Explosion Proof and Non-Incendive Magnetostrictive Level Sensors Series: MPX

The MPX Series Magnetostrictive Level sensor provides highly accurate and repeatable level readings in a wide variety of liquid level measurement applications. The MPX-R's large, buoyant, and robust float allows it to be used in harsh applications where fouling or buildup might otherwise be of concern. The MPX-E's lighter weight design allows it to be used in applications where space is limited. The fiberglass stem of the MPX-G expands the already impressive chemical compatibility of the MPX. And the MPX-F's flexible stainless steel stem allows for accurate measurements in environments that are not straight-forward.

Features

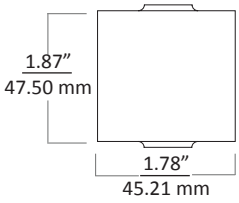
- Class 1 Division 1 Groups C & D, Class 1 Zone 1, Class 1 Zone 2
- Highly accurate and repeatable readings
- 4-20 mA, RS-485 (Modbus RTU) output
- Rugged and reliable, lengths up to 32 feet (9.75 m)
- Dual level (interface) measurement
- Tank volume/level, strapping table

MPX-E Specifications

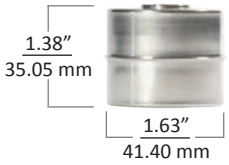
MPX-E Floats

Floats A, B

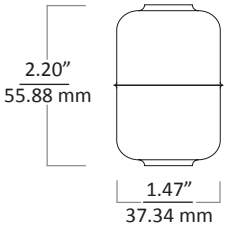
Float E



Floats C, D



Float F



Performance

- Resolution:
  - 4-20 mA: 14 bit DAC
  - Modbus: 0.04 in. (1mm)
- Accuracy: ±0.05% of full scale

Programming

- RS-485: optional RST-6001USB to RS-485 converter
- 4-20 mA: factory set or
  optional RST-4100 programming module.

Environmental

- Operating Temperature: -40° - 185°F (-40° - 85°C)
- NEMA 4X, IP65

Physical

- Housing: Cast aluminium, epoxy coated
- Stem: 0.5” ø 304 SS or 316L SS
- Stem Length: 1 - 12.75 ft. (0.3 - 3.9 m)

Electrical

- Electrical Connection: Terminal Block, 12-24 VDC
- Total current draw:
  - 4-20 mA: (single) 22 mA, (dual) 44 mA
  - Modbus (RS-485): 25 mA

Connectivity

- Output:
  - Single or dual loop-powered 4-20 mA
  - Modbus RTU (RS-485) with optional Temperature output

Certification

- NEMA 4X, IP65
- CSA:
  - Class I Division 1 Groups C & D T4 (Ta 85°C)
  - Class I Division 2 Groups C & D T4 (Ta 85°C)
  - Class I, Zone 1; AEx d IIB T4
  - Class I, Zone 2; AEx nA IIB T4
  - Ex d IIB T4
  - Ex nA IIB T4

Model Configuration Options

Model Number: MPX - _E_ ____ ____ - ____ ____ - ____ ____ ____ ____ - ____ - ____ - _____
A B C D E F G H I J L N

A. Stem Type

☐ **E** 0.5 in. diameter SS

B. Output

☐ **1** Modbus RTU
☐ **2** Single float, 4-20 mA (loop powered, 2 wire)
☐ **3** Dual float, 4-20 mA (loop powered, 3 wire)
☐ **4** Modbus RTU, surge/lightning protection

C. Housing Type

All Housing Die-cast Aluminum, NEMA 4X, IP68, Blue

☐ **__**▲ Large Housing
☐ **A** Small Housing
☐ **B** Large Housing with window
☐ **C** Small Housing with window

D. Float 1 (Top Float)

☐ **A** 316L SS Round (0.65 SG)
☐ **B** 316L SS Round (0.92 SG)
☐ **C** 316L SS Cylindrical (0.65 SG)
☐ **D** 316L SS Cylindrical (0.92 SG)
☐ **E** Buna-N (0.5 SG)
☐ **F** 316 SS 3A Cylindrical (0.5 SG)

