APG

Automation Products Group, Inc.
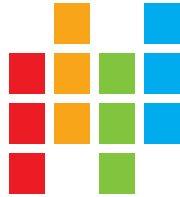
WATER &
WASTEWATER CATALOG

ABOUT APG

At APG, our primary goal is to enrich lives by providing reliable solutions and products to our customers. We are dedicated to designing and manufacturing innovative level and pressure sensors to match your application needs. As part of that dedication, we recently released the MPXI-F/B and the MPXI-F/K, two new products that add flexibility to our long-lasting and dependable MPX probe series.
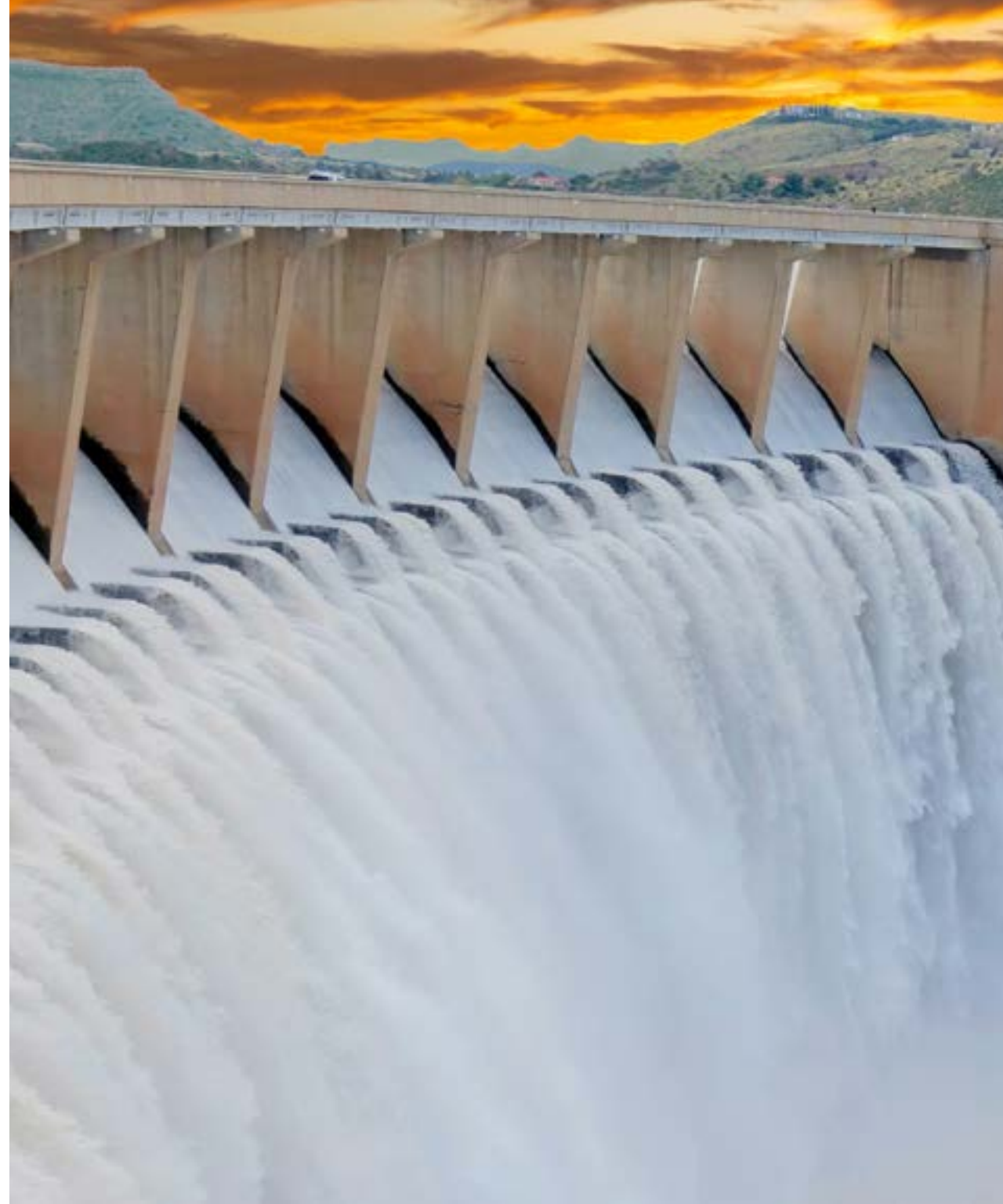
APG has specialized in matching application needs with the right sensing technologies since the early '70s. Our sensors are used in applications across a variety of industries including:

