

TESCO METERING

TESCO Nighthawk Zero Infrastructure AMI



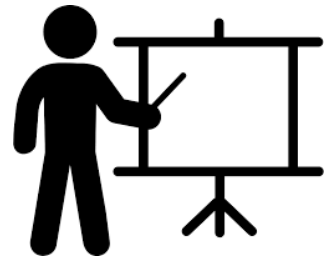
Mid South Electric Metering Association 73rd Meter School

Tuesday May 6, 2025: 8:00 AM

Jon Scott



TESCO METERING



Introduction

TESCO Company Overview

Prepared for:



Jon Scott

Nighthawk Sales Manager
TESCO Metering

- Mission Statement
- Overview
- Deployment Options
- Products
- Walker Cabin





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Mission Statement

To become the primary outside metering resource for all electric utility customers



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Nighthawk Overview



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Adaptiv AMI



Nighthawk



TESCO and Nighthawk are a perfect fit. The leader in all things metering now offers the world a leader in affordable AMI metering. Nighthawk is the exclusive home to Adaptiv™, your Solution for AMI Cellular Mesh! Adaptiv™ provides the lowest ownership cost of any AMI provider.

About Nighthawk

30-years of utility experience
100+ utilities served



Nighthawk



About Adaptiv™

Unique zero-infrastructure network
Cellular + Mesh Communications



Ideal for either incremental or rapid deployment

Lowest total cost of ownership in the industry

Nighthawk AMI is tailor-made for medium to medium-small municipalities

- Zero need to install and maintain costly infrastructure
- No server requirements
- No network administration software
- Easy to install and maintain
- Flexible deployment options
- Scalable to respect both utility time and budget
- Majority of systems are municipalities
- Almost 30-years serving our municipal customers



Flexible deployment options:

- Deployment partners with decades of AMI system installation experience
 - Assigned Nighthawk project manager who oversees deployment partner/process
- Self-install using the Fulcrum meter changeout software
 - Assigned Nighthawk project manager who trains on the Fulcrum software, deployment best practices, assists in early installation and remains a resource during the duration of the deployment