E. Float 2 (optional)

☐ **N** None
☐ **B** 316L SS Round (0.92 SG)

F. Mounting Option

☐ **F** Flat Face ANSI Flange 150#
☐ **R** Raised Face Flange 150#
☐ **S** 3A Sanitary ferrule
☐ **P** NPT Plug 150#
☐ **N** None
☐ **O** Other

▲This option is standard

G. Mounting Size

☐ **__** Available in 0.5" increments from 1" to 4", and 1" increments from 4" to 6"

H. Mounting Connection

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

I. Stem Material

☐ **A** 304 SS
☐ **B** 316L SS

J. Total Stem Length in Inches

☐ **__** Min. 12 in. - Max. 153 in.

L. Float Stop Options

☐ **__**▲ 0.5 in. Stem, 316L SS, 1 piece, 0.75 in. OD
☐ **A** 0.5 in. Stem, 316L SS, 1 piece, 1.5 in. OD

N. Optional Temperature Sensor

MPX-E1/E4

☐ **T__** RTD in stem, with location in inches from bottom of probe (default is 6")

N. 4-20 Output Set Points

MPX-E2/E3

☐ **A__** 4mA set point location, in inches from bottom of probe
☐ **B__** 20mA set point location, in inches from top of probe

MPX Accessories

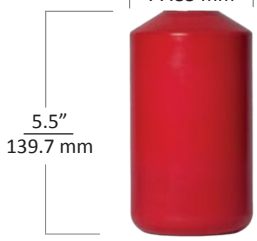
Please order separately, by part number.

Description	Part Number
Programming Module	
RST-6001 (Modbus: MPX-x1, MPX-x4)	125734
RST-4100 (4-20mA: MPX-x2, MPX-x3)	125759
*sold with 6 ft USB cable	

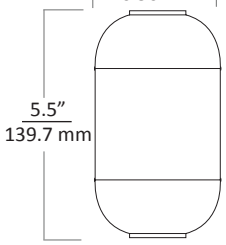
MPX-R Specifications

MPX-R Floats

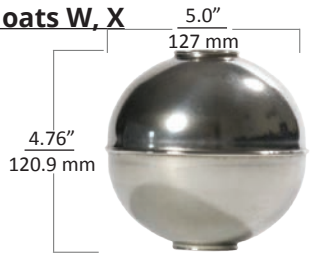
Floats Y, Z



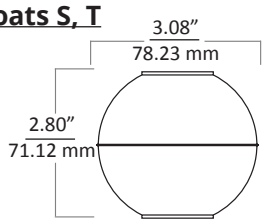
Floats U, V



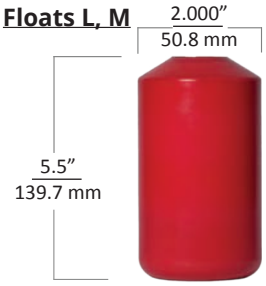
Floats W, X



Floats S, T



Floats L, M



Floats P, R

Performance

- Resolution:
  - 4-20 mA: 14 bit DAC
  - Modbus: 0.04 in. (1mm)
- Accuracy: ±0.05% of full scale

Programming

- RS-485: optional RST-6001USB to RS-485 converter
- 4-20 mA: factory set or
  optional RST-4100 programming module.

Environmental

- Operating Temperature: -40° - 185°F (-40° - 85°C)
- NEMA 4X, IP65

Physical

- Housing: Cast aluminium, epoxy coated
- Stem: 1.0” ø 316L SS
- Stem Length: 4 - 31.5 ft. (1.22 - 9.60 m)
- Float Sleeve (Floats P & R only):
  .035” thick Titanium 2

Electrical

- Electrical Connection: Terminal Block, 12-24 VDC
- Total current draw:
  - 4-20 mA: (single) 22 mA, (dual) 44 mA
  - Modbus (RS-485): 28 mA

Connectivity

- Output:
  - Single or dual loop-powered 4-20 mA
  - Modbus RTU (RS-485) with Temperature output