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

As an ISO 9001:2015 certified manufacturer, quality is a commitment we make to our customers at APG. We firmly believe that we cannot succeed if our customers do not succeed. So, what pressure or level measurement and control problems can we help you solve?

Our Measurement Experts are available via phone, email, or web-chat Monday through Friday, from 7 AM to 5 PM Mountain Time, and our online store at store.apgsensors.com is available 24 hours a day. If you prefer, you can fill out the Contact Us form on our website, or find us on LinkedIn, Facebook, Twitter, YouTube, and Instagram.

APPLICATIONS

WELL LEVELS

When customers need a water level sensor for wells, especially deep wells, we recommend our submersible pressure transducer, the PT-500. These water level sensors are inexpensive, versatile, and easy to install, making them a favorite in the water and wastewater industry. The submersible pressure transducer rests at the bottom of a tank or well, and measures level based on the specific gravity of the liquid being measured.

LIFT STATION PUMP CONTROL

Lift stations are an essential component to municipal water and wastewater systems—keeping them in operation and performing properly is vital. Lift stations that aren't performing properly could spell disaster, especially if an overflow occurs; therefore, monitoring the water level in the station is critical. Level sensors can be used to trip alarms or turn on/off pumps automatically if an alarm condition exists. For most lift station applications, we typically recommend using an ultrasonic or radar sensor, since they don't come in contact with the liquid, and then a float switch for an emergency shut off or high level alarm.

OPEN WATER LEVELS

APG's ultrasonic level sensors have been used to measure open waters such as dams, rivers, and irrigation canals. Ultrasonic level sensors are capable of not only measuring water level, but they can measure open channel flow as well. Our new radar sensors are also ideal for use over open or standing water. The radar sensors have inherent advantages over other technologies, such as seeing through mist and foam.

FLOAT SWITCHES

Cable-Suspended Float Switches

KA
Single Float Switch
A single Kari float allows up to four switch points in a single float, saving you money by replacing four single-level float switches. The sensors are durable, highly chemical compatible, and come in 25 configurations, most with built-in hysteresis.

FT-100/300
Single-Point Float Switch
This inexpensive, traditional single-point switch is ideal for simple alarming applications. The sensors trigger immediately above or below horizontal, for a highly repeatable performance that you can count on.

WHERE THEY WORK

An APG float switch can be found for almost every situation because of the variety of materials, arrangements, and capabilities they have. Whether complicated or straight-forward, small vessels or large reservoirs, common liquids or really aggressive chemicals, there is an APG float switch fit for the job.

FS-400 XP
Vertical Stainless Steel Float Switch
All stainless steel wetted materials, operating temperatures up to 500º F, and capable of VDC or VAC operation.

FS-410 XP
Miniature Vertical Float Switch
Designed to measure small spaces, the FS-410 is less than 2.35" in total height and the float is just under 1.2" wide.

FS-500 XP
Stainless Steel Horizontal Float Switch
With reversible switch orientation, three mounting choices, and CSA & NSF 169 certifications, the FS-500 switch is the go-anywhere, use-everywhere horizontal float switch.

Stem-Mounted Float Switches

FLE/FLX/FLR XP
Custom Multi-Point Level Control
The FL series delivers linear level measurement in tight spaces, with a single mount holding up to three (FLE) or seven (FLR/X) switch points customized to your needs.

TLS
Dual-Point Float Switch with Hysteresis
The TLS series cable switches are dual-point switches with built-in hysteresis to provide high- and low-level control that won't wear out your pumps with frequent on/off cycles.

