

# tehama wireless

The Wireless  
Submetering  
Solution

Tehama's solution  
specifically designed  
for utility submetering:

- Electric Time-of-Use data
- Ethernet communications
- Two-way mesh radio network



Utility submetering at multi-tenant properties helps owners recover their utility costs and increase their net operating income, property values and resident satisfaction while promoting energy conservation.

**You can't manage what you  
don't monitor**

## The Tehama Wireless Solution

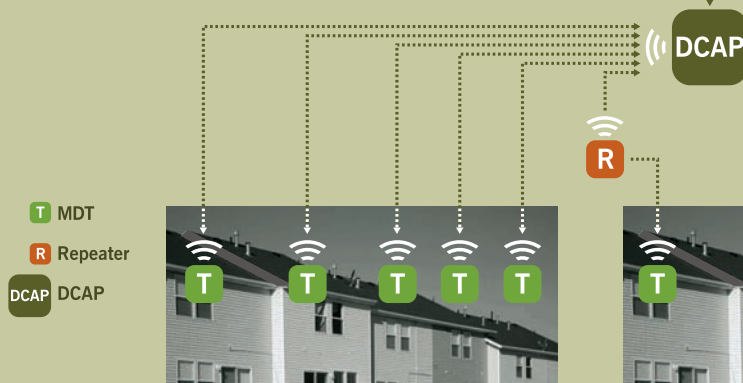
"You can't manage what you don't monitor" is an adage that is well suited for submetering today. By installing meters and our AMR system as part of a utility cost recovery program, the owner of a multi-tenant property can measure each resident's consumption and fairly bill them for their actual consumption.

Do you need or anticipate Time-of-Use pricing for your electricity usage? With Time-of-Use metering ability in our solution, you can use this feature today or "future proof" your properties for when it will be needed and avoid unnecessary expenses.

The Tehama Wireless submetering solution consists of MDTs connected to each meter, radio repeaters, the DCAP for collecting the meter data, and CIT software to interface with the DCAP. The radio is a two-way 900 MHz mesh network for robust connectivity.



Primarily designed for electric Time-of-Use (ToU) submetering, it can also be easily installed for gas and water submetering.



## MDT - Metering Data Transceiver

The MDT is connected to a pulse output utility meter (electric, gas, water). The MDT records the usage, time stamps it, and transmits it to the DCAP.

- Records data as often as every 5 minutes for accurate Time-of-Use electric metering
- Pulse counting input compatible with a wide variety of utility meters
- Stores meter reading data should a network outage occur
- LED provides status of MDT for easy installation and troubleshooting
- Optional DC power to avoid battery maintenance hassles

## Repeater

The Repeater extends the range of the two-way radio signals between MDTs and DCAP. Multiple repeaters can be used to provide robust mesh network coverage or multi-hop range coverage.

- Small size (same as MDT) for ease of installation
- 0.75 mile radio range for adding coverage to radio network
- Battery backup in case of a power outage

## DCAP - Data Concentrating Access Point

The DCAP is the heart of the system and incorporates a powerful computer and an integrated radio transceiver. It communicates with each MDT and stores the meter reading history. Using the CIT tool, its database is populated with property site information, meter type and location association, and installation notes.

- Ethernet connectivity for easy access to data over the Internet using CIT software
- Email notification of readings and alerts to the billing company
- Compact design with integrated radio transceiver makes the installation fast
- Storage for over 3 million data readings
- Multiple levels of access security

## CIT - Configuration and Installation Tool

The CIT software, a Windows® compatible application, is used to configure the DCAP with the site information and to view and generate graphs and reports regarding meter readings and the radio network. Alarm thresholds in the DCAP can be configured to send email alerts regarding low battery, unplugged repeater or excessive consumption.