Certification

- NEMA 4X, IP65
- CSA:
  - Class I Division 1 Groups C & D T4 (Ta 85°C)
  - Class I Division 2 Groups C & D T4 (Ta 85°C)
  - Class I, Zone 1; AEx d IIB T4
  - Class I, Zone 2; AEx nA IIB T4
  - Ex d IIB T4
  - Ex nA IIB T4

Model Configuration Options

Model Number: MPX - _R_ ____ ____ - ____ ____ - ____ ____ ____ _B_ - ____ - ____ - _____
A B C D E F G H I J L N

A. Stem Type

☐ **R** 1 in. diameter 316L SS

B. Output

☐ **1** Modbus RTU w/ stem RTD temperature sensor
☐ **2** Single float, 4-20 mA (loop powered, 2 wire)
☐ **3** Dual float, 4-20 mA (loop powered, 3 wire)
☐ **4** Modbus RTU, surge/lightning protection, stem RTD temperature sensor

Note: stem RTDs are located 3" from bottom of probe

C. Housing Type

All Housing Die-cast Aluminum, NEMA 4X, IP68, Blue

☐ **__**▲ Large Housing
☐ **B** Large Housing with window

D. Float 1 (Top Float)

☐ **Z** 5.5h x 3d in. Red Polyurethane (0.65 SG)
☐ **Y** 5.5h x 3d in. Blue Polyurethane (0.94 SG)
☐ **X** 5 in. Round 316L SS (0.52 SG)
☐ **W** 5 in. Round 316L SS (0.92 SG)
☐ **V** 6h x 3d in. Oval 316L SS (0.58 SG)
☐ **U** 6h x 3d in. Oval 316L SS (0.94 SG)
☐ **T** 3 in. Round 316L SS (0.60 SG)
☐ **S** 3 in. Round 316L SS (0.94 SG)
☐ **R** 5.5h x 2.8d in. Red Polyurethane (0.59 SG)
☐ **P** 5.5h x 2.8d in. Blue Polyurethane (0.94 SG)
☐ **M** 5.5h x 2d in. Red Polyurethane (0.57 SG)
☐ **L** 5.5h x 2d in. Blue Polyurethane (0.94 SG)
☐ **N** None
☐ **O** Other

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)
☐ **P** 5.5h x 2.8d in. Blue Polyurethane (0.94 SG)
☐ **L** 5.5h x 2d in. Blue Polyurethane (0.94 SG)
☐ **O** Other

F. Mounting Option

☐ **F** Flat Face ANSI Flange 150#
☐ **R** Raised Face Flange 150#
☐ **S** 3A Sanitary ferrule
☐ **P** NPT Plug 150#
☐ **N** None
☐ **O** Other

G. Mounting Size

☐ **__** Available in 0.5" increments from 2" to 4", and 1" increments from 4" to 6"

H. Mounting Connection

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

I. Stem Material

☐ **B** 316L SS

J. Total Stem Length in Inches

☐ **__** Min. 48 in. - Max. 378 in.

L. Float Stop Options

☐ **__**▲ 1 in. Stem, 316L SS, 1 piece, 1.5 in. OD
☐ **C** 1 in. Stem, 316L SS, 2 piece, 1.75 in. OD
☐ **D** 1 in. Stem, Titanium 2, 1 piece, 1.5 in. OD

N. 4-20 Output Set Points

MPX-R2/R3

☐ **A__** 4mA set point location, in inches from bottom of probe
☐ **B__** 20mA set point location, in inches from top of probe