	FS-400	FS-410	FS-500
Material	316L SS		
Max Power	100 W		
Temp. Range	-40° F up to 500° F		
Specific Gravity	0.6	0.7	
Certifications	CSA Explosion-proof to 368°F; General Use to 500°F; All Models NSF 169		

	FLE	FLR	FLX		KA Series	FT-100	FT-300	TLS
Max. Stem Length	Up to 48 in	153 in		Cable Length	16 ft, 49 ft, custom	20 ft, custom 5 ft increments		20 ft, 40 ft, 60 ft
Switch Points	Up to 3	Up to 7		Switch Point(s)	up to 4 NO/NC	1 NO/NC; 1 SPTD	1 NO/NC	NO/NC
Wetted Material	316L SS			Control Range	Variable	N/A	N/A	6 to 8 in
Certification	NEMA 4X, IP68; IP65	—	Flameproof/Explosion-proof - CSA	Certification	General Purpose - CSA			—

ULTRASONIC LEVEL SENSORS

WHERE THEY WORK

Ultrasonic sensors are our workhorse level sensors because they perform well in so many places and environments. Ultrasonics are great for almost all tank-level measurement applications, open channel flow calculations, and monitoring reservoirs, retention ponds, or dam tail-waters. They do well for object detection/profiling in car wash systems, and can be programmed to provide distance, level, or volume output readings.

MNU IS [IS]
Intrinsically Safe Modbus Sensor

Our MNU IS brings worry-free level monitoring and remote Modbus controls to hazardous locations with its intrinsically safe design.

MNU
WebEnabled Modbus Sensor

Built for any situation that requires Modbus, the MNU is compatible with any Modbus controller, and can be monitored online via Tank Cloud.

LOE
WebEnabled Sensor and Controller

Designed for remote measurement, the LOE series connects to the internet to provide online monitoring via Tank Cloud for up to 10 APG Modbus sensors.

	MNU	MNU IS	LOE
Range	4 in to 40 ft		
Output	Modbus RS-485		Modbus TCP/IP
Mount	1, 2, or 3 in NPT	2 in NPT	2 or 3 in NPT
Certification	—	Intrinsically Safe - CSA, IECEx, ATEX	C1D2 - CSA

LPU-2127
Built-In Keypad and Display

The LPU-2127 features an LCD display for easy programming performed entirely through the built-in keypad.

LPU-2428 [IS]
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, open-channel flow, or volume.

IRU-2000
For Object Detection

The IRU-2000 mounts to a flat surface and is ideal for presence/absence detection, object profiling, and a variety of other applications.

IRU-2420, -3400, -5000
Mid-, Long-, and Short-Range Sensors

Designed with flexibility in mind, these series feature auto-sense software for quick, easy programming in a variety of applications.

IRU-6429
Datalogger Compatible

The IRU-6429 features auto-sense software for quick and easy programming, and an excitation input for datalogging.

IRU-9400
For Soft or Reflective Target Surfaces

The IRU-9400 is an indoor sensor with a more sensitive transducer to detect difficult targets such as reflective or soft surfaces.

LPU-2127	LPU-2428	IRU-2000	IRU-2420	IRU-3400	IRU-5000	IRU-6429	IRU-9400
1 to 25 ft	1 to 25 ft	1 to 25 ft	1.5 to 50 ft	4 to 79 in	1 to 30 ft	0.5 to 35 ft	
4-20 mA		1 SSR; Isolated 4-20 mA; RS-485 w/ 1 NPN trip point; 4-20mA w/ 2 NPN trip points	Isolated 4-20 mA, 4-20 mA w/ 2 NPN Trip Points		4-20 mA +/- 2 NPN trips; 0-2.5V, 0-5V +/- RS-232	0-2.5V, 0-5V +/- RS-232	4-20 mA +/- 2 NPN trips; 0-2.5V, 0-5V +/- RS-232
2 in NPT		Surface Mount with 4 screws	2 in NPT	3 in NPT	1 or 2 in NPT	2 in NPT	
C1D2 - CSA	Intrinsically Safe - CSA	—	C1D2 - CSA; General Purpose - CSA			General Purpose - CSA	

WHY THEY WORK

Instead of the physical sound waves used by ultrasonic sensors, radar sensors use electromagnetic waves to measure the distance between the transmitter and the surface of a substance. Thus, they are ideal for measuring difficult materials where there is foam, vapor, or dust that interferes with other noncontact-technology sensors. True Echo™ Radar Level Transmitters have a further advantage in their ability to ignore echoes from identified physical interferences, allowing them to generate a much clearer reading at a much lower power setting.

