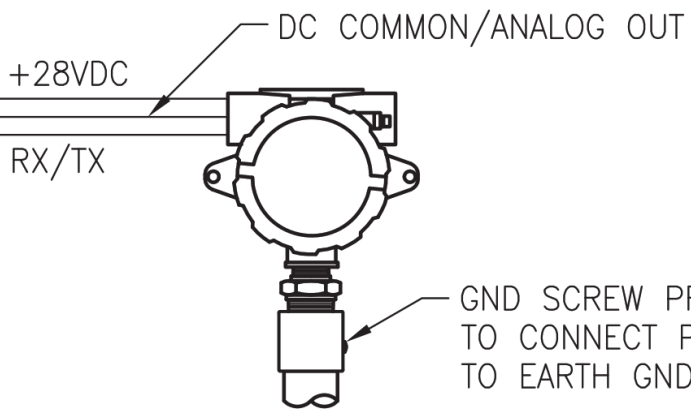
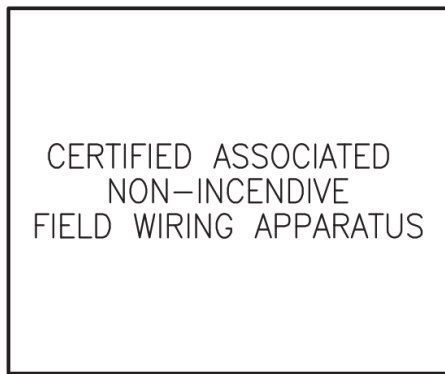
WARNING (WRN) — POTENTIAL ELECTROSTATIC (ES) CHARGING HAZARD — CLEAN WITH DAMP CLOTH or AVOID STATIC DISCHARGE BY WIPING PLASTIC WITH DAMP CLOTH. .

- INSTALL IN ACCORDANCE WITH SECTION 18 OF THE CEC OR ARTICLE 500 OF THE NEC.
- CSA LISTED OR NRTL/UL LISTED CONDUIT SEAL AT LOCATION A & B.

NON-INCENDIVE WIRING FOR INSTALLATION IN CLASS I, DIVISION 2, GROUPS C AND D, MAX. TEMP. 85°C

NON-HAZARDOUS AREA

HAZARDOUS AREA



* $V_{Max} \geq V_{oc}$,
 $C_a \geq C_{cable} + C_i$
 $L_a \geq L_{cable} + L_i$

* $V_{max} = 28VDC$,
 $I_{max} = 200ma$,
 $C_i = 0nF$, $L_i = 0$

REVISIONS

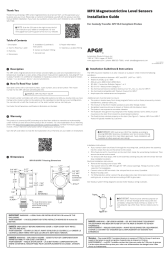
ZONE	REV	DESCRIPTION	CHANGE ORDER	DATE	APPROVED
—	D	INCLUDE MPX-G.	CO- 2406	4/21/16	K. RED
—					
—	E	ADD MPX-E & -R TO ES WR N.	CO-3436	3/6/19	R. OBORN
—					

PROPRIETARY AND CONFIDENTIAL THIS DRAWING IS THE PROPERTY OF AUTOMATION PRODUCTS GROUP, INC. LOGAN, UTAH AND MAY NOT BE USED, REPRODUCED, PUBLISHED, OR DISCLOSED TO OTHERS WITHOUT WRITTEN CONSENT OF THE COMPANY. IF LOANED, IT IS SUBJECT TO RETURN UPON DEMAND AND MAY NOT BE USED IN ANY WAY DIRECTLY OR INDIRECTLY DETRIMENTAL TO THE COMPANY.	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND TOLERANCES ARE AS FOLLOWS: TOLERANCE ON ANGLE: $\pm 1^\circ$ 2 PLACES: $\pm 0.1"$ 3 PLACES: $\pm 0.005"$ INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5-2009		APPGH AUTOMATION PRODUCTS GROUP, INC. 1025 West 1700 North Logan, Utah USA 888.525.7300	
	THIRD ANGLE PROJECTION		MAGNETOSTRICTIVE PROBE, MPX-E, MPX-R, & MPX-G HAZARDOUS INSTALLATION DRAWING EX WIRING, CSA	
			SIZE C CAGE CODE 52797 PART NO 9003468 DOCUMENT NO 9003468 REV E	
	APPROVALS DRWN K. REID 09/08/10 CHKD S. HUTCHINS 09/11/10 APVD K. REID 09/11/10 CONTRACT MATL FINISH		SCALE NONE DO NOT SCALE DRAWING SHEET 1 OF 3	



Automation Products Group, Inc.
 1025 W 1700 N Logan, UT 84321
www.apgsensors.com
 Phone: 888-525-7300
 E-mail: sales@apgsensors.com




Documents / Resources



APG Sensors MPX Magnetostrictive Level Sensors [pdf] Installation Guide

MPX Magnetostrictive Level Sensors, Magnetostrictive Level Sensors, Level Sensors, Sensors

References

-  [Industrial Sensor Manufacturer | APG, Inc.](#)
-  [Support Resources | Chat Live Instantly | APG, Inc.](#)
-  [APG Terms and Conditions | Automation Products Group](#)