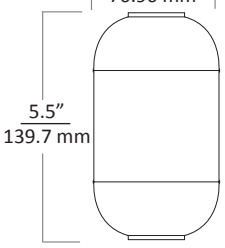
▲This option is standard

MPX-G Specifications

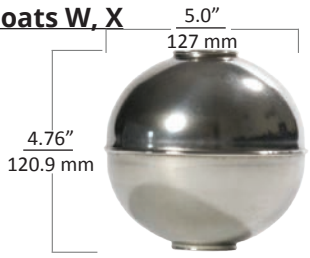
MPX-G Floats

Floats Y, Z

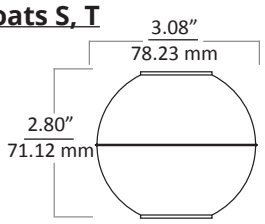
Floats U, V



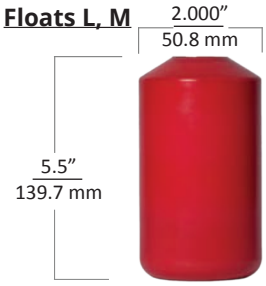
Floats W, X



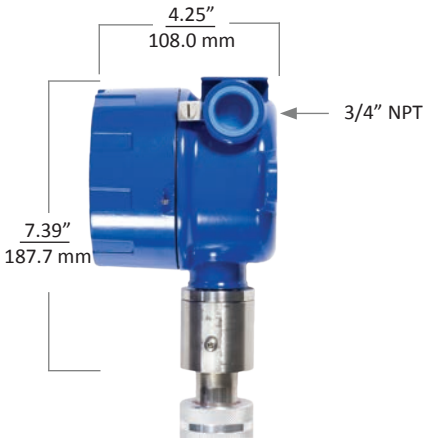
Floats S, T



Floats L, M



Floats P, R



Performance

- Resolution:
  - 4-20 mA: 14 bit DAC
  - Modbus: 0.04 in. (1mm)
- Accuracy: ±0.05% of full scale

Programming

- RS-485: optional RST-6001USB to RS-485 converter
- 4-20 mA: factory set or
  optional RST-4100 programming module.

Environmental

- Operating Temperature: -40° - 185°F (-40° - 85°C)
- NEMA 4X, IP65

Physical

- Housing: Cast aluminium, epoxy coated
- Stem: 1.0” ø Isophthalic Polyester Resin Fiberglass
- Stem Length: 4 - 20 ft. (1.22 - 6.10 m)
- Float Sleeve (Floats P & R only):
  .035” thick Titanium 2

Electrical

- Electrical Connection: Terminal Block, 12-24 VDC
- Total current draw:
  - 4-20 mA: (single) 22 mA, (dual) 44 mA
  - Modbus (RS-485): 28 mA

Connectivity

- Output:
  - Single or dual loop-powered 4-20 mA
  - Modbus RTU (RS-485) with Temperature output

Certification

- NEMA 4X, IP65
- CSA:
  - Class I Division 1 Groups C & D T4 (Ta 85°C)
  - Class I Division 2 Groups C & D T4 (Ta 85°C)
  - Class I, Zone 1; AEx d IIB T4
  - Class I, Zone 2; AEx nA IIB T4
  - Ex d IIB T4
  - Ex nA IIB T4

Model Configuration Options

Model Number: MPX - _G_ ____ ____ - ____ ____ - ____ ____ ____ _D_ - ____ - ____ - _____
A B C D E F G H I J L N

A. Stem Type

☐ **G** 1 in. diameter Fiberglass

B. Output

☐ **1** Modbus RTU w/ stem RTD temperature sensor
☐ **2** Single float, 4-20 mA (loop powered, 2 wire)
☐ **3** Dual float, 4-20 mA (loop powered, 3 wire)
☐ **4** Modbus RTU, surge/lightning protection, stem RTD temperature sensor

Note: stem RTDs default to 6" from bottom of probe

C. Housing Type

All Housing Die-cast Aluminum, NEMA 4X, IP68, Blue

☐ **__**▲ Large Housing
☐ **B** Large Housing with window

D. Float 1 (Top Float)

☐ **Z** 5.5h x 3d in. Red Polyurethane (0.65 SG)
☐ **Y** 5.5h x 3d in. Blue Polyurethane (0.94 SG)
☐ **X** 5 in. Round 316L SS (0.52 SG)
☐ **W** 5 in. Round 316L SS (0.92 SG)
☐ **V** 6h x 3d in. Oval 316L SS (0.58 SG)
☐ **U** 6h x 3d in. Oval 316L SS (0.94 SG)
☐ **T** 3 in. Round 316L SS (0.60 SG)
☐ **S** 3 in. Round 316L SS (0.94 SG)
☐ **R** 5.5h x 2.8d in. Red Polyurethane (0.59 SG)
☐ **P** 5.5h x 2.8d in. Blue Polyurethane (0.94 SG)
☐ **M** 5.5h x 2d in. Red Polyurethane (0.57 SG)
☐ **L** 5.5h x 2d in. Blue Polyurethane (0.94 SG)
☐ **N** None
☐ **O** Other