PRL
Pulse Radar for Liquids

The True Echo™ PRL provides accurate level readings from all types of liquid level measurement, including oil-water interface measurement via additional firmware.

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

WHERE THEY WORK

APG's submersible pressure transducers are incredibly versatile, often used in waste liquids. Their low current draw makes them popular for battery-powered applications. With our pressure transducers, you can get a pressure level reading inside a tank, well, containment vessel, or outside in areas prone to running or standing liquids.

APG's PT-500 Series Submersible Pressure Transducers are the only transducers on the market with built-in lightning transience 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 IS
For Clean Liquids

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

PT-500-P1   **PT-500-P37/39**

PT-500-P37/39 IS
For Mixed Fluids

The patented, welded cage on the PT-500-P37 and -P39 is designed to protect the sensitive diaphragm in turbulent and dirty liquids. The cage is either removable and reusable, or permanently welded to the PT-500.

	PT-500-P1	PT-500-P37/39
Output	4-20 mA, Modbus RS-485	
Range	up to 575 ft	
Lightning Protection	Built-in, IEC 61000-4-5	
Body	316L SS	
Nose Cone	Delrin	—
Cage	—	316L SS
Certification	Intrinsically Safe - CSA (4-20 mA only)	

CONTINUOUS FLOAT LEVEL PROBES

WHY IT WORKS: MPXI-F

Unique among our magnetostrictive probes, the MPXI-F carries world-wide dual certifications: the housing carries Class I Division 1 / Class I Zone 1 Flameproof (Explosion-proof) rating for easy installation, while the stem electronics carry a Class I Zone 0 rating for use in any sealed environment.

MPXI-F/K MPXI-F/B

MPXI-F/K XP
PVDF Flexible Stem
The MPXI-F/K features a proprietary PVDF-blend flexible stem and optional high-level float switch for simple installation in the tallest of tall tanks.

MPXI-F/B XP
Stainless Steel Flexible Stem
The MPXI-F/B features a 316L SS flexible tubing braided stem that uncoils easily for simple installation in tall tanks.

	MPXI-F/K	MPXI-F/B
Max Length	50 ft	32 ft
Stem	5/8" ø Flexible Tubing, PVDF	7/8" ø Flexible Tubing with Braid, 316L SS
Output	RS-485 Modbus; 4-20 mA	
Temperature Sensor	None; Up to 7 Digital; Digital, per API 18.2 spec	
Mount	NPT; No Mount	
Certification	Flameproof/Explosion-proof - CSA, ATEX, IECEx	

WHY IT WORKS: MPX

Our original magnetostrictive probes carry Class I Division 1 / Class I Zone 1 Flameproof (Explosion-proof) certifications for installation in hazardous areas throughout North America.

MPX-E XP
Float Level Transmitter For Small Spaces
With a 0.5"-diameter 316L SS stem that comes in lengths up to 12.75', the MPX-E is built to handle tough environments in small spaces.

MPX-T XP
Titanium Float Level Transmitter
Designed with H2S specifically in mind, the MPX-T's 1"-diameter titanium 2 stem can handle agressive chemicals that other probes cannot.

MPX-E Chemical XP
IS Float Level Transmitter For Harsh Environments
With a coating to keep the probe safe in corrosive liquids, and Intrinsic Safety ratings, the MPI-E Chemical is perfect for small-scale measurements in big-time nasty environments.
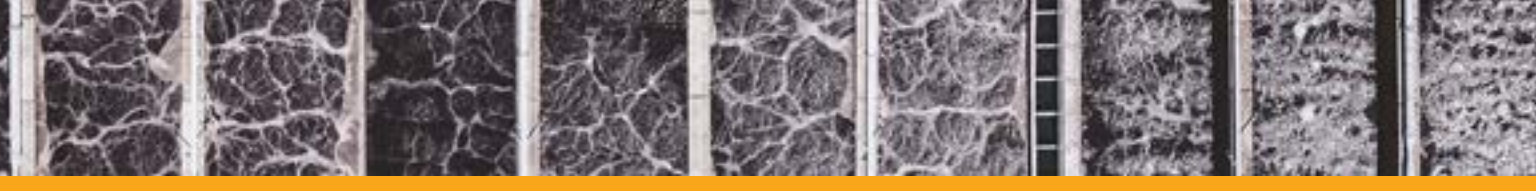
MPX-R XP
Explosion-Proof Float Level Transmitter
The MPX-R's 1"-diameter 316L SS stem and 31.5' max length allow it to bring precision measurement to bigger tanks and thicker liquids.

