

EXPLOSION PROOF FLEXIBLE STAINLESS STEEL AND PVDF STEM MAGNETOSTRICTIVE PROBE LEVEL SENSORS SERIES: MPXI-F



MPXI-F Series Explosion Proof Flexible Stainless Steel and PVDF Stem Magnetostrictive Probe Level Sensors provide highly accurate and repeatable level and temperature readings in a wide variety of liquid level measurement applications. The MPXI-F's flexible stem allows for installation in tanks up to 50 feet tall, without needing a crane or an extra-long truck and trailer for delivery. APG's proprietary-PVDF-formulation stem provides increased flexibility and impact resistance during cold-weather installation, along with compatibility in a wider range of corrosive media--including H₂S--in larger tanks. And the unique Class I, Zone 0/1 rating allows for an Explosion Proof connection to a Zone 1-installed housing on top of a Zone 0-installed probe stem.

Features

- Class I, Division 1 and Class I, Zone 0/1 Hazardous Location Ratings (cCSAus, ATEX, IECEx)
- Explosion Proof housing for easy conduit connections
- Zone 0-rated stem electronics
- 4-20 mA (single or dual) or RS-485 (Modbus RTU) output
- Stainless steel probe lengths up to 32 feet (9.75 m)
- PVDF probe lengths up to 50 feet (15.2 m)
- Optional electrically-redundant high-level switch (PVDF only)
- Up to seven temperature sensors (API 18.2 compliant)
- Low power; Start-up time under 5 seconds
- Highly accurate and reliable readings
- Dual level (interface) measurement
- Tank volume or level output, strapping table



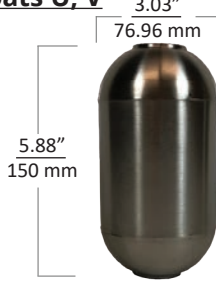
MPXI-F STAINLESS STEEL SPECIFICATIONS

MPXI-F/B Floats

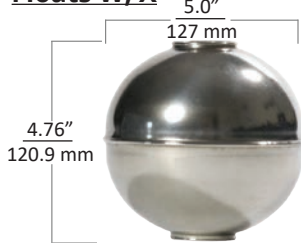
Floats Y, Z



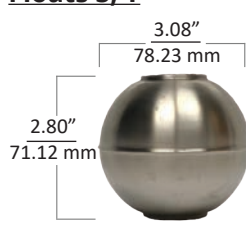
Floats U, V



Floats W, X



Floats S, T



Floats L, M



Floats I, J



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 $\pm 0.05\%$ of FS or 1 mm
 - Modbus: ± 0.04 in. (± 1 mm)
- Temperature Accuracy
 - Digital Temp Sensor: $\pm 1^\circ\text{C}$
 - API 18.2 Temp Sensors: $\pm 0.25^\circ\text{C}$ over $-40^\circ - 85^\circ\text{C}$
 $\pm 0.13^\circ\text{C}$ over $+20^\circ - 70^\circ\text{C}$

Programming

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

Electrical

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

Environmental

- Operating Temperature: $-40^\circ - 185^\circ\text{F}$ ($-40^\circ - 85^\circ\text{C}$)
- NEMA 4X, IP66

Physical

- Housing: Cast aluminium, epoxy coated
- Stem: $7/8"$ \varnothing Flexible Tubing with Braid, 316L SS
- Stem Length: 4 - 32 ft. (1.22 - 9.75 m)

Connectivity

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

Certification

- NEMA 4X, IP66
- cCSAus Certificate CSA19CA70219727:
 - Rated 12-24 VDC, Um 250 V, 4-20 mA, or 80 mA
 - Class I, Division 1, Groups C, D T4; IP66
 - Class I, Zone 0/1
 - AEx ia/db IIB T4 Ga/Gb
 - Ex ia/db IIB T4 Ga/Gb, IP66
 - Ta = -40° to 85°C
- ATEX Certificate Sira 19ATEX2072X:
 - II 1/2G
 - Ex ia/db IIB T4 Ga/Gb
 - Ta = -40° to 85°C
- IECEX Certificate IECEX SIR 19.0026X:
 - Ex ia/db IIB T4 Ga/Gb
 - Ta = -40° to 85°C