Zero Infrastructure AMI

Adaptiv™ AMI means no costly infrastructure to install / maintain

Integrated Data Transfer

Standards-based integration to utility billing applications

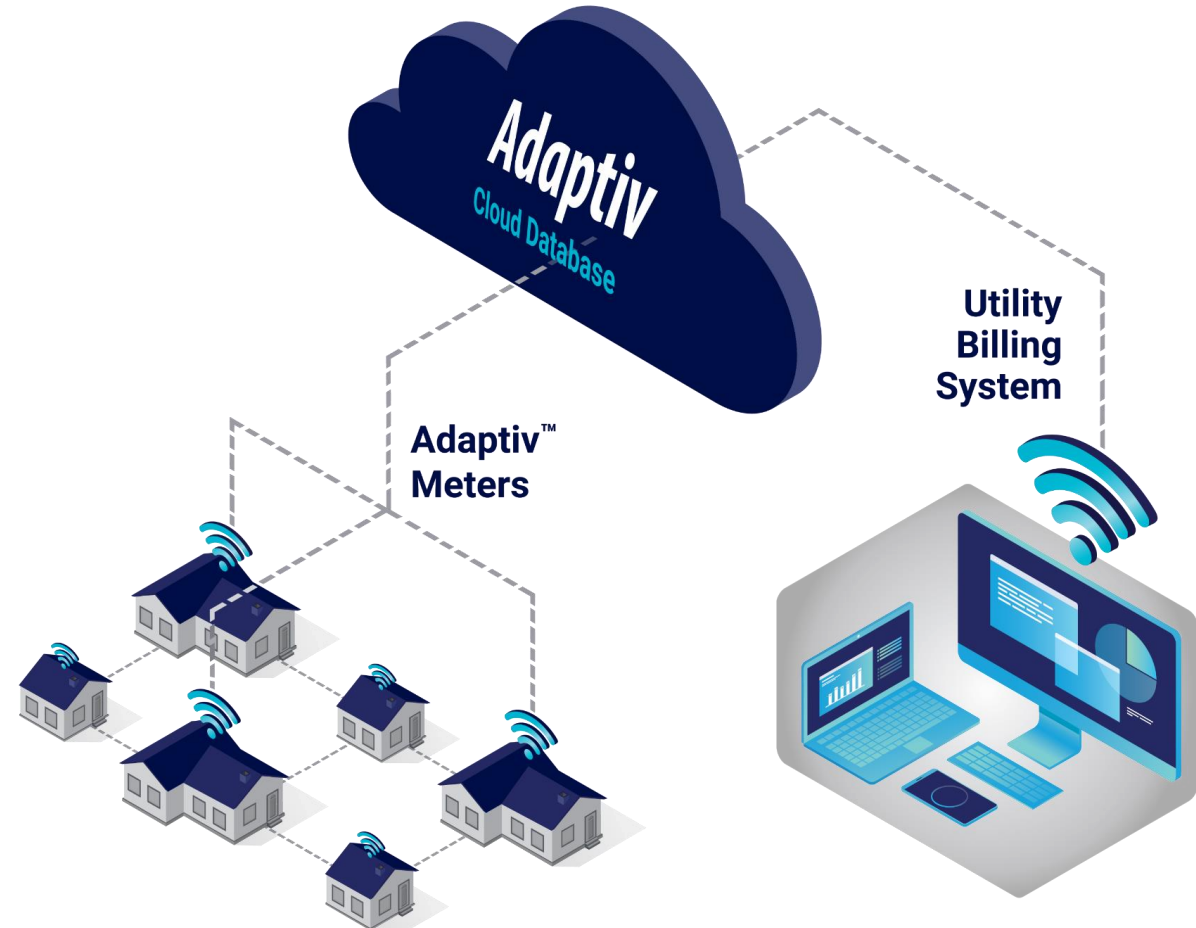
Multispeak, MV-RS, CMEP

Seamless Cloud Software

No hardware to buy or databases to manage

Secure, Reliable Reads

Secure communications for on-demand move in/move out reads on all meters

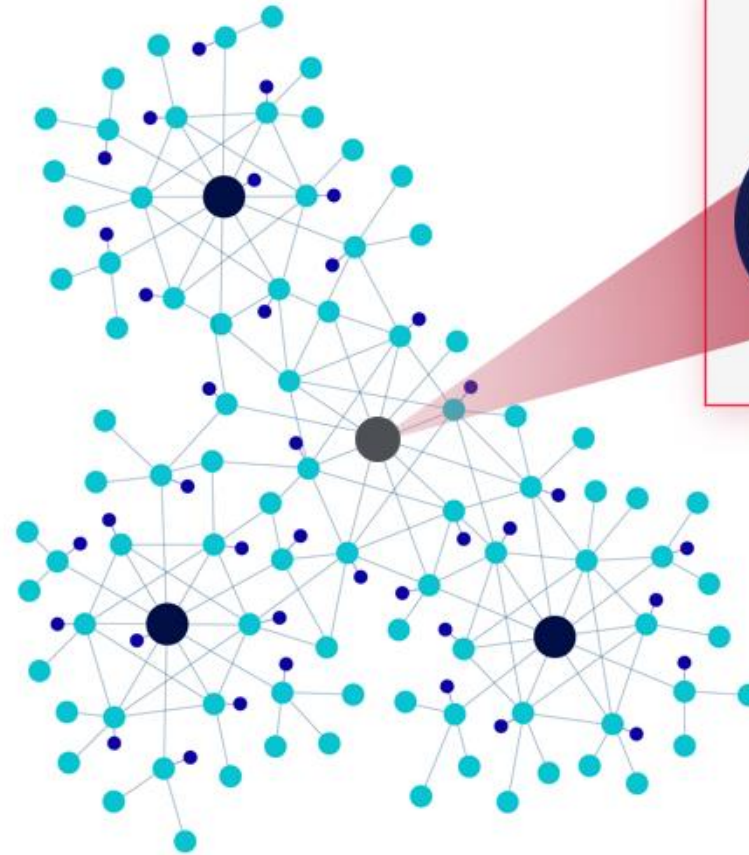


Scalable, self-healing, self-configuring network

Next generation high bandwidth cellular-mesh

- One Hub with cellular modem per cluster
- Several Leaf meters within range of hub via short-hop RF

Simple installation and maintenance

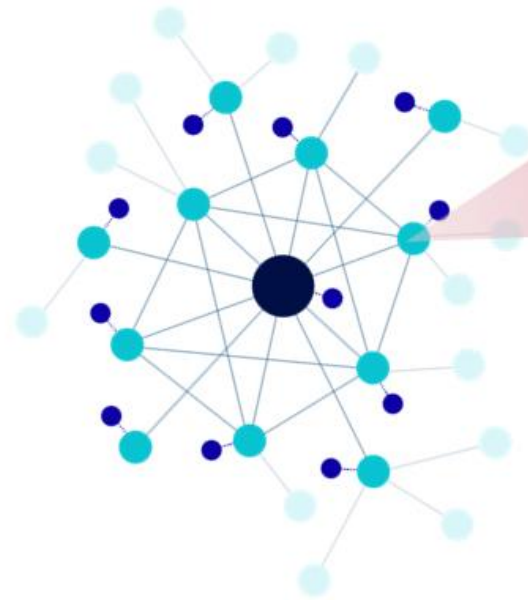


Water LINK sends reads via
Adaptiv™ smart meters

Scalable, self-healing, self-
configuring mesh network

Built-in security
and redundancy

Interval data and
leak detection with
exceptional battery life



Adaptiv™ Value for Life

No additional charges for upgrades, maintenance or support for the life of the product

Over-the-air upgrades to firmware

Designed to evolve with the changing needs of the utility industry by enabling more features as required



Database & Software Security

Best-in-class accessibility and security standards

Secure communication via Thawte SSL

Available multi-factor authentication capability



Network & Device Security

128-bit AES encryption for all mesh-enabled devices

Unique AES encryption key to partition users' data

Protects against external tampering via:

- Content encryption
- Channel encryption
- Dedicated private network



Adaptiv Platform Overview & Device Compatibility

All Adaptiv devices contain a 2.4GHz RF Mesh transceiver connecting all devices, including HUBS

Cellular Hubs manage multiple LEAF devices

Population diversity: ~10% HUB to 90% LEAF

Electric meters available in all S Base form factors and classes

Device Type	Cellular + RF Mesh HUB	ERT Reader Cell+Mesh HUB	RF Mesh only LEAF	Disconnect option
Aclara kV2c	✓	---	---	---
Aclara I-210+c	✓	---	✓	✓
Itron Centron II	✓	✓	---	✓
Water End Point	---	---	✓	---



Lowest Risk Solution

- Zero network infrastructure to install and/or maintain
- Low-cost flexible pilots
- Uses common radio frequencies (LTE and 2.4GHz) found in most households and businesses

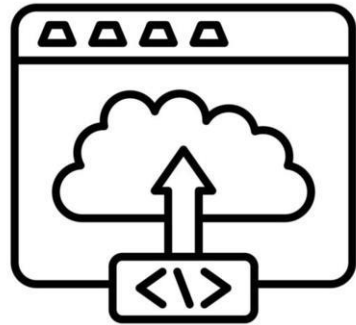
Most Flexible Deployment Options

- Flexible deployment strategies based on your priorities and budget
- Solve problems with little effort or cost – disconnect meters (prepay enabled), scope outages, monitor voltage, polyphase first, etc.

