



Automation Products Group, Inc.

# 2019 OIL & GAS CATALOG



# ABOUT APG

At APG, we are dedicated to designing and manufacturing innovative level and pressure sensors to match the application needs of our customers. As part of our dedication to meet your application needs, in 2019 we are releasing two new product lines, Vertical Stainless Steel Float Switches and Side Mount Stainless Steel Float Switches, and intrinsically safe models of two longtime products, the MND IS and MPX IS.

APG has specialized in matching application needs with the right sensing technologies since the early 70's. Our sensors are used in applications across a variety of industries including:

- Water / Wastewater
- Food / Beverage
- Chemical / Petrochemical
- Mining / Minerals
- Medical / Pharmacy
- Aerospace / Military
- Oil / Gas
- Car Wash
- Agriculture



Our primary goal at APG is to provide reliable products and solutions to our customers that are backed by exceptional customer service. As part of our customer service efforts, we added an online store at [store.apgsensors.com](http://store.apgsensors.com). Now you can quickly check prices, place orders, and view stock all while connected to your current customer account.

Automation Products Group, Inc. (APG) is an ISO 9001:2015 certified manufacturer. With very few exceptions, APG manufactures its sensors from start to finish at our facilities in Logan, UT.





# APPLICATIONS

## **MUDLOGGER AND EDR**

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Mud Logging and EDR rely on several necessary measurements to control the process. We provide you with field proven mud level and pressure measurement instrumentation.

Our mud level probe, the RPM, our loop-powered ultrasonic sensors, the LPU-2127 and LPU-2428, are all used widely in mud level applications.

The HU hammer union pressure transducer is used across the globe for monitoring mud pressure during the drilling process, along with our PT-400.

## **MEASUREMENT WHILE DRILLING**

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Measurement While Drilling (MWD) involves high pressures and extreme vibration. You need a pressure sensor that has been built from the ground up for lasting performance.

The HU hammer union pressure transducer is field proven, and features welded construction and corrosion-resistant material.

## **PRODUCTION TANK LEVEL**

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Oil and gas production tanks often contain water, especially as wells age. Separating the water from the oil must be precise to preserve as much oil as possible.

Our MPX high resolution level probe is very accurate, and is capable of a dual level measurement, for both the total level, and the oil-water interface level. This level allows the water to be extracted with very little oil content, preserving profit and easing the water treatment process.

# PRESSURE TRANSDUCERS

## HOW THEY WORK

APG's pressure transducers use piezoresistive principles to monitor pressure. The sensors contain a sensing element that is attached to a diaphragm. As the diaphragm flexes from pressure, the sensing element changes relative to pressure to provide a basis for measure.

### PT-405

Explosion Proof

The PT-405 pressure transducer offers high accuracy and reliability over a wide range of pressures with cCSAus approvals.

**NEW!**



### PT-400

For Harsh Conditions & Hazardous Locations

The PT-400 is built for harsh environments, high vibration, high-pressure spikes, and even extended temperature compensation.



	PT-400	PT-405
Range	up to 30,000 psi	
Output	4-20 mA, Voltage, Modbus	4-20 mA, 0-5 V, 0-10 V, RS-485
Accuracy	0.1 % of f.s.	0.25 % or 0.1 % of f.s.
Enclosure Protection	—	
Temperature Range	-40 to 180 F	
Certification	Intrinsically Safe CSA C1D1, ATEX, IECEx (4-20 mA only)	CSA C1D1; Explosion Proof



## Hammer Union Pressure Transducers

APG's Hammer Union Pressure Transducers are built for extreme pressure, intense vibration, and rough handling. Built with a smart design, these sensors feature a wider top for easy connector access, large drain holes to keep water from collecting around the electronics, and an optional halo cage.

### HU-1502I

Intrinsically Safe, Sour Gas Compatible  
The toughness you need in a Hammer Union now with a recalibration port!

**NEW!**



### HU-1502

Built Tough for Oil & Gas Applications  
The HU-1502 has a 1502 fitting and is certified for global use in hazardous locations for pressures up to 15,000 psi.

