Remote Monitoring for Business

ALTA Propane Tank Level Monitor

General Description

The Wireless ALTA Propane Tank Level Monitor allows a user to remotely monitor the level of a propane tank by simply plugging in the R3D® (Remote ready) sensor into a pre-installed R3D tank gauge. As the propane level is decreased, the reading produced decreases as well. The monitor converts the reading into a percentage of propane remaining in the tank and transmits that percentage wirelessly to its connected ALTA Gateway. The percentage depends on the configuration of the tank and the R3D gauge pulling an accurate level of propane inside.

Important: Tank gauges that are not R3D ready can be upgraded with an R3D gauge from one of these vendors:

- Rochester Gauge
- Squibb Taylor

Warning: If you do not have a dial that is R3D compatible, do NOT attempt to change the dial yourself. Please contact your propane supplier and ask them for a replacement dial that supports the R3D standard. The float gauge inside the tank does not need to be replaced, just the plastic dial that reports the propane level inside the tank. (Compare your dial to those in the following and verify which one is installed on your tank. If R3D ready, please proceed.)

Principle of Operation

The ALTA Propane Tank Level Monitor uses the Level Monitor to measure volumetric percentage of propane in a contained environment. A magnet attached to a buoyant device will be placed atop propane in a container with the Level Monitor placed at a reasonably close distance. The Level Monitor produces a voltage proportional to the sensed magnetic field, so as the propane level is decreased, the voltage produced is as well. This monitor converts the sensed voltage into a percentage based on the volume of the container. This monitor is based on the assumption that the container holding the propane is uniform in width such that each unit of height the propane gas is depleted is of equal volume

If the propane level has fallen below 8% then iMonnit displays "**Empty**".

If the propane level is above 80% then iMonnit reports "**Full**".

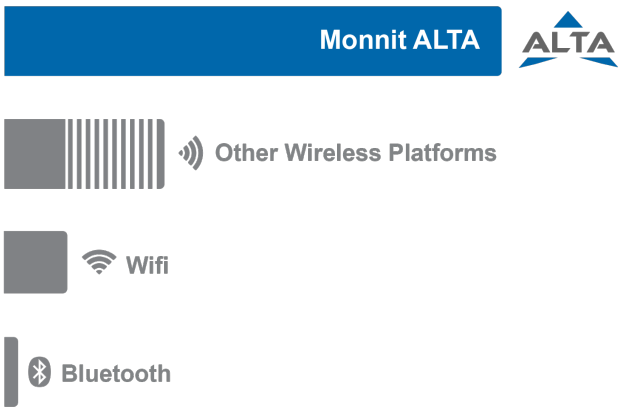
Features of Monnit ALTA Sensors

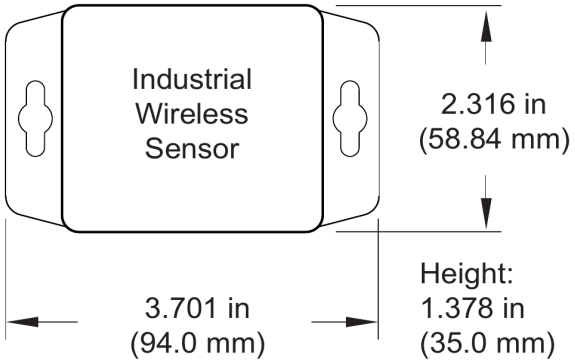
- Wireless range of 1,200+ feet through 12+ walls[1]
- Frequency-Hopping Spread Spectrum (FHSS)
- Best-in-class interference immunity
- Best-in-class power management for longer battery life[2]
- Encrypt-RF® Security (Diffie-Hellman Key Exchange + AES-128 CBC for sensor data messages)
- Data logs 2000 to 4000 readings if the gateway connection is lost (non-volatile flash, persists through the power cycle):
  - 10-minute heartbeats = ~ 22 days
  - 2-hour heartbeats = ~ 266 days
- Over-the-air updates (future-proof)
- Free iMonnit Basic Online Wireless Sensor Monitoring and Notification System to configure sensors, view data, and set alerts to be sent via SMS text and email

1 Actual range may vary depending on the environment.

2 Battery life is determined by the sensor reporting frequency and other variables. Other power options are also available.

Wireless Range Comparison





ALTA Industrial Wireless Propane Tank Monitor | Technical Specifications		
Supply voltage		2.0–3.8 VDC (3.0–3.8 VDC using power supply)
Current consumption		0.2 µA (sleep mode), 0.7 µA (RTC sleep), 570 µA (MCU idle), 2.5 mA (MCU active), 5.5 mA (radio RX mode), 22.6 mA (radio TX mode)
Operating temperature range (board circuitry and battery)		-40°C to +85°C (-40°F to +185°F)
Included battery	Max temperature range	-40° to +85°C (-40° to +185°F)
	Capacity	1500 mAh
Optional solar feature	Solar panel	5VDC/30mA (53mm x 30mm)
	Charging temperature range	0° to 45°C (32° to 113°F)
	Max temperature range	-20° to 60°C (-4° to 140°F)
	Included rechargeable battery	600 mAh/>2000 charge cycles (80% of initial capacity)
	Solar efficiency	Optimized for high and low-light operation [1]
Integrated memory		Up to 3200 sensor messages
Wireless range		1,200+ ft non-line-of-sight
Lead Length		6 feet
Security		Encrypt-RF® (256-bit key exchange and AES-128 CTR)
Weight		4.7 ounces
Enclosure rating		NEMA 1, 2, 4, 4x, 12 and 13 rated, sealed and weather proof
Lead Length		6 feet (1.82 M)
Voltage Conversion Table		
UL rating		UL Listed to UL508-4x specifications (File E194432)
Certifications		900 MHz product; FCC ID: ZTL-G2SC1 and IC: 9794A-G2SC1. 868 and 433 MHz product tested and found to comply with: EN 300 220-2 V3.1.1 (2017-02), EN 300 220-2 V3.1.1 (2017-02) and EN 60950

Volume Content (%)	Voltage Produced (V)
Empty	<0.3
8	0.3
10	0.6
20	1.1
30	1.5
40	2
50	2.5
60	3.1
70	3.6
80	4
Full	>4

[1] Light present 25% of day yields 125% of operating power to support 10-minute heartbeats.

Industrial Grade Sensors | Type 1, 2, 4, 4X, 12 and 13 NEMA Rated Enclosure

Monnit's Industrial sensors are enclosed in reliable, weatherproof NEMA-rated enclosures. Our NEMA-rated enclosures are constructed for both indoor or outdoor use and protect the sensor circuitry against the ingress of solid foreign objects like dust as well as the damaging effects of water (rain, sleet, snow, splashing water, and hose-directed water).

- Safe from falling dirt
- Protects against wind-blown dust
- Protects against rain, sleet, snow, splashing water, and hose-directed water
- Increased level of corrosion resistance
- Will remain undamaged by ice formation on the enclosure

R3D Gauge Information

The ALTA Propane Level Monitor supports both Jr. and Sr. R3D Gauges. Monnit's level monitor does not support anything outside of this specification.

R3D LP Dial Sr. Tab

R3D LP Dial Jr. Tab

Style	Tank
Jr.	Horizontal
Sr.	
Snap-On	
Jr.	Vertical DOT
Jr.	Below Ground

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