Lowest Total Cost of Ownership

- Zero infrastructure investment or maintenance
- Cost reduction for project management and integration
- Easily train your team to use the solution within hours
- Low recurring costs are predictable and controllable





Deployment Options

Full AMI

- Typically small – medium-size municipalities/cooperatives.
- Cell + Mesh
- Multi-service
 - Full two-way AMI for electric or electric + water (no water-only).
 - Gas remote reading is handled through ERT collection using our ERT Collector Hub Meters. NOT full two-way AMI for Gas.

Gap Fill

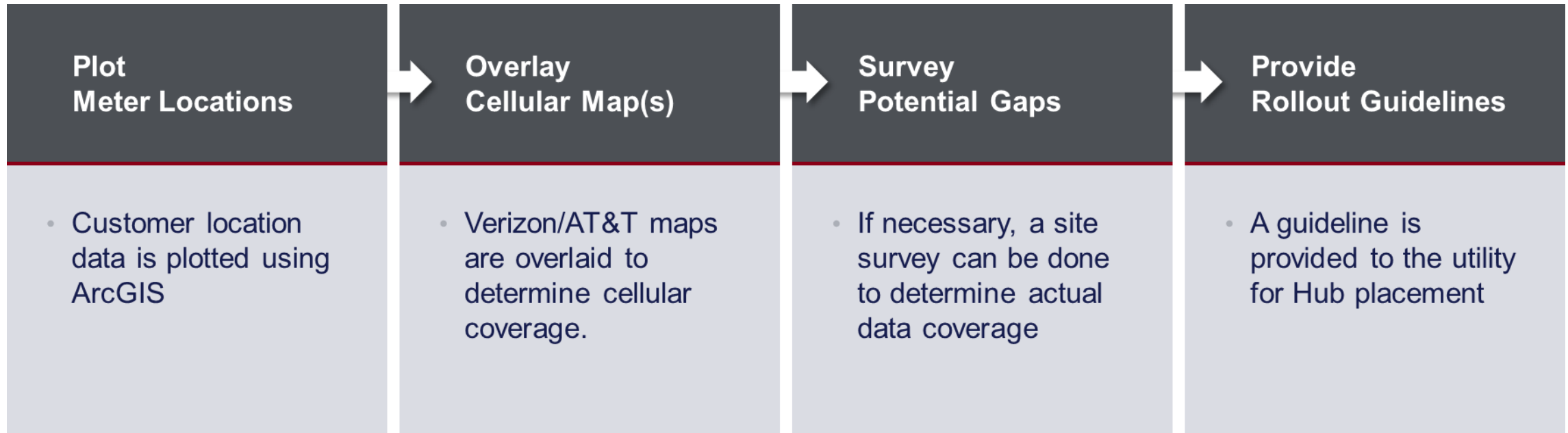
- Typically larger utilities to fill in gaps in existing AMI systems.

Tactical/Targeted Solutions

- Used for targeted applications like remote disconnect, remote reading, Christmas Lights, crypto-mining, etc.
- When dealing with a utility, can naturally grow into a full AMI system.

ERT Collection



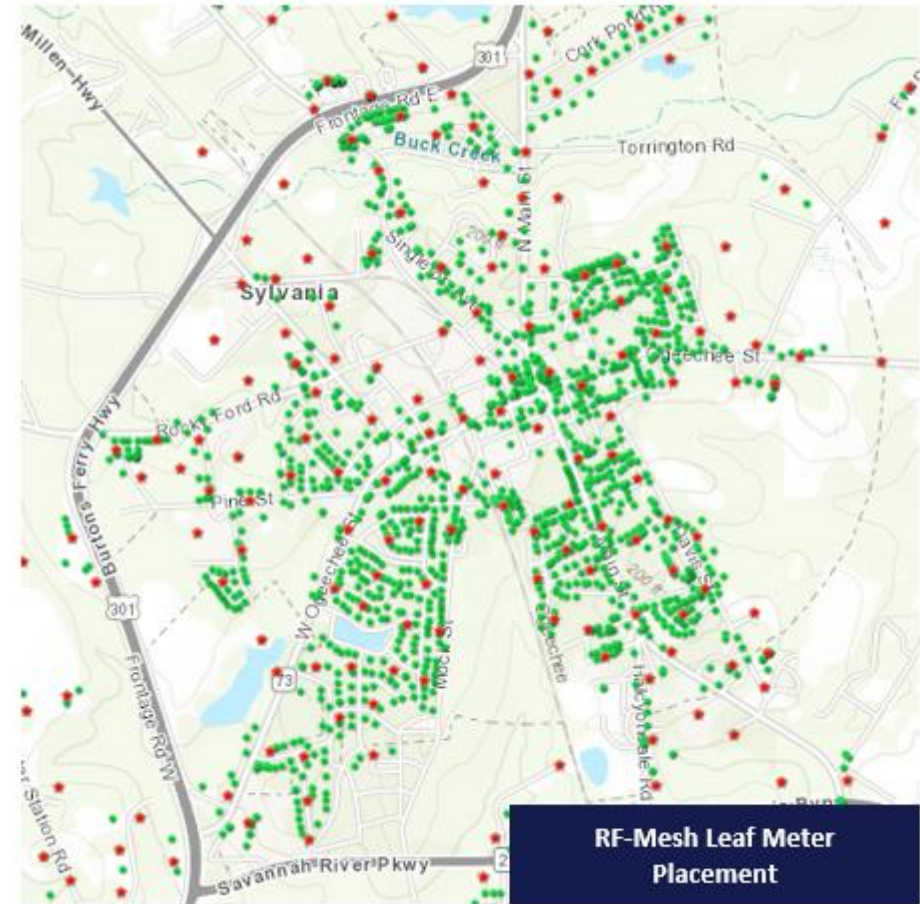


Leverage Deep Utility Experience



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System Design



Predictive Billing

Know what's missing before it's too late!



