



Gauging Systems Inc.

Product Line Sheet



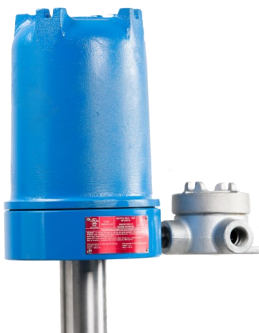
Process & Inventory Measurement

- **2000 APTB² Absolute Transmitter**
The Most Reliable digital transmitter, MODBUS RTU (Fiber Ethernet) or Standard MODBUS TCP/IP, other protocols available. Transmits I.D. echo, Level, Temperature, 4-Discrettes, 8-Analog to Digital, 2- Relay Outputs. Hand held unit for configuration, calibration, and diagnostics. For use with GSI-2570 or most other manufacturers' mechanical tank gauges.
- **2400 Analog Transmitter**
4-20mA or HART protocol, Process Level Transmitter, for use with the GSI-2570 or most other manufacturers' mechanical tank gauges.
- **2020 Limit Switch** Available with 4 to 6 switches or micro adjustable switches. For use with the GSI-2570 and GSI-2550.
- **2530 Target Board Indicator, i.e. Tank Ruler**
Remote indication available via Binoculars and proper installation
- **2550 Magnetic Gauge**
Inventory / Process Level Gauge, Tank Heights from 2-17ft (0.61- 5.18 m).
- **2570 The Worlds Most Reliable Mechanical Tank Gauge & Kits**
Plain and simple, it's a better built mouse trap (Mechanical Tank Gauge)
- **2543 Flood Gauge with Remote Cellular Communications**



Custody Transfer & Inventory Measurement

- **3025 Radar Tank Gauge**
Provides Level (used with 3025 MTP)
- **3100 MMP Capacitance Probe**
Provides level, Multi-point temperature and Water bottom. Designed for tanks 2-17ft (0.61- 5.18m) and other light product applications, No Moving Parts (No Floats or Magnets)
 - **3100 MMP-UST**
Designed for Underground Storage Tanks
 - **3100 MMP-AST**
Designed Above Ground Storage Tank, Horizontal or Vertical Cylinder Tanks
 - **3100 MMP-GAS**
Designed for LPG / LNG Tanks



MTG "Multi-function Tank Gauge" Technology (Patented, Patent Pending)
The MTG Multi-function Tank Gauge provides the most accurate data on the product in your tank. It is the most accurate gauge for Volume, Mass, Temperature, Density, Water, and arguably Level within the shorter spans between transducers.

It provides more information for Loss Control, Safety, Environmental, and Operations than any other tank gauge system ever developed. It provides and exceeds data needed to meet a host of API Recommended Procedures or Standards for Overfill Protection, Rupture Monitoring (Over pressure & Vacuum),



Product Quality (Sampling), Vapor Emissions Monitoring, Leak Detection, Product Stratification Monitoring for In-Tank Blending, Water Settling (Bleeding), etc. thus providing payback on your investment.

Physically MTG is a single (2" standard - 4") S.S. probe instrument that installs from one tank top flange in sections. The standard configuration requires only one Intrinsically Safe electrical connection for power (7 - 14Vdc) and signal (MODBUS RTU), plus I.S. ground. Physically fewer terminations or potential failure points than tank gauging systems using multiple instruments and multiple tank openings.

The MTG doesn't require a gauge well, but can fit within a 6" or larger gauge well along with enough room to do manual hand lines or sampling. This allows the verification of all measured parameters for Volume by Hybrid (Level, Temperature, Density, & Water) or Hydrostatic (Mass, Density, & Water) Method from the same physical location and product media. The ability to verify ATG calibration and to prove accuracy in comparison to the known reference.

MTG is bottom referenced and uses an O-ring seal flange at the tank top to allow for any tank bottom or roof movement. An optional (Manually read or remotely read) TBMI "Tank bottom (and roof) movement indicator" for additional measurement accuracy is also available.

All MTG probe sections and sensor housings are precision machined and measured to determine the exact location and downward orientation of each high accuracy absolute pressure transducer and Class A, 100 Ohm Platinum, Four wire RTD.

