Automation Products Group, Inc.

MPI-F PVDF

Intrinsically Safe Flexible PVDF Magnetostrictive Level Sensor

The MPI Series Intrinsically Safe Magnetostrictive Level Sensor provides highly accurate and repeatable level readings in a wide variety of liquid level measurement applications. The MPI-F's flexible PVDF stem allows for installation in tall tanks without needing a crane or flatbed delivery truck.

FEATURES

- Class I, Division 1 and Class I, Zone 0 Hazardous Location Rating (cCSAus, ATEX, IECEx)
- Highly accurate and repeatable level and temperature readings
- RS-485 (Modbus RTU) and 4-20 mA outputs
- Low power
- Rugged and reliable, lengths up to 50 feet (15.2 m)
- Dual level (interface) measurement
- Tank volume or level output, strapping table
- Pairs with MDI display for self-contained, intrinsically safe, level measurement and display system

Doc# 9006932 | Part# 201236
Rev. A – 9/2025

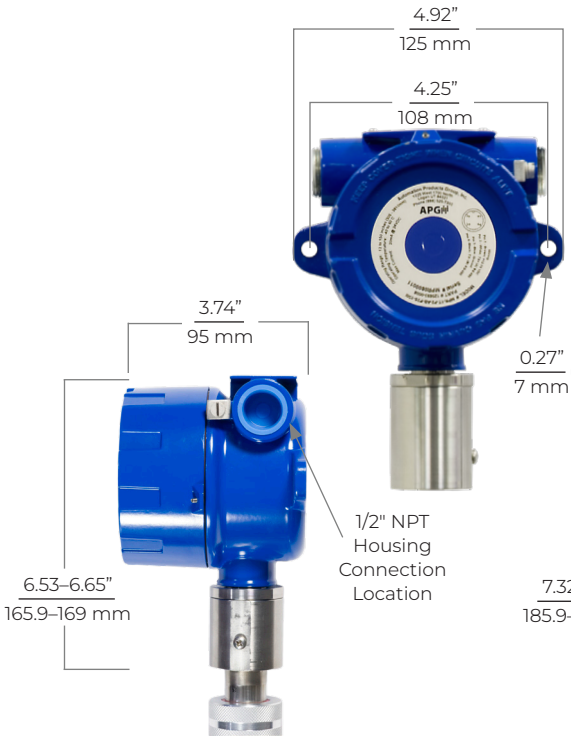
Automation Products Group, Inc. | (435) 753 7300 | sales@apgsensors.com | apgsensors.com