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)
☐ **P** 5.5h x 2.8d in. Blue Polyurethane (0.94 SG)
☐ **L** 5.5h x 2d in. Blue Polyurethane (0.94 SG)
☐ **O** Other

▲This option is standard

F. Mounting Option

☐ **F** Flat Face ANSI Flange 150#
☐ **R** Raised Face Flange 150#
☐ **S** 3A Sanitary ferrule
☐ **P** NPT Plug 150#
☐ **N** None
☐ **O** Other

G. Mounting Size

☐ **__** Available in 0.5" increments from 2" to 4", and 1" increments from 4" to 6"

H. Mounting Connection

☐ **S**▲ Slide with Compression Fitting (adjustable)

I. Stem Material

☐ **D** Isophthalic Polyester Resin Fiberglass

J. Total Stem Length in Inches

☐ **__** Min. 48 in. - Max. 240 in.

L. Float Stop Options

☐ **C** 1 in. Stem, 316L SS, 2 piece, 1.75 in. OD
☐ **E** 1 in. Stem, Aluminum 2 piece, 1.75 in. OD

N. Temperature Sensor Options

MPX-G1

☐ **T__** Specify location of stem RTD in inches from bottom of probe (6" is standard location)

MPX-G4

☐ **T__** Specify location of stem RTD in inches from bottom of probe (6" is standard location)
☐ **1T_** Digital Temperature Sensor A (no RTD) and location from bottom of probe in inches
☐ **2T_** Digital Temperature Sensors A (no RTD), B and locations from bottom of probe in inches
☐ **3T_** Digital Temperature Sensors A (no RTD), B, C and locations from bottom of probe in inches
☐ **4T_** Digital Temperature Sensors A (no RTD), B, C, D and locations from bottom of probe in inches
☐ **5T_** Digital Temperature Sensors A (no RTD), B, C, D, E and locations from bottom of probe in inches