MTG is flexible in design and can be manufactured to meet the needs of multiple applications. The installed tank heights range from 8' (2.43m) to 265' (80.77m) and used within most clean (gasoline, JP, etc.) and dirty (crude oil, grease, lubricant additives, etc.) products.

Please see a partial list of configurations below:



- **MTA 3006 "Multi-function Tank Alarm"**

Overfill Protection - High-High, High, Low Level; Rupture Monitoring - Over pressure & Vacuum; Critical sensors - Vapor and Bottom; Measurement - Volume, Mass, Estimated Level. Used in standalone or redundant gauge configurations (MTG 3018, HTP 3055) for **API 2350**.



- **MTG 3012 "Multi-function Tank Gauge" (Standard)**

The most accurate tank gauge in the world for product Volume and Quality Provides the following: Volume, Mass, Level, Multi-point spot temperature, Average temperature, Multi-strata density, Average (Reference) density, Total water (Free, Emulsified, & Entrained water), Vapor (Pressure, Temperature, & Density), Flow Rate (Volume & Mass), Mass sensitivity for Unauthorized Movement (Leak detection, Theft, Improper line-ups, etc.), Product Quality (Real time sampling Top, Middle, Bottom), **Optional: MTG 3013 with Ambient Sensor** (Pressure, Temperature, & Density) for Vapor Emissions Monitoring, Gas Blanket Monitoring, Pressure Relief Vent Monitoring, **Optional: TBMI "Tank Bottom / Roof Movement Indicator"**.

- **MTG LD 3012 "Leak Detection"** - MTG 3012 configured for maximum MASS sensitivity

- **MTG IG 3012 "Inverse Gauge"** (MTG 3012 configured for Oil on Water applications, i.e., Settling tanks, Gun barrel tanks, Separators, etc.)

- **MTG 3014 "Standard" MTG 3012 with Critical Redundancy"**

Redundant critical sensors (Vapor Sensor & Bottom Sensors for minimal MTBR) added to a Standard MTG 3012 (Hot or cold standby based upon probe height and configuration).

- **MTG 3015** A MTG 3012 with both Ambient and Critical Redundancy Sensors





- **MTG 3018 “Redundant” - MTG 3012 & Overfill Protection**
provides two completely independent gauges (MTG 3012 & MTA 3006) in one physical probe assembly. Each gauge has its own transmitter card and sensor array within the shared gauge housing, thus, only one tank top flange opening is required for mounting “Two” gauges. Each gauge uses independent signal and power sources within the system to maintain complete independence. Exceeds **API 2350 Overfill Protection** requirements.

- **MTG 3024 “Redundant Multi-function Tank Gauge”**
The MTG 3024 provides two completely independent MTG 3012 Multi-function Tank Gauges within one physical probe assembly. Each gauge has its own transmitter card and sensor array within the shared gauge housing, thus, only one tank top flange opening is required for mounting “Two” gauges (with or without gauge well). Each gauge uses independent signal and power sources within the system to maintain complete independence. No shared components between gauges, i.e., Antenna, power supply, I.S. barriers, etc.



- **MTG-L “Long”**
A Redundant Multi-function Tank Gauge with 3 to 6 fully independent tank gauges within one physical probe assembly. Alternating sensors per array and transmitter card to avoid any critical probe failures. Applications include: Tall tanks, Salt domes, Marine tankers & FPSO's, etc.

- **MTG 3024 VG “Virtual Gauge” Software**
provides the means of combining data from multiple MTG gauges (sensor arrays & transmitter card) within one tank into one combined “Virtual” gauge. Using overlapping strata data from overlapping sensor arrays for extreme accuracy (Patented, Patent Pending).

- **MTP 3025 “Multi-function Tank Probe”**
The MTP provides Multi-point spot temperature, Multi-strata density, and Water. Designed for additional inventory accuracy using better measurement technology. For use with level gauge (Radar and Servo) technologies.

- NOTE: Other sensors for use within the MTG are now under development. Patent(s) Pending



Improvements in HTG Technology

- **HTP 3050 “Hydrostatic Tank Probe”**
Provides Mass, Spot temperature, and Density. A Hydrostatic Tank Probe uses four or five absolute pressure transducers and RTD's installed within a probe from the top of the tank; no hot taps, valves, heat trace or tubing; Eliminates all standard HTG errors.