	MPX-E/R	MPX-E Chemical	MPX-T
Max Length	Custom	12.75 ft	25 ft
Stem	304 SS or 316L SS	1/2" 316L SS with coating	1.0" ø Titanium 2
Output	RS-485 Modbus, 4-20 mA Loop Powered		RS-485 Modbus, 4-20 mA Loop Powered, optional temperature output
Mount	NPT, No Mount	NPT	NPT, No Mount
Certification	Flameproof/Explosion-proof - CSA		

WHY IT WORKS: MPI

Our MPI probes carry Class I Division 1, Class I Zone 0 Intrinsically Safe certifications that are accepted for easy wiring and quick installation nearly world-wide.

MPI-E IS
IS Float Level Transmitter For [...]
With a 0.5"-diameter 316L SS stem that [...] lengths up to 12.75', the MPI-E is built to handle tough environments in small spaces.

MPI-R IS
IS Float Level Transmitter For Large Tanks
The MPI-R's 1"-diameter 316L SS stem and 31.5' max length allow it to bring precision measurement to bigger tanks and thicker liquids.

MPI-F/B IS
IS Flexible Float Level Transmitter
The MPI-F features a 316L SS flexible tubing braided stem that uncoils easily for simple installation in tall tanks.

MPI-T IS
IS Titanium Float Level Transmitter
With a 1" ø titanium stem, Class I Div 1 and Class I Zone 0 approvals, and floats that just don't get stuck, the MPI-T is built to conquer corrosive chemicals and hazardous locations.

MPI-E Chemical IS
IS Float Level Transmitter For Harsh Environments
With a coating to keep the probe safe in corrosive liquids, and Intrinsic Safety ratings, the MPI-E Chemical is perfect for small-scale measurements in big-time nasty environments.

MPI-F/K IS
IS Flexible Float For Very Tall Tanks
The MPI-F/K features a proprietary PVDF-blend flexible stem for easy installation and wiring in the tallest of tall tanks.

	MPI-R	MPI-T	MPI-E	MPI-E Chemical	MPI-F/B	MPI-F/K
Max Length	31.5 ft	25 ft	12.75 ft		32 ft	50 ft
Stem	1.0" ø 316L SS	1.0" ø Titanium	1/2" ø 316L SS	1/2" ø 316L SS with chemical resistant coating	7/8" ø Flexible Tubing with Braid, 316L SS	5/8" ø Flexible with Tubing, PVDF
Output	RS-485 Modbus			RS-485 Modbus; 4-20 mA		
Temperature Sensor	None; Up to 7 Digital					
Mount	NPT; No Mount		NPT		NPT; No Mount	
Certification	Intrinsically Safe - CSA, ATEX, IECEx					

HOW THEY WORK: RESISTIVE CHAIN PROBES

Our RP probes are designed around two technologies that excel in the ultra-tough environments of oil and gas exploration: resistive chains and large, buoyant floats. Inside each probe stem is a chain of resistors linked by reed switches, which are opened and closed by the magnet in the float traveling up and down the stem. No amount of physical shaking or bumping can change the state of a resistor, and the floats are designed to provide unimpeded movement in thick, viscous liquids.

RPE
1/2" Stem - Industrial Strength Level Probe
Designed with small spaces in mind, the RPE combines a 1/2"-diameter stainless steel stem with unsinkable floats for long-lasting, dependable continuous level readings.