### HU-2202

Durability in a Smaller Package  
The HU-2202 is available with a 2002 or 2202 fitting and is certified for global use in hazardous locations for pressures up to 20,000 psi.



	HU-1502I	HU-1502	HU-2202
Range	up to 20,000 psi	up to 15,000 psi	up to 20,000 psi
Output	4-20 mA, 0-5 V		
Accuracy	≤ 0.25 % of f.s.	0.25 % of f.s.	0.25 % of f.s.
Enclosure Protection	IP67/IP65, NACE	IP68, NACE	IP68, NACE
Temperature Range	-40 to 185° F		
Certification	Intrinsically Safe CSA C1D1, ATEX, IECEx (4-20 mA only)		



# ULTRASONIC LEVEL SENSORS

## HOW THEY WORK

Ultrasonic sensors measure distance by sending sound waves above 20 Hz that echo off of a target and return to the transmitter. The time it takes the sound burst to return to the sensor is measured and translated into a distance measurement that can be converted into a level indication, volume measurement, or rate of flow by the sensor's microprocessor.

### MNU IS

Intrinsically Safe Modbus Sensor

With the mounting and range flexibility of the MNU, the MNU IS brings worry-free level monitoring and remote Modbus controls to hazardous locations.

**NEW!**



### LPU-2127

Built-in Keypad & Display

The LPU-2127 features a built in keypad and LCD display for easy programming that can be done entirely through the keypad.



### LPU-2428

Intrinsically Safe, Loop-powered

Made for highly configurable measurement in linear and non-linear tanks and channels, the LPU-2428 can internally calculate distance, level, flow, and volume.



	MNU IS	LPU-2428	LPU-2127
Range	4 in to 40 ft	1 to 25 ft	
Output	Modbus RS-485	4-20 mA	
Mount	2 in NPT		
Certification	Intrinsically Safe CSA C1D1, IECEx, ATEX	Intrinsically Safe CSA C1D1	CSA C1D2

# SUBMERSIBLE PRESSURE TRANSDUCERS

## HOW THEY WORK

APG's submersible pressure transducers read in feet or inches of liquid that are converted to PSI. They use piezoresistive principles to monitor pressure, just like our other pressure transducers.

APG's PT-500 Series Submersible Pressure Transducers are the only transducers on the market with built-in lightning protection, Class 1, Division 1 certification, and field adjustable zero. The PT-500 Series is Tank Cloud compatible for remote monitoring via the internet

### PT-500-P1

For Clean Liquids

The PT-500-P1 has a nose cone fitting and is designed for use in clean liquids.

### PT-500-P38

For Mixed Fluids

The PT-500-P38 has a choice of patented removable, reusable or fixed, welded cage, and is designed for use in caustic, turbulent, and dirty liquid.



PT-500-P1



PT-500-P38

	PT-500-P1	PT-500-P38
Output	4-20 mA, Modbus RS-485	
Range	up to 450 ft	
Lightning Protection	Built-in, IEC 61000-4-5	
Body	316L SS	
Nose Cone	Delrin	—
Cage	—	316L SS
Certification	Intrinsically Safe CSA C1D1/C1D2 (4-20 mA only)	

# CONTINUOUS FLOAT LEVEL PROBES

## HOW THE MPX WORKS

The MPX Magnetostrictive Liquid Level Probes send electrical pulses that align the molecules to a magnetic field down a metal waveguide in the stem. The magnet in the floats create a competing magnetic field that sends a strain pulse back to the sensor when reached by the electrical pulse. The strain pulse is then used to determine the position of the floats to provide a level measurement.

### MPX-E/R

Explosion Proof

The MPX-E's light weight design makes it ideal for applications where space is limited, while the MPX-R's large, robust floats and stem make it ideal for harsh applications where fouling or build up might be a concern.

### MPX-E Chemical

Chemical Resistant

With a chemical resistant coating and a Kynar® float, the MPX-E Chemical delivers precision measurements in corrosive, acidic and marine environments.