- Immediate access to current customer information
- Detailed views of customer usage by day, month, or year
- Resolve billing concerns quickly and efficiently
- Remotely disconnect and connect meters

The image displays three overlapping screenshots of the Adaptiv software interface. The top-left screenshot shows a 'Dashboard' with a map of 'ST LOUIS PARK' and a 'Billing Status' table. The top-right screenshot shows 'Customer Detail' for a 'Connected' meter, including a 'Last Read' of 68467.13 and a 'Meter Activity' bar chart showing 'Daily Consumption (kWh)'. The bottom-right screenshot shows a '45 Day Read History' table with columns for Customer Number, Customer Name, Address, Meter Number, Meter Serial Number, Read Date & Time, and kWh consumed.

Detailed views of customer usage

Accurate, secure customer records



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Product Demonstration

- Immediately notify utility personnel of a sustained outage
- Effectively monitor blinks and momentary outages with daily reporting
- Provide precise outage data for power quality reporting

***Integration Fees May Be Incurred**

Outages and blinks are monitored daily, managed easily and effectively

Refine your alerts to enhance your OMS

Adaptiv Alerts

Home | Help | Logout

Alerts

Show: 10 entries

CSV | Excel | Print | Copy

Alert Type	Alert time	Alert Information
Non Reporting	03/02/2020 03:44:57 PM	Device Serial Number: J0102218800000900 Meter: J00581 Next Read Date: 0-4-2020 Last Read Date & Time: at 03/02/2020 03:44:57 PM Reading Age: 2
Non Reporting	03/02/2020 03:44:57 PM	Device Serial Number: J0102218900001820 Meter: J00153 Next Read Date: 0-4-2020 Last Read Date & Time: at 03/02/2020 03:44:57 PM Reading Age: 3
Outage	03/08/2020 03:44:57 AM	Meters: 2 (Restored 0) Last Restored: 01/02/2020 12:10:38 PM
Change in Health	03/04/2020 11:00:00 PM	Device Serial Number: J0102218900000900 Meter: null Last activity: 03/04/2020 11:00:00 PM

Showing 1 to 4 of 4 entries

Adaptiv Manage Alerts

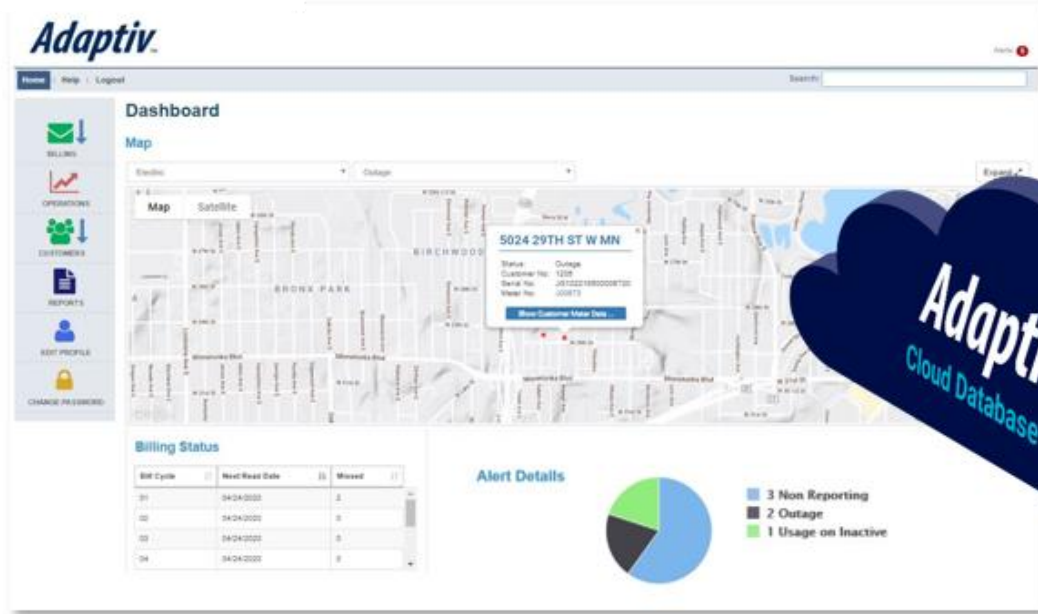
Home | Help | Logout

Command	Alert	Display
0:00	Billing Request w/No Device	Yes
0:00	Caution	Yes
0:00	Cut Wire	Yes
0:00	Demand Reset Not Completed	Yes
0:00	Diagnostic	Yes
0:00	Error	Yes
0:00	Invalid Read	Yes
0:00	Low Battery	Yes
0:00	Metrology Failure	Yes
0:00	No Usage	Yes
0:00	Non Reporting	Yes
0:00	Outage	Yes