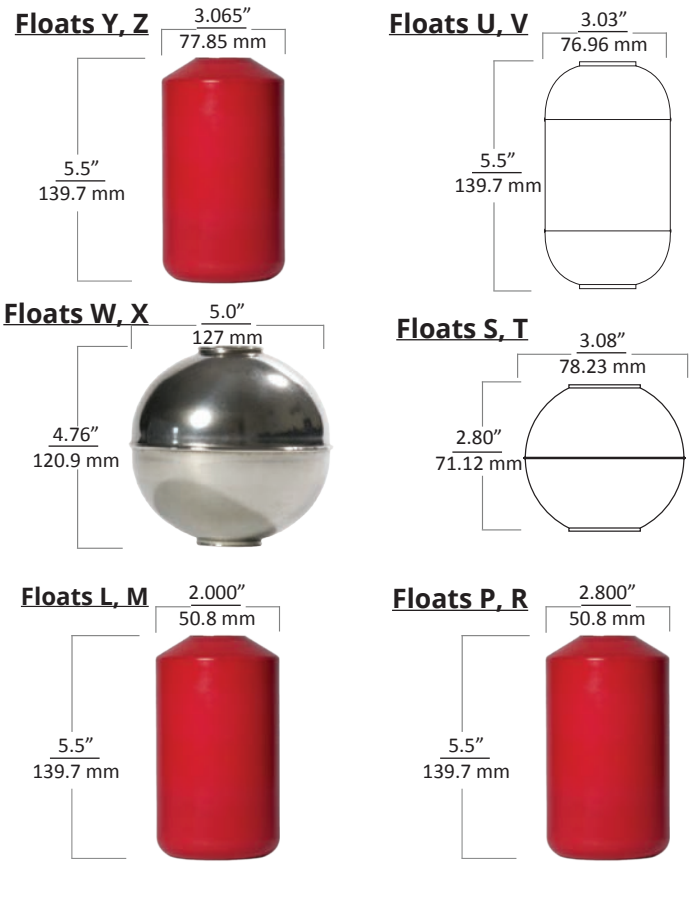
N. 4-20 Output Set Points

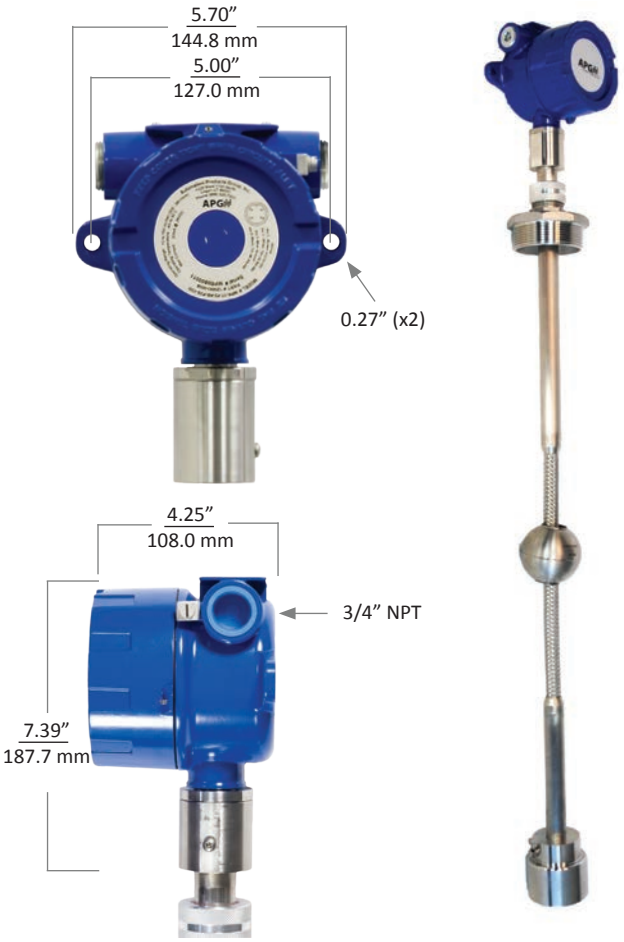
MPX-G2/G3

☐ **A__** 4mA set point location, in inches from bottom of probe
☐ **B__** 20mA set point location, in inches from top of probe

MPX-F Specifications

MPX-F Floats





Performance

- Resolution:
  - 4-20 mA: 14 bit DAC
  - Modbus: 0.04 in. (1mm)
- Accuracy: ±0.05% of full scale

Programming

- RS-485: optional RST-6001USB to RS-485 converter
- 4-20 mA: factory set or
  optional RST-4100 programming module.

Environmental

- Operating Temperature: -40° - 185°F (-40° - 85°C)
- NEMA 4X, IP65

Physical

- Housing: Cast aluminium, epoxy coated
- Stem: 7/8” ø Flexible Tubing with Braid, 316L SS
- Stem Length: 10 - 32 ft. (3.05 - 9.75 m)
- Float Sleeve (Floats P & R only):
  .035” thick Titanium 2

Electrical

- Electrical Connection: Terminal Block, 12-24 VDC
- Total current draw:
  - 4-20 mA: (single) 22 mA, (dual) 44 mA
  - Modbus (RS-485): 28 mA

Connectivity

- Output:
  - Single or dual loop-powered 4-20 mA
  - Modbus RTU (RS-485) with Temperature output

Certification

- NEMA 4X, IP65
- CSA:
  - Class I Division 2 Groups C & D T4 (Ta 85°C)
  - Class I, Zone 2; AEx nA IIB T4
  - Ex nA IIB T4