### MPX-F

Flexible Stem

The MPX-F features a 316L SS flexible tubing braided stem that uncoils easily for simple installation in tall tanks.

NEW MODELS COMING SOON



MPX-E/R



MPX-E  
CHEMICAL



MPX-F



## HOW THE RP WORKS

The RPM Resistive Liquid Level Sensors have a magnetic float that travels up and down the sensor stem to close contained reed switches that change the resistance of the sensor. The change in resistance causes a voltage fluctuation that is directly proportional to the float position, providing a level reading.

### RP-X

1/2" Stem - Liquid Level Probe for Hazardous Locations

The RP is a durable liquid level probe with a 1/2" stem designed for use in smaller tanks, up to 6 ft. in height.

### RPM

1" Stem - Explosion Proof Liquid Level Probe

The RPM is made to work for you and is completely customizable for your needs including: probe length, float type, specific gravity and outputs.



RP-X

RPM

	MPX-E/R	MPX-E Chemical	MPX-F	RP-X	RPM
Max Length	Custom	12.75 ft	32 ft	6 ft	20 ft
Stem	304 SS or 316L SS	1/2" 316L SS with coating	7/8" ø Flexible Tubing with Braid, 316L SS	304 SS, 316L SS	316L SS
Output	RS-485 Modbus, 4-20 mA Loop Powered			Resistive, 4-20 mA Loop-Powered	
Mount	NPT, Flange, No Mount	NPT	NPT, Flange, No Mount		
Certification	Explosion Proof CSA C1D1, Intrinsic Safety Pending		C1D2	Explosion Proof or Intrinsically Safe CSA C1D1, ATEX	



# RADAR LEVEL TRANSMITTERS

## HOW THEY WORK

Radar sensors calculate level based on the time difference between low-energy, high-frequency impulses sent by the sensor and returned to the sensor after reflecting off of the measured surface. They are ideal for measuring difficult materials where there is foam, vapor, or dust that interferes with other non-contact sensors.

The True Echo™ Pulse Radar Level Transmitters automatically adjust signal power for optimal accuracy and clarity. With echo masking and damping factors programmable via software, getting dependable level readings from difficult materials is simple.

## PRX

Explosion Proof

True Echo™ PRX makes getting dependable level readings in Class I, Division 1, and Class II/III, Division 1 hazardous locations simple.

NEW!



	PRX
Range	1'-17', 1'-50', 1'-100'
Output	2-and 3-wire 4-20 mA and Hart
Enclosure Protection	IP68, NEMA 6

# DISPLAYS & CONTROLLERS

## RST-5003

Web Enabled Controller

Connects up to 10 Modbus sensors in a daisy-chain network or a single 4-20 mA sensor to Tank Cloud.



## DDD/DBD

Din Mounted Digital Display

Din Mounted Digital Bright Displays provide highly configurable, 2 line displays with NEMA 4X / IP65 front facing ratings.



**NEW!**

## MND

Modbus Digital Display

Local display that works with up to 10 sensors as a master, slave, or power source on any Modbus network.



## DDL

Large Digital Display

The DDL features 1.8" digits readable from 100 ft with standard high intensity LED's for direct sun visibility, and a NEMA 4X / IP65 rated enclosure.



**NEW!**

**IS MODELS COMING SOON**

## LPD

Loop-Powered Display

Local display designed to be inserted into a 4-20 mA sensor current loop.



## DDX

Explosion Proof Digital Display

Loop- and line-powered explosion-proof display encased in a cast aluminum FM rated housing.



**NEW!**

	MND	LPD	RST-5003	DDD/DBD	DDL	DDX
Input	RS-485 Modbus	4-20 mA	Modbus, 4-20 mA, 0-2 Switches	4-20 mA, 0-10 V DC		
Output	4-20 mA, 0-5 V, Trip Points	4-20 mA	Modbus, TCP/IP, 2 Relays, 0-2 Isolated SSR	up to 4 relays, Isolated 4-20 mA		
Mount	Handheld, Panel, Wall		Din Rail	Din Rail	Panel, Wall	
Enclosure Protection	IP67	IP67/IP68	—	IP65		

# INTRINSICALLY SAFE

## HOW THEY WORK

Intrinsically Safe (IS) sensors are designed and wired to work on such a low current and voltage that it cannot possibly ignite flammable material. By limiting the energy available within the defined hazardous area, electrical equipment can operate safely even amid hazardous mixtures of gases, dust, and metals.