MPI-F PVDF SPECIFICATIONS

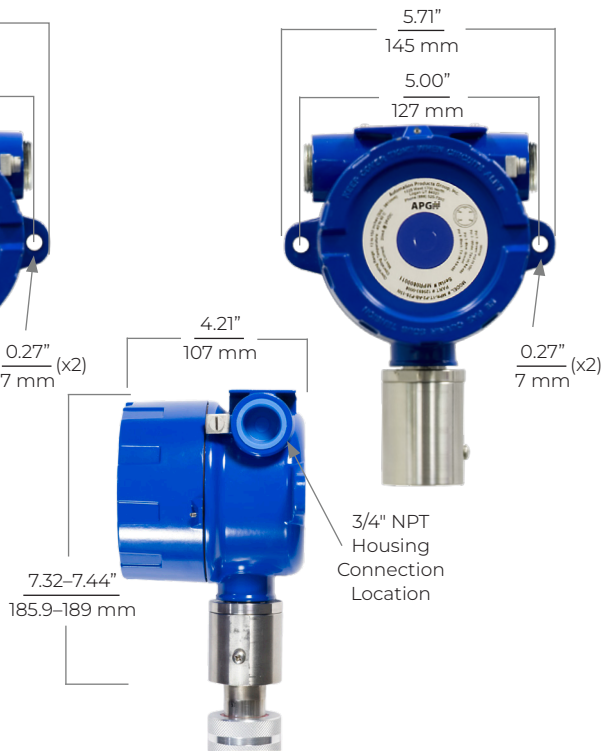
FLOAT I, J

FLOAT K, H

SMALL HOUSING



LARGE HOUSING



PERFORMANCE

- **Resolution:**
  - 4-20 mA: 14 bit DAC (1 mm)
  - Modbus: 0.04 in. (1 mm)
- **Distance Accuracy:**
  - 4-20 mA: Greater of ± 0.05% of FS or 1 mm
  - Modbus: ± 0.04 in. (±1 mm)
- **Temperature Accuracy:**
  - Digital Temp. Sensor: ± 1°C

CONNECTIVITY

- **Output:**
  - Modbus RTU (RS-485), optional temperature sensors
  - Single or dual loop-powered 4-20 mA

ENVIRONMENTAL

- **Operating Temp.:** -40°–185°F (-40°–85°C)
- **NEMA 4X, IP65**

PHYSICAL

- **Housing:** Cast aluminum, epoxy coated
- **Stem:** 5/8 in. ø Flexible Tubing, proprietary PVDF formulation
- **Stem Length:** 10–50 ft. (3.05–15.2 m)

PROGRAMMING

- **RS-485:** Optional RST-6001 USB to RS-485 converter
- **4-20 mA:** Factory set or RST-4100 programming module

ELECTRICAL

- **Supply Voltage:** 8–24 VDC (Modbus), 12–24 VDC (4-20 mA)
- **Current Draw:**
  - 4-20 mA, Single/Dual float: 22/44 mA (max)
  - Modbus (single or dual float): 15 mA (typ.)
- **Reverse polarity protection**
- **CE compliant to EN 61326**

CERTIFICATION

- **NEMA 4X, IP65**
- **cCSAus Certificate CSA19CA70219727:**
  - 8–24 VDC, Imax=280 mA
  - Class I, Division 1, Groups C, D T4;
  - Class I, Zone 0; AEx ia IIB T4 Ga; Ex ia IIB T4 Ga, IP65
  - Ta=-40° to 85°C
- **ATEX Certificate Sira 19ATEX2072X:**
  - II 1G
  - Ex ia IIB T4 Ga
  - Ta=-40° to 85°C
- **IECEx Certificate IECEx SIR 19.0026X:**
  - Ex ia IIB T4 Ga
  - Ta=-40° to 85°C

APG

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MODEL CONFIGURATION OPTIONS

MODEL NUMBER: MPI – F ___ ___ – ___ ___ – ___ ___ ___ K – ___ – ___ – ___ 2 ___ W6 – N – ___

A B C D E F G H I J K L M N O P Q

A. Stem Type

☐ F Flexible Tubing

B. Output

☐ 6 Single float, loop-powered 4-20 mA (2-wire)

☐ 7 Dual float, loop-powered 4-20 mA (4-wire)

☐ 8* Modbus RTU, Optional temperature sensors

C. Housing Type

All Housing Die-cast Aluminum, NEMA 4X, IP65

☐ __* Large Housing

☐ A Small Housing

D. Float 1 (Top Float)

☐ K* 3.5h x 2d in. PVDF (0.65 SG)

☐ H 3.5h x 2d in. PVDF (0.94 SG)

☐ J 5h x 3d in. Oval Titanium (0.60 SG)

☐ I 5h x 3d in. Oval Titanium (0.94 SG)

☐ N None

E. Float 2 (optional)

☐ N* None

☐ H 3.5h x 2d in. PVDF (0.94 SG)

☐ I 5h x 3d in. Oval Titanium (0.94 SG)

F. Mounting Type

☐ P* NPT Plug 150#

☐ N None

G. Mounting Size

☐ 2* 2 in. (slide connection)

☐ 3 3 in. (slide connection)

☐ N None

H. Mounting Connection

☐ S* Slide with Compression Fitting (adjustable)

☐ N None

I. Stem Finish Material

☐ K Proprietary PVDF formulation▲

J. Total Stem Length in Inches

☐ __ Min. 120 in.—Max. 600 in.