Model Configuration Options

Model Number: MPX - _F_ ____ ____ - ____ ____ - ____ ____ ____ _B_ - ____ - ____ ____ - _____
A B C D E F G H I J L M N

A. Stem Type

☐ **F** 7/8 in. diameter Flexible Tubing with Braid, 316L SS

B. Output

☐ **1** Modbus RTU w/ stem RTD temperature sensor
☐ **2** Single float, 4-20 mA (loop powered, 2 wire)
☐ **3** Dual float, 4-20 mA (loop powered, 3 wire)
☐ **4** Modbus RTU, surge/lightning protection, stem RTD temperature sensor

Note: stem RTDs are located 6" from bottom of probe

C. Housing Type

All Housing Die-cast Aluminum, NEMA 4X, IP68, Blue

☐ **__**▲ Large Housing
☐ **B** Large Housing with window

D. Float 1 (Top Float)

☐ **Z** 5.5h x 3d in. Red Polyurethane (0.65 SG)
☐ **Y** 5.5h x 3d in. Blue Polyurethane (0.94 SG)
☐ **X** 5 in. Round 316L SS (0.52 SG)
☐ **W** 5 in. Round 316L SS (0.92 SG)
☐ **V** 6h x 3d in. Oval 316L SS (0.58 SG)
☐ **U** 6h x 3d in. Oval 316L SS (0.94 SG)
☐ **T** 3 in. Round 316L SS (0.60 SG)
☐ **S** 3 in. Round 316L SS (0.94 SG)
☐ **R** 5.5h x 2.8d in. Red Polyurethane (0.59 SG)
☐ **P** 5.5h x 2.8d in. Blue Polyurethane (0.94 SG)
☐ **M** 5.5h x 2d in. Red Polyurethane (0.57 SG)
☐ **L** 5.5h x 2d in. Blue Polyurethane (0.94 SG)
☐ **N** None
☐ **O** Other

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)
☐ **P** 5.5h x 2.8d in. Blue Polyurethane (0.94 SG)
☐ **L** 5.5h x 2d in. Blue Polyurethane (0.94 SG)
☐ **O** Other

F. Mounting Option

☐ **F** Flat Face ANSI Flange 150#
☐ **R** Raised Face Flange 150#
☐ **S** 3A Sanitary ferrule
☐ **P** NPT Plug 150#
☐ **N** None
☐ **O** Other

G. Mounting Size

☐ **__** Available in 0.5" increments from 2" to 4", and 1" increments from 4" to 6"

H. Mounting Connection

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

I. Stem Material

☐ **B** 316L SS

J. Total Stem Length in Inches

☐ **__** Min. 120 in. - Max. 384 in.

L. Float Stop Options

☐ **__**▲ 1 in. Stem, 316L SS, 1 piece, 1.5 in. OD
☐ **C** 1 in. Stem, 316L SS, 2 piece, 1.75 in. OD
☐ **D** 1 in. Stem, Titanium 2, 1 piece, 1.5 in. OD

M. Weights

☐ **W1** 5lb weight, Standard for MPX-F 12 ft or shorter
☐ **W2** 10lb weight, Standard for MPX-F longer than 12 ft

N. Temperature Sensor Options

MPX-F1

☐ **T__** Specify location of stem RTD in inches from bottom of probe (6" is standard location)

MPX-F4

☐ **T__** Specify location of stem RTD in inches from bottom of probe (6" is standard location)

☐ **1T_** Digital Temperature Sensor A (no RTD) and location from bottom of probe in inches
☐ **2T_** Digital Temperature Sensors A (no RTD), B and locations from bottom of probe in inches
☐ **3T_** Digital Temperature Sensors A (no RTD), B, C and locations from bottom of probe in inches
☐ **4T_** Digital Temperature Sensors A (no RTD), B, C, D and locations from bottom of probe in inches
☐ **5T_** Digital Temperature Sensors A (no RTD), B, C, D, E and locations from bottom of probe in inches

N. 4-20 Output Set Points

MPX-F2/F3

☐ **A__** 4mA set point location, in inches from bottom of probe
☐ **B__** 20mA set point location, in inches from top of probe

