



MDT

Smart+ Data Transceiver

Standard, MAX and LoRaWAN® Systems

Product Overview

The Tehama Smart+ MDT connected to a SunSonic® Umeter® provides a wealth of information about water or gas usage, far more than is available from Pulse or even Encoded meters. The Umeter® is monitoring the state of flow many times a second allowing it to generate not only the volumetric measurement of usage but various Smart Alerts such as a slow leak (e.g. mechanical toilet failures or leaky faucet), no usage over 30 days, Reverse Flow, or Empty Pipe/Tamper conditions. The combination is also truly plug-and-play with zero configuration required by the installer/plumber; Units, Count factor and Umeter® size/style are automatically conveyed from the meter to the Tehama system.

The unique two-way interface allows for the Tehama Smart+ MDT to query the meter every two hours for both the reads and current alert status. For timely events like the slow leak detection or Tamper, the Umeter® will wake the MDT to immediately send the alert to the Tehama cloud, where notifications are generated and sent to the designated user's phone or email (for example the property's maintenance head) so corrective action can be performed.

Tehama's Smart+ MDT is available in all supported radio systems including our Standard, MAX and newly introduced LoRaWAN® technology which far outperforms traditionally utility grade 420MHz licensed band systems.

Smart Alerts

The following alerts can be generated by the Umeter®. Any time an alert is triggered or cleared, the MDT is immediately notified, with the change forwarded to the Tehama cloud. Using our normal Alerts and Reporting mechanism, up to five email recipients can receive the alerts, and soon, Mobile App users can enable Notifications on their device.

The alert generated will provide the following information:

- Property Name
- Nature of the Alert
- Whether the Alert has been Triggered or Cleared
- Time of the Alert Change
- Apartment
- Building
- MDT RadiolD

If any of these alerts change state, the user will be notified. Individual alert enable/disable is not supported at this time.

Empty pipe / Tamper alarm

This alert is triggered if the meter detects that there is no water in the pipe. This also acts as a Tamper detection alarm for the Clamp style meters.

No water usage in 30 days alarm

Triggered after 30 consecutive days with no measurable usage detected

Suspected Slow Leak alarm

Triggered after 24 hours of continuous flow detected

Reverse Flow alarm

Triggered when reverse flow is detected

Maximum Flow alarm

Triggered immediately if the flow detected meets or exceeds the nominal capacity of the meter. This might be an indication of a burst pipe.

Low signal alarm

Triggered if the Ultrasonic signal strength is below a pre-set threshold

Low battery alarm

Triggered if the Meter battery is low. This is distinct from the MDT battery level that the Tehama system will also report.

Minimum water temperature alarm

Essentially a Freeze warning, this alert is triggered if the water temperature drops below 37° Fahrenheit / 2.7° Celsius

Maximum water temperature alarm

Triggered if the water temperature exceeds 140° Fahrenheit

Specifications

Input	SunSonic® three-wire Smart Protocol Interface
MDT Data Storage	Up to Five time-stamped readings
Data Resolution	2-hour interval standard for Meter Reading Alerts sent immediately upon detection Static Meter Info sent once every week (Serial number, meter size, etc.)
Radio	902 – 928 MHz; FCC and IC Certified for all modes <ul style="list-style-type: none"> • Standard: Open field range of one mile • MAX: Open field range approaching 10 miles
LED	Indicates on/off and RF network connection status. From button press: <ul style="list-style-type: none"> • Solid Green: good Link Quality • Solid Amber: OK Link Quality • Red or Flashing: poor Link Quality or syncing to Network
Operating Environment	-20 to 145 degrees F, up to 90% RH, non-condensing.
Power	Two AA Lithium batteries
Typical Battery Life	6-8 years @ 50 to 90 deg. F, reduced at temperature extremes
Dimensions	4.3" x 2.2" x 1.2"
Warranty	Five years. For more detailed information, please visit our warranty page . Note that the warranty does not cover batteries.

Continual product enhancements may cause specifications to change without notice.

*Actual range may vary depending on installation location and topography

Models

Standard System		
MDT	TW-160B-U	Smart Protocol Interface, two-hour interval data, no on-board memory
Display MDT	TW-165B-U	Smart Protocol Interface, two-hour interval data, no on-board memory
MAX System		
MDT	TW-170B-U	Smart Protocol Interface, two-hour interval data, no on-board memory
Display MDT	TW-175B-U	Smart Protocol Interface, two-hour interval data, no on-board memory
LoRaWAN® System		
MDT	TW-180B-U	Smart Protocol Interface, two-hour interval data, no on-board memory
Display MDT	TW-185B-U	Smart Protocol Interface, two-hour interval data, no on-board memory

MDT Configuration

All MDTs come with a pre-set configuration; there are no settings to change on the MDT itself. Settings such as count factor or Units are automatically conveyed from the Umeter® to the Tehama system.

New MDTs are shipped from the factory in a powered-off state. They can be powered on using a hidden button under the Tehama Wireless logo. The LED lights up when the button is pressed for visible feedback.



Turn ON or Off:

- Press & hold button until LED blips off (roughly 3 seconds), then release.
- A pulse input will also turn on an MDT.

Power-up LED Flashing at a 1 second rate:

- Indicates MDT / Repeater is listening for DCAP or other Repeaters.
- Once a beacon is heard, the flashing rate will double in speed.
- Once a Connection is established, the LED stays solid for 10 seconds.
- If the attempt to connect to all beacons fails, LED flashing stops after 60 seconds.

Check the status of an MDT or Repeater by tapping the button:

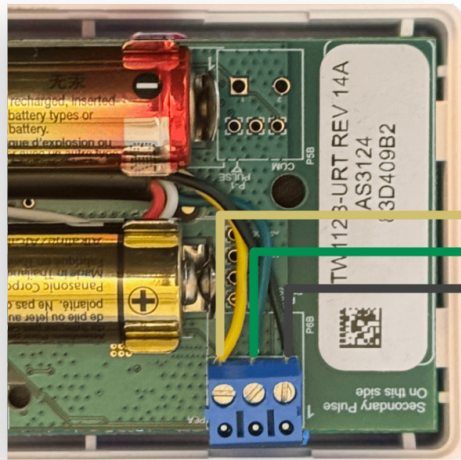
- Unit is OFF if you see 2 flashes after the button is released.
- Unit is Asleep (On but out of range) if you see 1 flash only. The button press will wake up the unit to try to re-connect to Network. Finding an MDT in the sleep state is usually an indication of poor placement or inadequate Repeater coverage.
- Unit is Connected and operating normally if the LED stays on for 10 seconds.
- Green indicates a robust radio link, Orange an OK link, and Red a poor link.

Reset Count:

- Press and hold button until power-up flashing sequence starts (12-15 seconds). The LED will blip off at the 3 second mark then go off for a few seconds at about 10 seconds.

Smart+ MDT to Umeter® Wiring

TW-160/165/170/175/180/185 B-U (Umeter®)



Sensor Type in CIT:

Umeter_Reads

- Umeter® Yellow
- Umeter® Green
- Umeter® Black

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