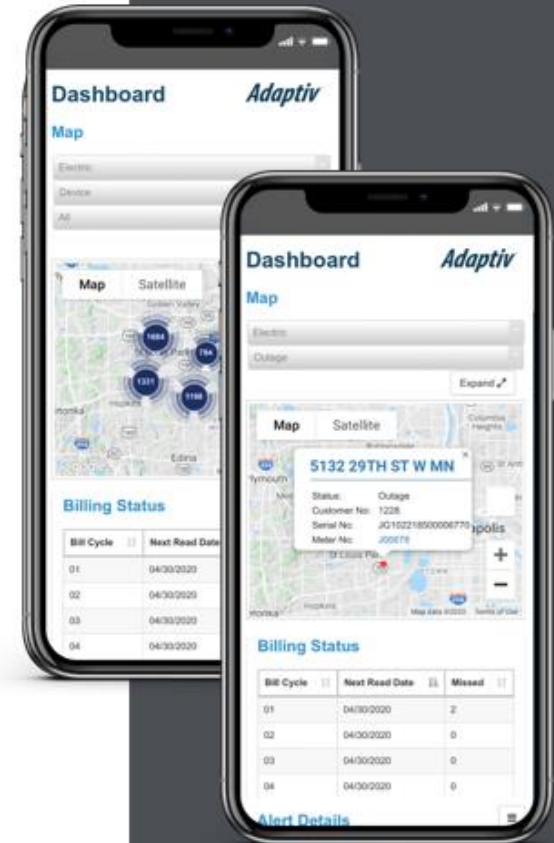


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Product Demonstration



Smart billing integration with secure mobile access



Over-the-air configuration and upgrades on all Adaptiv™ units

Utility Billing System





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Customer Portal

Dashboard Home Water **Electric** Maps Account Management Management Reports Info Help Mark Demo

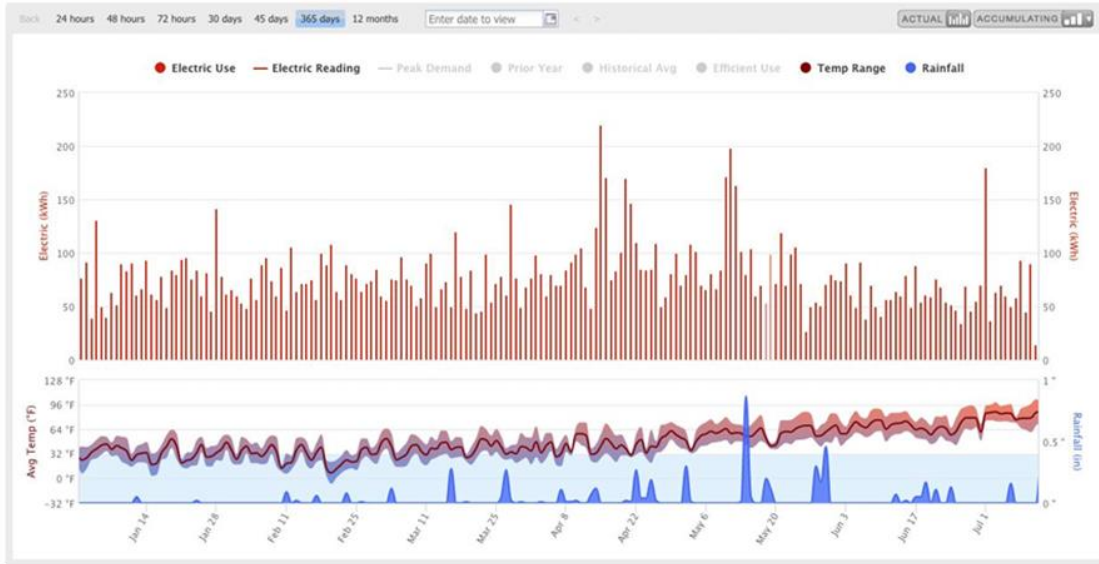
Account Information 101010-000 Search

<p>101010-000 WHEATON, JOSH 101 DOLOROSA DR AqualHawk City, AH 73195</p> <p>Email Address: josh@no-email.com (719) 532-0167 Cell Phone: (877) 410-0167 Phone: (877) 410-0167</p> <p>3 Registered Users Luke Demo T (719) 473-3333 Paul Demo H (719) 475-5555</p> <p>Register New User</p>	<p>Current Billing Period Jul 1, 2018 - Jul 31, 2018 (Day 11 of 31)</p> <p>Estimated Bill (as of 7/11/2018 1:00 PM) \$88.50 Projected Bill (at last reported use rate) \$185.50</p> <p>Electric Use (as of 7/11/2018 10:00 AM) 760 kWh Projected Electric Use (at last reported use rate) 2,104 kWh Last 24 Hours: 70 Last Day: 14</p> <p>Export My Thresholds</p>	<p>Jul 17, 2018 Water Use: Abnormal water use detected.</p> <p>Jul 2, 2018 Electric Use: You've moved into a higher-priced electric tier.</p>
---	--	---

Account 101010-000

Last 192 Days (Mon Jan 1, 2018 - Wed Jul 11, 2018)

14.8k kWh (14 min, 77.29 avg, 220 max)



Sign In

Email Address:

Password:

[Sign In](#)

[Forgot your password?](#)

First time here? [Register](#)

Jul 17, 2018 Water Use: Abnormal water use detected.

Jul 2, 2018 Electric Use: You've moved into a higher priced electric tier.

2 open See All Alerts 0 closed

Current Billing Period
Jul 1, 2018 - Jul 31, 2018

Estimated Bill **\$88.50** Projected Bill **\$185.50**
(as of 7/11/2018 1:00 PM)

Day 11 of 31

Water 1,774 Gallons

Electric 760 kWh

My Thresholds

Set thresholds. Get notified. Save money. It's Easy!

1. Enter an Estimated Bill or Use Threshold value.
2. Choose to be notified either when you exceed the value, are likely to exceed the value, or both.
3. Adjust your usage accordingly!

[Get it](#)

Estimated Bill Not Set

MY THRESHOLD: Enter a dollar amount

NOTIFY ME WHEN: I exceed this amount. (My Estimated Bill exceeds this amount.) I am likely to exceed this amount by the end of the billing period. (My Projected Bill exceeds this amount.)