K. Temperature Sensor Options

☐ N None

☐ 1D* Digital Temperature Sensor A, 12 in. from bottom of probe

☐ 2D Digital Temperature Sensors A, B

☐ 3D Digital Temperature Sensors A, B, C

☐ 4D Digital Temperature Sensors A, B, C, D

☐ 5D Digital Temperature Sensors A, B, C, D, E

☐ 6D Digital Temperature Sensors A, B, C, D, E, F

☐ 7D Digital Temperature Sensors A, B, C, D, E, F, G

Note: Temperature sensors B–G are spaced evenly between A and the probe's zero reference.

Note: Options 1D–7D are only available when Output 8 is selected.

***Note:** This option is standard

**** Note:** Connectors available for use with Small Housing only. For Large Housing, choose N None.

▲**Note:** The Kynar stem is susceptible to thermal expansion when the process temperature exceeds 73°F / 23°C. This expansion can be calculated as follows: Expansion = (Max Process Temperature (°F) - 73)*.000108 * Kynar Stem Length). This is the distance that must be left between the end of the Kynar stem and the tank bottom at the maximum process temperature. Please account for this expansion by reducing the stem length to allow for this gap when installed. The gap is zero if the process temperature is less than or equal to 73 °F.

DISCLAIMER: Please note that selecting certain options may limit or eliminate availability of other options, as some floats and accessories are only compatible with a select number of configuration.

MPI ACCESSORIES

Please order separately, by part number.

Description	Part Number
Programming Module	
RST-6001 (Modbus; MPI-x5, MPI-F8 only)	125734
RST-4100 (4-20mA MPI–X6, X7 only)	125759
MDI (See MDI Datasheet for Options)	

MODEL CONFIGURATION OPTIONS

MODEL NUMBER: MPI – F ___ ___ – ___ ___ – ___ ___ ___ K – ___ – ___ – ___ 2 ___ W6 – N – ___

A B C D E F G H I J K L M N O P Q

L. Housing Connection**

- ☐ N* None
- ☐ B Cable Gland (Cable sold separately)
- ☐ C 4-pin M12 Micro Connector Female
- ☐ D 4-pin M12 Micro Connector Male-90°
- ☐ F 4-pin M12 Micro Connector Female-90°
- ☐ G 90° Elbow
- ☐ M 4-pin M12 Micro Connector Male

M. End Plug

- ☐ 2 Keyhole for dowel pin

N. Float Stop

- ☐ E3 1-piece clamp, top float stop only
- ☐ N* None

O. Stem Weights

- ☐ W6* Weights for Kynar Probe

P. Level Switch

- ☐ N No High Level Switch

Q. Setpoints

- ☐ N No Setpoints
- ☐ S Standard Locations (for Outputs 6 or 7 only)
- ☐ C Custom Locations (contact for more details; for Outputs 6 or 7 only)

***Note:** This option is standard

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RST-4100 (4-20mA MPI–X6, X7 only)	125759
MDI (See MDI Datasheet for Options)	

SETTLER

Your Gateway to Smarter Monitoring

Settler, APG's next remote monitoring gateway, makes getting real-time level data easier than ever.

Settler seamlessly connects Modbus and 4-20 mA sensors—transmitting encrypted data securely to Explorer, APG's cloud-based interface. View tank and well levels anytime, anywhere, with reliable Ethernet connectivity and robust data security powered by MQTT with AES (Advanced Encryption Standard). Plus, with over-the-air (OTA) firmware updates, your system stays up to date without hassle.

Designed for general-purpose environments, Settler is not intended for use in hazardous areas.

Explorer makes monitoring simple. Access real-time readings, enable datalogging, and set up alarms so you're always informed of critical changes—right from your smartphone, tablet, or desktop.

Save time, reduce costs, and gain peace of mind with remote monitoring powered by Settler and Explorer. Contact us today to learn more or visit apgsensors.com/ settler-remote-monitoring-gateway/.