- **HTP 3055 “Hydrostatic Tank Probe & Overfill Protection”**
Redundant combination of the HTP 3050 and MTA 3006 in one probe. Only one tank top flange entry required for two tank gauges.

Temperature

- **3030 TTP “Tank Temperature Probe”** - Multi-point spot temperature probe using Class A, 100 Ohm Platinum RTD's. Six (6) - Twelve (12) per TTP, based upon tank height.

- **3035 TLP “Temperature Level Probe”** - Approximate Level and wetted RTD selection for Average Temperature or Individual spot RTD's. Multi-point spot temperature probe using Class A, 100 Ohm Platinum RTD's. Six (6) - Twelve (12) per TTP, based upon tank height.

- **RTD's and Thermowell's**

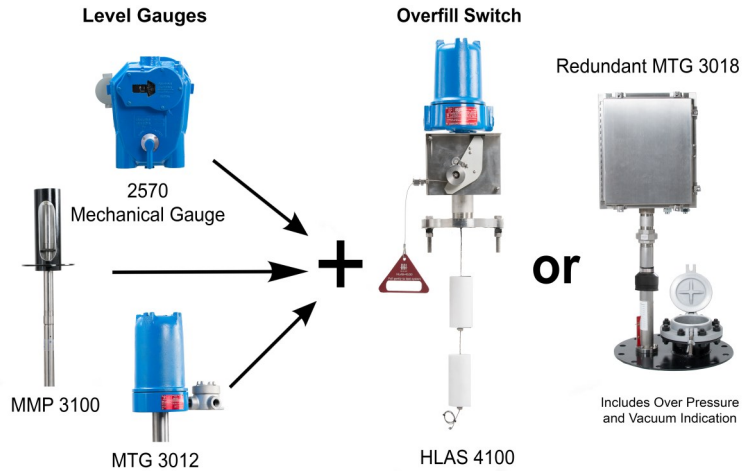
- **Combination Bi-Metal & RTD**

- **Multi-point Spot Temperature Probe and Switch**



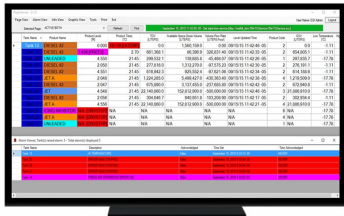


Solutions for API 2350 Overfill Protection



Overfill Protection

- 4100 HLAS - Redundant "High Level Alarm Switch"**
 The 4100 HLAS is the first (1987) and only redundant displacer High Level Alarm Switch. It provides one or two (displacers) actuation points (High-High & High) and one or two relays per actuation point. Using one "A set" to NC and the second "B set to NO gives an Alarm, Alarm & Maintenance, or No Alarm state. Optional SS Checker Assembly with tubing connector, trip cable & handle. See the GSI 4100 HLAS Bulletin for more information.
- GSI also manufactures the E/RTU (ESD's & I/O), Audio/Visual Warning Systems, Annunciator panels, and the Services Alarm Plus Software for Overfill Protection and for other notifications / alarm conditions.



Local Display, Interface, Integration & Communication

- 1570 CIM "Communications Interface Module"**
 The CIM Provides five (5) user configurable (Host / Slave) serial ports consisting of RS232/RS485 (two with RJ-45 Ethernet) and one dedicated port configuration port. The CIM provides: Data logging, Protocol and Topology conversion, Local LCD display (4 x 20), Field instrument power, and I.S. Barrier housing. NEMA 4x (supports four (4) MTG / MMP or Fifteen (15) mechanical gauge transmitters, NEMA 7 (supports one gauge per unit), or panel mounted units are available.
- Multiple interfaces solutions, alternative communications, and powering methods are available. New developments expected soon.**



Inventory Software

- Services TG Pro Software**

Services Tank Gauging Professional Software is a standalone to enterprise scalable software application. Distributable Cloud capable Tank Gauging Inventory application for use with most tank gauges including all features of the MTG Multi-function Tank Gauge. Contact GSI for more information.

Training, Engineering, Field Service, Bench Repair, and Spare Parts are available.



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