STAINLESS STEEL STEM MODEL CONFIGURATION OPTIONS

Model Number: MPXI - F - - - - - - - - B - - - - N - 2 - - - -
A B C D E F G H I J K L M N O

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 digital temperature sensors

C. Housing Type

All Housing Die-cast Aluminum, NEMA 4X, IP66

- ▲ Large Housing
- A** Small Housing

D. Float 1 (Top Float)

- Z/Y** 5.5h x 3d in. Red Polyurethane (0.65 SG / 0.94 SG)
- X/W** 5 in. Round 316L SS (0.52 SG / 0.92 SG)
- V/U** 6h x 3d in. Oval 316L SS (0.58 SG / 0.94 SG)
- T/S** 3 in. Round 316L SS (0.60 SG / 0.94 SG)
- M/L** 5.5h x 2d in. Red Polyurethane (0.57 SG / 0.94 SG)
- J/I** 5h x 3d in. Oval Titanium (0.60 SG / 0.94 SG)
- N** None

E. Float 2 (optional)

- N** None
- Y** 5.5h x 3d in. Blue Polyurethane (0.94 SG)
- W** 5 in. Round 316L SS (0.92 SG)
- U** 6h x 3d in. Oval 316L SS (0.94 SG)
- S** 3 in. Round 316L SS (0.94 SG)
- L** 5.5h x 2d in. Blue Polyurethane (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. (welded or slide connection)
- 3** 3 in. (slide connection only)
- N** None

H. Mounting Connection

- W** Welded (fixed)
- S▲** Slide with Compression Fitting (adjustable)

I. Stem Finish Material

- B** 316L SS

J. Total Stem Length in Inches

- Min. 48 in. - Max. 384 in.

K. Temperature Sensor Options

MPXI-F8

- 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
- AP** Sensor Quantity and Placement per API 18.2 Standard

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

L. Custom Housing/Electrical Connection

- N▲** None

M. End Plug

- 2▲** Keyhole for cotter pin

N. Float Stop

- A3▲** 1-piece top float stop, held with set screw
- F3** 2-piece clamp top float stop
- N** None

O. Stem Weights

- W7** 316L SS, 3lb, 2Ø x 4.75"H; modular
- W8** 316L SS, 5 lb, 3"Ø x 3"H; modular

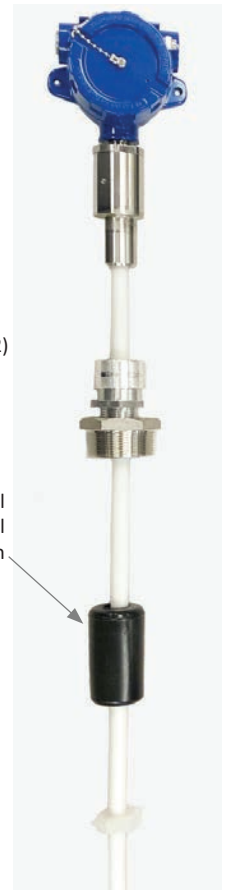
Note: ▲ This option is standard.



MPXI-F PVDF SPECIFICATIONS

Small Housing

Large Housing



MPXI-F/K Floats

Floats I, J



Floats H, K



Performance

- Resolution:
 - 4-20 mA: 14 bit DAC (1 mm); Modbus: 0.04 in. (1 mm)
- Distance Accuracy
 - 4-20 mA: Greater of $\pm 0.05\%$ of FS or 1 mm
 - Modbus: ± 0.04 in. (± 1 mm)
- Temperature Accuracy
 - Digital Temp Sensor: $\pm 1^\circ\text{C}$
 - API 18.2 Temp Sensors: $\pm 0.25^\circ\text{C}$ over $-40^\circ - 85^\circ\text{C}$
 $\pm 0.13^\circ\text{C}$ over $+20^\circ - 70^\circ\text{C}$