[Save Estimated Bill Thresholds](#)

Electric 10101012

Hourly Daily Monthly

Jun 12, 2018 Jul 11, 2018

Summary

Total Use Along this period	1,802 kWh
Minimum Use for a single day	34 kWh
Average Use per day	63.4 kWh
Maximum Use for a single day	180 kWh

Water 10101011

Hourly Daily Monthly

Jun 12, 2018 Jul 11, 2018

Summary

Total Use Along this period	2,916 Gallons 309.8 Cu Ft
Minimum Use for a single day	34 Gallons 4.53 Cu Ft
Average Use per day	97.2 Gallons 12.91 Cu Ft
Maximum Use for a single day	1,029 Gallons 137.4 Cu Ft



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Products

Product Categories: Zero Infrastructure AMI

Zero Infrastructure AMI Advanced communication solutions such as Adaptiv™, DirectConnect, and Fiber Hubs—providing AMI capabilities without infrastructure buildout.



Adaptiv™

Cat.



DirectConnect

Cat.



Nighthawk Fiber Hub

Cat.

Launched August 2024



TESCO Launches Nighthawk DirectConnect™: Secure LTE, Solving AMI Integration, and Interoperability Challenges



NEWS PROVIDED BY
TESCO - The Eastern Specialty Company →
 Aug 26, 2024, 17:06 ET



BRISTOL, Pa., Aug. 26, 2024 /PRNewswire/ -- TESCO - The Eastern Specialty Company, a leader in innovative metering solutions, is proud to introduce the Nighthawk DirectConnect™, a game-changing product designed to address the most pressing challenges faced by utility companies today. As utilities continue to modernize and expand their infrastructure, Nighthawk DirectConnect™ sets a new standard for reliability, security, and interoperability in metering technology.

Utility companies are increasingly challenged by a lack of interoperability across systems, particularly with older meters that are incompatible with newer technologies like the Itron MV-90. Additionally, as cellular carriers phase out support for older networks, utilities are left vulnerable without technical support, leading to potential security risks such as data leaks and breaches. These issues are further compounded by AMI voids, where inconsistent data from dropped connections can result in inaccurate meter readings and system inefficiencies. TESCO understands these challenges and remains committed to providing reliable, secure solutions that ensure seamless connectivity, as long as the signal is available.

Innovating the Future: Nighthawk DirectConnect™

In response to these challenges, TESCO introduces Nighthawk DirectConnect™, a revolutionary product



Compatible with all data acquisition software that supports TCP/IP connections



Introducing Nighthawk DirectConnect TCP/IP connectivity on the Aclara kV2c: Connects directly to the meter's C12.19 data structure

Connects directly with **Itron MV-90**, **Aclara MeterMate**, **Trilliant PrimeRead**, or **Trilliant UnitySuite** data acquisition software

Robust, secure, and efficient bidirectional message delivery mechanism

Utilizes same proven LTE hardware as Adaptiv HUB solutions (less RF mesh module) - Cellular devices only

Full data retrieval

Features such as last gasp, modem configuration and firmware update supported

Can use MeterMate to update meter firmware and configuration

Compatible with Nighthawk kV2c meters – full meter functions supported

Itron Poly to follow

Does not require any middleware

- Stand alone solution that does not require Adaptiv HES or other Adaptiv endpoints

No recurring fees from Nighthawk. Utilize existing utility private contract with AT&T or Verizon

- Customer provides SIMs
- Other carriers can be supported
 - Other carriers can be supported with purchase commitments
 - Requires testing and certification

Warranty Term: 1 year



Nighthawk DirectConnect: Module Specifications

Radio Performance

protocols	• TCP/IP
modulation	OFDM (Orthogonal Frequency Division Multiplex)
data rate	LTE Cat-1 (5 Mbps ↑, 10 Mbps ↓)
frequency band	LTE Bands 2, 4, and 12 or 13
transmit EIRP	+20 dBm (including antenna gain)
sensitivity	-103 dBm (@ 1% PER; incl. antenna gain)

DirectConnect Functionality

connectivity	AT&T or Verizon LTE cellular
security	ANSI C12.22 128-bit AES/EAX' (combined encryption/authentication)
memory	40 kB
clock synch	to LTE network
firmware	over-the-air upgradable
power outage & restoration reporting	aggregated real-time reporting