RPX XP IS
1/2" Stem - Hazardous Location Level Probe
From mud tanks to meat-processing-plant waste sumps, and any hazardous location in between, the RPX doesn't flinch when called to action in challenging environments.

RPM XP IS
1.25" 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.

	RPE	RPX	RPM
Max Length	12.75 ft	6 ft	20 ft
Stem	1/2" ø 316L SS		1.25" ø 316L SS
Output	Resistive; 4-20 mA		
Mount	NPT	NPT; No Mount	
Certification	—	Explosion-proof / Intrinsically Safe - CSA	Explosion-proof - CSA; Intrinsically Safe - CSA, ATEX, IECEx

WHERE THEY WORK

Monitoring pumps is critical, and gauges installed on or near pumps must be able to handle the associated vibrations. Dial pressure gauges are full of moving parts and small gears easily damaged by over-pressure and vibration, not to mention the reading errors inherent to a dial display. In contrast, each of APG's digital pressure gauges contain a flexible diaphragm as the sole moving part, so constant vibration hurts neither the gauge, nor the digital readout. Designed to withstand over-pressure, vibration, and even water hammer, our digital pressure gauges are accurate and readable in demanding conditions.

PG2
Low-Cost, Indoor/Outdoor Gauge

The PG2 digital gauge comes with auto-off and re-zeroing functions, user-selectable units of measure, and an easy-to read display.

PG5
Full-Feature Indoor Gauge

Serving as the foundation to our PG series of gauges, this full-feature, general purpose gauge is designed for accurate indoor pressure measurements.

PG7
Rugged Full-Feature Gauge

The PG7 is a rugged full-feature gauge perfect for indoor and outdoor use.

PG10
Large Display Gauge

The PG10 is our feature gauge with a large, 5-digit display, 270° radial bar, and datalogging.

	PG2	PG5	PG7	PG10
Range	up to 5,000 psi	up to 10,000 psi	up to 30,000 psi	up to 10,000 psi
Output	—	4-20 mA, 0-2 V, 0-5 V	4-20mA, 0-2 V, 0-5 V; Modbus RTU	
Accuracy	available 0.5 % of f.s.	available 0.1 % of f.s.		
Enclosure Protection	IP65	—		IP65

MND
Modbus Digital Display

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

IS MDI
Intrinsically Safe Modbus Display

CI, Z1 display that can power and control a CI, Z0 or CI, Z1 sensor, with optional passive connection to external monitoring network.

LPD
Loop-Powered Display

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

RST-5003
Web-Enabled Controller

Connects up to 10 daisy-chained Modbus sensors and one 4-20 mA sensor to Tank Cloud for remote viewing and control.

DDD/DBD
Din Mounted Digital Display

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

DDL
Large Digital Display

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

DDX XP
Explosion-Proof Digital Display

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

	MDI	MND	LPD	RST-5003	DDD/DBD	DDL	DDX
Input	Modbus RTU	Modbus RTU	4-20 mA	Modbus, 4-20 mA, 0-2 Switches	4-20 mA, 0-10 V DC		
Output	Modbus RTU	4-20 mA; 0-3 V; 1 SPDT Relay; 2 NO or NC Relays	4-20 mA	Modbus, TCP/IP, 2 Relays, 0-2 Isolated SSR	0, 2, or 4 SPDT Relays; Isolated 4-20 mA		
Mount	Wall	Handheld, Panel, Wall		Din Rail	Panel, Wall		
Enclosure Protection	IP66	IP67	IP67/IP68	—	IP65		

CONTROLLERS

- · LOE   p.6
- · RST-5003   p.14

SENSORS

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- · MNU IS   p.5
- · PT-500   p.8
- · MPX   p.10
- · PG7   p.13
- · PG10   p.13

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 controller.

2. Use the Internet Backbone

Connect the Tank Cloud controller 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. Here you can see everything you need to know about your measurements and adjust the settings on 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 datalogging for long-term decisions.

Remote Vendor Managed Inventory System (VMIS)

Tank Minder remote tank vendor management system provides real time tank inventory levels 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 level sensors are installed on each tank to measure inventory level that is monitored by a local Modbus RTU - Modbus TCP/IP 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 use past readings to determine the alert-levels you need to set for optimal business operations.

APG

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