Programming

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

Electrical

- Supply Voltage: 12-24 VDC (Modbus), 24 VDC (4-20 mA)
- Current draw:

4-20mA, Single / Dual float	22 mA / 44 mA (max)
Modbus (single or dual float)	15 mA (typ)
High Level Switch, closed / open	7-9 mA / 0-1 mA
- Reverse polarity protection
- CE compliant to EN 61326

Environmental

- Operating Temperature: $-40^\circ - 185^\circ\text{F}$ ($-40^\circ - 85^\circ\text{C}$)
- NEMA 4X, IP66

Physical

- Housing: Cast aluminium, epoxy coated
- Stem: 5/8" \varnothing Flexible Tubing, proprietary PVDF formulation
- Stem Length: 10 - 50 ft. (3.05 - 15.2 m)

Connectivity

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

Certification

- NEMA 4X, IP66
- cCSAus Certificate CSA19CA70219727:
 - Rated 12-24 VDC, Um 250 V, 4-20 mA, or 80 mA
 - Class I, Division 1, Groups C, D T4; IP66
 - Class I, Zone 0/1
 - AEx ia/db IIB T4 Ga/Gb
 - Ex ia/db IIB T4 Ga/Gb, IP66
 - Ta = -40° to 85°C
- ATEX Certificate Sira 19ATEX2072X:
 - II 1/2G
 - Ex ia/db IIB T4 Ga/Gb
 - Ta = -40° to 85°C
- IECEX Certificate IECEX SIR 19.0026X:
 - Ex ia/db IIB T4 Ga/Gb
 - Ta = -40° to 85°C

PVDF STEM MODEL CONFIGURATION OPTIONS

Model Number: MPXI - F - - - - - - - - K - - - - N - 2 - W6 - - P
 A B C D E F G H I J K L M N O P

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 digital temperature sensors

C. Housing Type

All Housing Die-cast Aluminum, NEMA 4X, IP66

- ▲** Large Housing
- A** Small Housing

D. Float 1 (Top Float)

- K/H▲** 3.5h x 2d in. PVDF (0.58 SG / 0.94 SG)
- J/I** 5h x 3d in. Oval Titanium (0.60 SG / 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. (welded or slide connection)
- N** None

H. Mounting Connection

- W** Welded (fixed)
- S▲** Slide with Compression Fitting (adjustable)

Note: ▲ This option is standard.

MPXI ACCESSORIES

Please order separately, by part number.

Description	Part Number
Programming Module	
RST-6001 (Modbus; MPXI-F8 only)	125734
RST-4100 (4-20 mA; MPXI-F6, MPXI-F7 only)	125759
*sold with 6 ft USB cable	

I. Stem Finish Material

K Proprietary PVDF formulation

J. Total Stem Length in Inches

— Min. 120 in. - Max. 600 in.

K. Temperature Sensor Options

MPXI-F8

- 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
- AP** Sensor Quantity and Placement per API 18.2 Standard

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

L. Custom Housing/Electrical Connection

N▲ None

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▲ 316L SS, 3.75lb, 2"Ø x 5" H; modular

P. High Level Switch

- N** None
- H** Normally Closed Switch, fixed distance from probe zero reference

Tank Cloud



Put Your Tanks In The Cloud

1 Remote Sensors

Connect to any 4-20mA signal or APG Modbus sensor for constant access to your data. Access up to 10 sensors on a single connection.