▲This option is standard

Tank Cloud

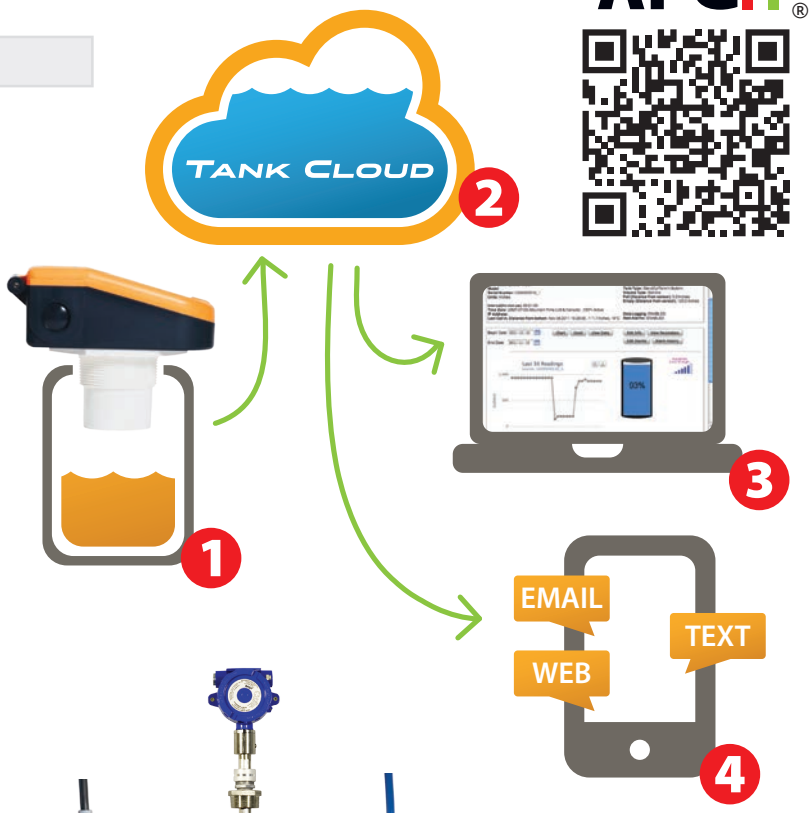
Put Your Tanks In The Cloud

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.

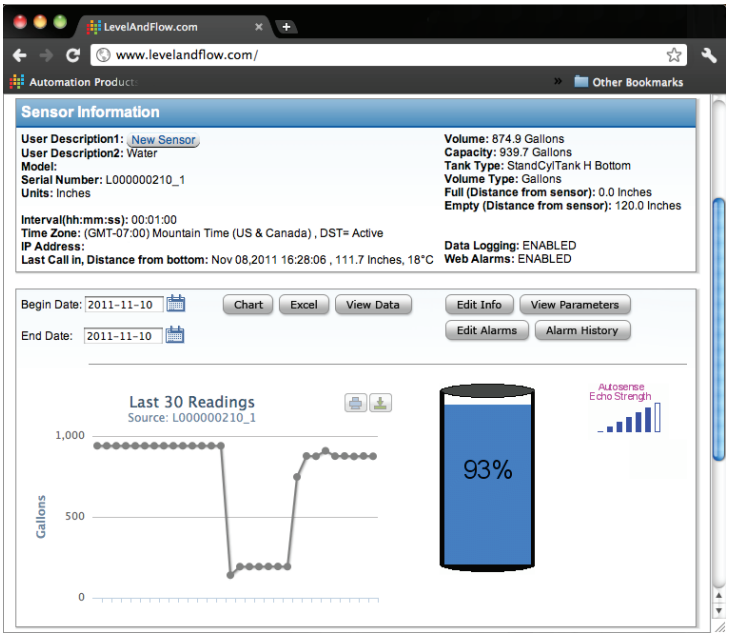
2 Use the Internet Backbone
Connect the APG sensor or module to the Internet via landline, radio, cellular, or satellite.

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.