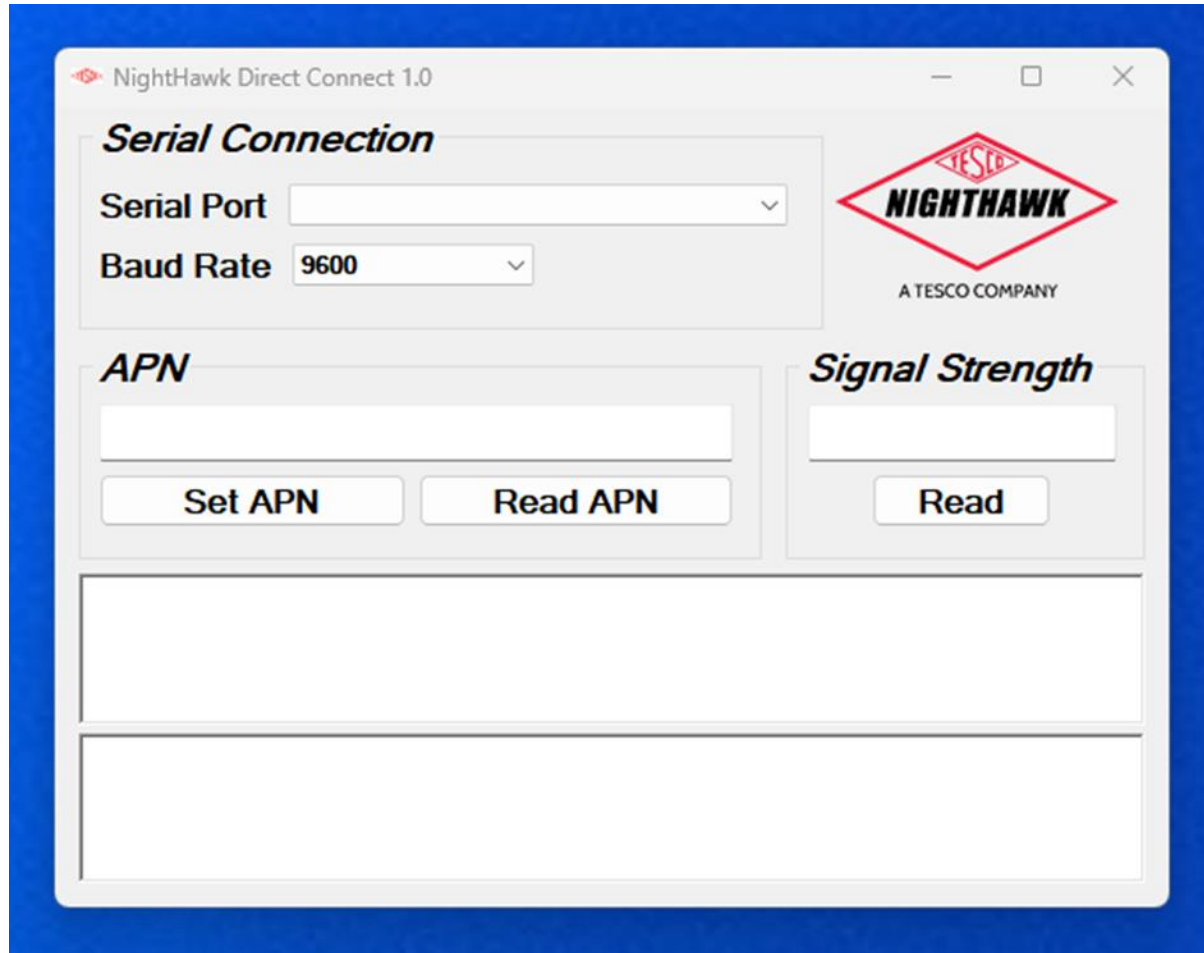
Power, Physical, & Environmental

burden (including module)	<ul style="list-style-type: none"> <li style="width: 50%;">• 120 V: 1.3 W <li style="width: 50%;">• 277 V: 1.7 W <li style="width: 50%;">• 240 V: 1.6 W <li style="width: 50%;">• 480 V: 2.4 W
S-Base	<ul style="list-style-type: none"> • 6.95"/17.65 cm (diam). x 4.38"/11.11 cm (D) • 4 lbs / 1.8 kg net
temperature	-22° F / -30° C to +158° F / +70° C
humidity	5 to 95% non-condensing

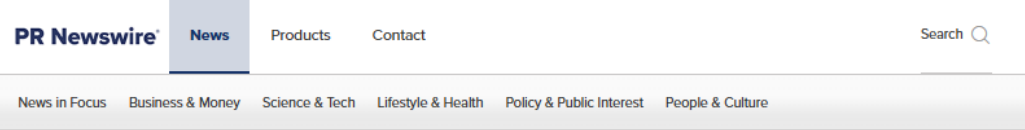
Compliance

radio emissions	<ul style="list-style-type: none"> • FCC Part 15 Class A • Industry Canada ICES-003 Class A
device IDs	<ul style="list-style-type: none"> • FCC ID: R17LE910NAV2 • IC ID: 5131A-LE910NAV2
safety	<ul style="list-style-type: none"> • ANSI C37.90.1 • ANSI C62.41
metrology	<ul style="list-style-type: none"> <li style="width: 50%;">• ANSI C12.1 <li style="width: 50%;">• ANSI C12.20 <li style="width: 50%;">• ANSI C12.18 <li style="width: 50%;">• ANSI C12.21 <li style="width: 50%;">• ANSI C12.19

Nighthawk DirectConnect: Simple Configuration



Launched January 2025



TESCO® Metering Introduces the Nighthawk Fiber Hub: Revolutionizing Utility Infrastructure with Advanced Fiber Mesh Technology



NEWS PROVIDED BY
TESCO - The Eastern Specialty Company →
 Jan 15, 2025, 12:14 ET



BRISTOL, Pa., Jan. 15, 2025 /PRNewswire/ -- TESCO® Metering, the trusted name in metering solutions since 1904, is proud to announce the launch of the **Nighthawk Fiber Hub**, a groundbreaking solution for utilities leveraging fiber networks throughout their service territories. This innovative device is designed to provide high bandwidth backhaul for clusters of over 20 LEAF devices, with a maximum HUB capacity of 150 LEAFs. With unmatched scalability and reliability, the Nighthawk Fiber Hub is set to redefine network infrastructure for utilities managing electric and water systems.

"The Nighthawk Fiber Hub represents the next generation of utility communication technology," said Tom Lawton, President & CEO at TESCO® Metering. "Its advanced capabilities, including a self-healing, self-configuring RF mesh network, empower utilities to efficiently manage their infrastructure while reducing operational costs and improving service reliability."

Key Features and Benefits

- Superior Connectivity:**
 The Nighthawk Fiber Hub utilizes high-bandwidth fiber backhaul for seamless integration with customer-deployed Passive Optical Networks (PON) or any copper Ethernet interface, ensuring robust connectivity across a wide area.