2 Use the Internet Backbone

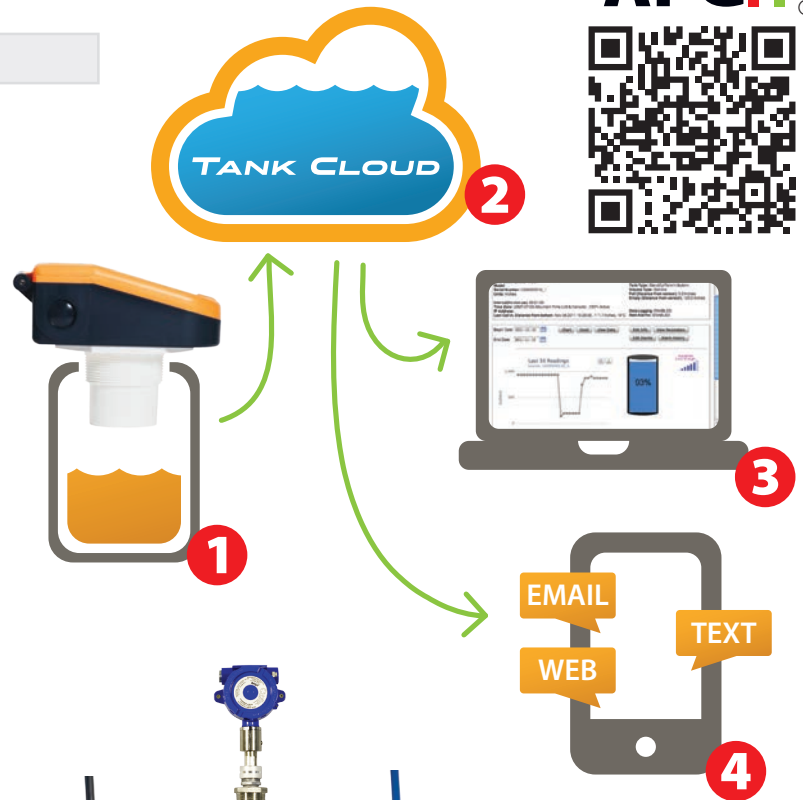
Connect the APG sensor or module to the Internet via landline, radio, cellular, or satellite.

3 View Secure Data 24/7

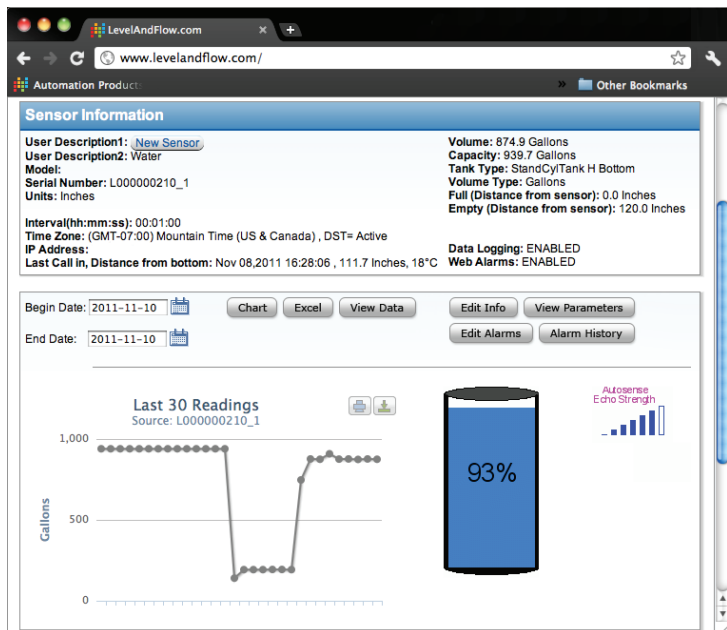
Access sensor data online through our secure portal at levelandflow.com. If the Internet is accessible, so is your information.

4 Stay Up-To-Date

Program custom alarms - receive email and text (sms) message alerts on your computer, mobile phone, or tablet.



The Line-Up:



Online Data Portal

The Tank Cloud data portal, located online at www.levelandflow.com, displays everything you need to know about your measurement.

Here you can:

- View your current and past readings,
- Manage alarms,
- Configure your sensors,
- and Setup user permissions for others in your organization.

Measurements are sorted by location and grouped into sites. Simply select the site you would like to view, and then choose the sensor. Current readings are prominent in the center of the screen.

Contact us today at 888-525-7300 to set-up a demonstration of our sensors and online software. We are excited to show you how it can impact your business.