- Easy “click and drag” method to assign an MDT to a meter location
- Radio network monitoring of radio signal strength to help troubleshooting
- Historical usage can be graphed to quickly identify use trends
- Back up of site configuration data
- Export reads into an SQL database

MDT



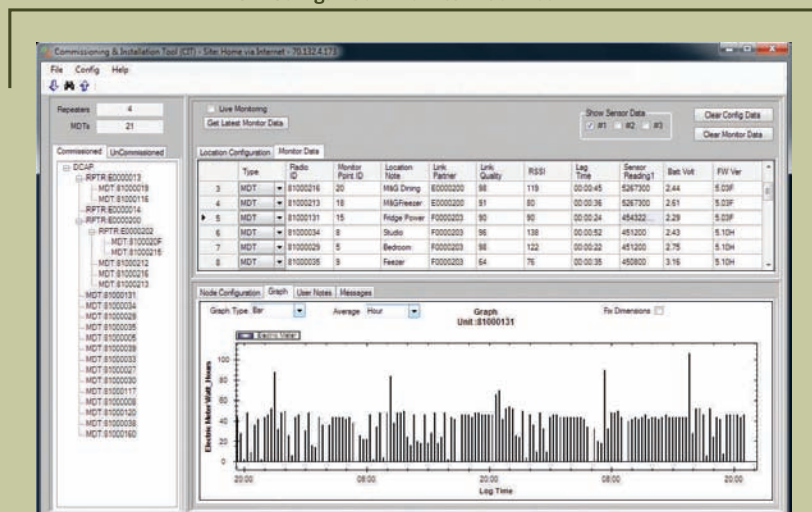
Repeater



DCAP



CIT Configuration and Installation Tool



## Specifications

### Radio

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Network Type	2-Way Mesh Network
Operating Freq.	902-928 MHz
Certification	FCC Part 15

### MDT - Metering Data Transceiver

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Inputs	<ul style="list-style-type: none"><li>■ Pulse signal from electric, run-time, gas or water meter</li><li>■ Optional on-board temperature sensor</li><li>■ RS-485 input (Future)</li><li>■ Optional sensors (humidity, 4-20 mA, voltage)</li></ul>
Data Storage	30 days, time stamped data
Data Resolution	12 hour interval standard. Optional 5 min. to 18 hr.
Data Dimensions	4.3" x 2.2" x 1.2"
Operating Environment	-20 to 145° F, up to 90% RH, non-condensing
Open Field Range	Up to 1800 feet
Battery Type	Two AA-size Alkaline (standard) or optional lithium (recommended for colder temperatures)
Typical Battery Life	<ul style="list-style-type: none"><li>■ Up to 5 years @ 70 to 90° F. Battery life reduced at higher temperatures</li><li>■ Optional line-power</li></ul>

### Repeater

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Dimensions	4.3" x 2.2" x 1.2"
Operating Environment	-20 to 145° F, up to 90% RH, non-condensing
Open Field Range	Up to 0.75 miles
Power	120 VAC wall transformer
Backup Battery	Included

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Since 2003 Tehama Wireless has been designing and enhancing 900 MHz radio systems for various applications, including the challenging radio environment of hospitals. This technology is now behind the "Tehama Wireless Submetering Solution". With over 30,000 units in the field, Tehama Wireless has a proven record of performance and customer support.

### DCAP - Data Concentrating Access Point

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Communication Options	<ul style="list-style-type: none"><li>■ 10/100 Ethernet, email alerts,</li><li>■ Phone modem and cellular modem (Future)</li></ul>
Open Field Range	Up to 1 mile
Data Storage	Over 3 million data points (Provides over 3 months storage for 250 meters with 15 minute interval readings)
Security	Multiple levels for database access
Dimensions	5.6" x 5.25" x 1.75" (excludes external antenna)
Operating Environment	-20 to 145° F, up to 90% RH, non-condensing
Power	120 VAC wall transformer

### CIT - Configuration and Installation Tool

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Minimum PC Requirements:	Operating System Windows® 7, Vista, or XP
Ports	USB and Ethernet

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#### Warranty

All Tehama Wireless products include a 5 year warranty.

Continual product enhancements may cause specifications to change without notice.



#### The Wireless Submetering Solution

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