## COMING SOON

### MPX IS

Intrinsically Safe Level Probe

The MPX IS brings you everything you already love about our magnetostrictive liquid level probe line now with an intrinsically safe rating.



### MND IS

Intrinsically Safe Modbus Digital Display

Now you can get APG's MND local display with an intrinsically safe rating. The display works as a sensor's power source and display for a complete IS system.



### MNU IS

Intrinsically Safe Modbus Sensor

With the mounting and range flexibility of the MNU, the MNU IS brings worry-free level monitoring and remote Modbus controls to hazardous locations.



**NEW!**

## INTRINSICALLY SAFE SENSORS

- PT-400 p.3
- HU-1502 p.4
- HU-1502I p.4
- HU-2202 p.4
- MNU IS p.5
- LPU-2428 p.5
- PT-500 p.6
- RP p.8
- RPM p.8

# EXPLOSION PROOF

## HOW THEY WORK

Explosion Proof sensors are contained within a housing that is strong enough to contain a flame or an explosion. This method is used where it is impossible to reduce the electrical circuit energy.

### PRX

Explosion Proof

True Echo™ PRX makes getting dependable level readings in Class I, Division 1, and Class II/III, Division 1 hazardous locations simple.

**NEW!**



### PT-405

Explosion Proof

The PT-405 pressure transducer offers high accuracy and reliability over a wide range of pressures with cCSAus approvals.

**NEW!**



### DDX

Explosion Proof Digital Display

Loop- and line-powered explosion-proof display encased in a cast aluminum FM rated housing.

**NEW!**



## EXPLOSION PROOF SENSORS

- PT-405 p.3
- MPX p.7
- RP p.8
- RPM p.8
- PRX p.9
- DDX p.10



# REMOTE TANK MONITORING

## CONTROLLERS

- RST-5003 p.10

## SENSORS

- PT-400 p.3
- PT-405 p.3
- MNU IS p.5
- PT-500 p.6
- MPX p.7

## Tank Cloud

Allows you to view measurements from your sensors anywhere you have an internet connection.

### 1. Connect a Remote Sensor

Connect any 4-20 mA signal sensor or up to 10 daisy-chained APG Modbus sensors to a Tank Cloud master.

### 2. Use the Internet Backbone

Connect the Tank Cloud master to a pre-existing Internet connection via an Ethernet cable - landline, satellite, radio, or cellular.

### 3. View Measurements Online

Access sensor data online anytime through our secure Tank Cloud portal at [levelandflow.com](http://levelandflow.com). Here you can see everything you need to know about your measurements and can even program your sensors.

### 4. Get Alerts and Long-Term Data

Become further connected to your measurements by programming custom alarms that can be received via email and text, and add data-logging for long-term decisions.



## Tank Minder

Remote Vendor Managed Inventory System (VMIS)

Tank Minder remote tank vendor management system provides real-time tank inventory level so you receive deliveries based on actual need. Tank Minder measures and transmits tank levels to a secure website, where you can view current and past level measurements, and set level-based delivery alerts.



### View Remote Inventory

High performance ultrasonic level sensors are installed on each tank to measure inventory level that is transmitted to an RST-5003 controller so level measurements can be viewed online.

### Define Delivery Alerts

With level-based alerts you are guaranteed to receive inventory deliveries when you need them without having excess or running out. Simply log on to the secure website and set an alert at the levels you need.

## Tank Mesh Wireless

Scalable and Customizable Telemetry Solutions

Built on 900 MHz radios, Tank Mesh sentinels and stick transceivers can transmit signals from analog or digital sensors up to .05 and 3-4 miles, respectively. Additionally, Tank Mesh networks can be connected to the online Tank Cloud data portal by integrating a Tank Cloud master into the network.





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