The Nighthawk Ethernet HUB product is a self-contained mesh HUB device with a wired Ethernet uplink.

- Fiber hub is Adaptiv compatible – uses same Synapse mesh module
- Acts as a collector for multiple devices
- Technically an infrastructure device

“Fiber” is used because the initial product offering has been designed to work with customer deployed PON networks

- With further development, network uplink could be connected to any copper Ethernet interface
- Circuitry included to support cellular based version (replaces PON) – reduces operating costs (less cellular outtakes)

Customer assisted testing and validation ongoing



Scalable, self-healing,
self-configuring RF Mesh network

Utilize High bandwidth Fiber backhaul

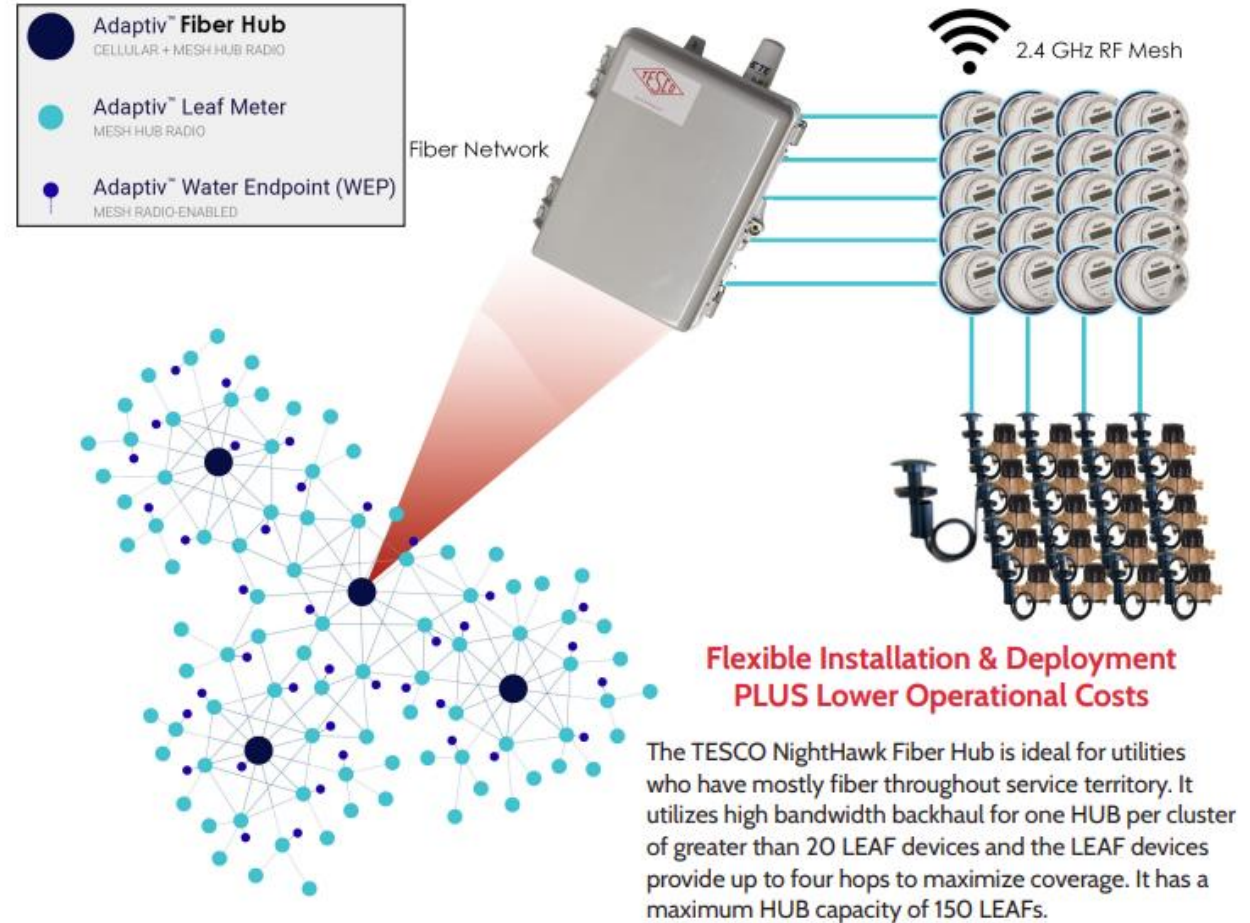
One HUB per cluster of greater than 20 LEAF
devices – electric and water

LEAF devices provide up to 4 hops to
maximize coverage

Built-in security
and redundancy

Water interval data and
leak detection with exceptional battery life

Simple installation
and maintenance



Nighthawk Fiber Hub Use Cases

Best For Fiber-Dominant Utility Networks



Federal Incentives Driving Rural Fiber-To-Home

Utilities Seeking Applications for Existing Fiber

Allows For Network Performance Tuning



Pole-Mounted Device Improves Range

Allows For Stranded Device Network Access

Validation Testing To Be Confirmed



Connect > 50 Mesh Devices
Height is Our Friend
Standard Hub = 10-20 LEAFs
Max Hub Capacity = 150 LEAFs



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Nighthawk Fiber Hub Specifications

Utilize High Bandwidth Backhaul Without Adding New Infrastructure

TECHNICAL SPECIFICATIONS

Power Supply: 120/240 VAC input with a locking power cord

Size: 15.5" x 10" x 6.875" (compact for wall or pole mounting)

Operating Temperature: -4°F to 149°F (-20°C to +65°C)

External I/O: 12V DC output for downstream devices (optional)

Network Connection:

- Primary Uplink: RJ-45 Sealed Connector – 100Base-TX Ethernet
- Future Expansion: Support for cellular-based uplink to replace fiber if needed

Mesh Communication:

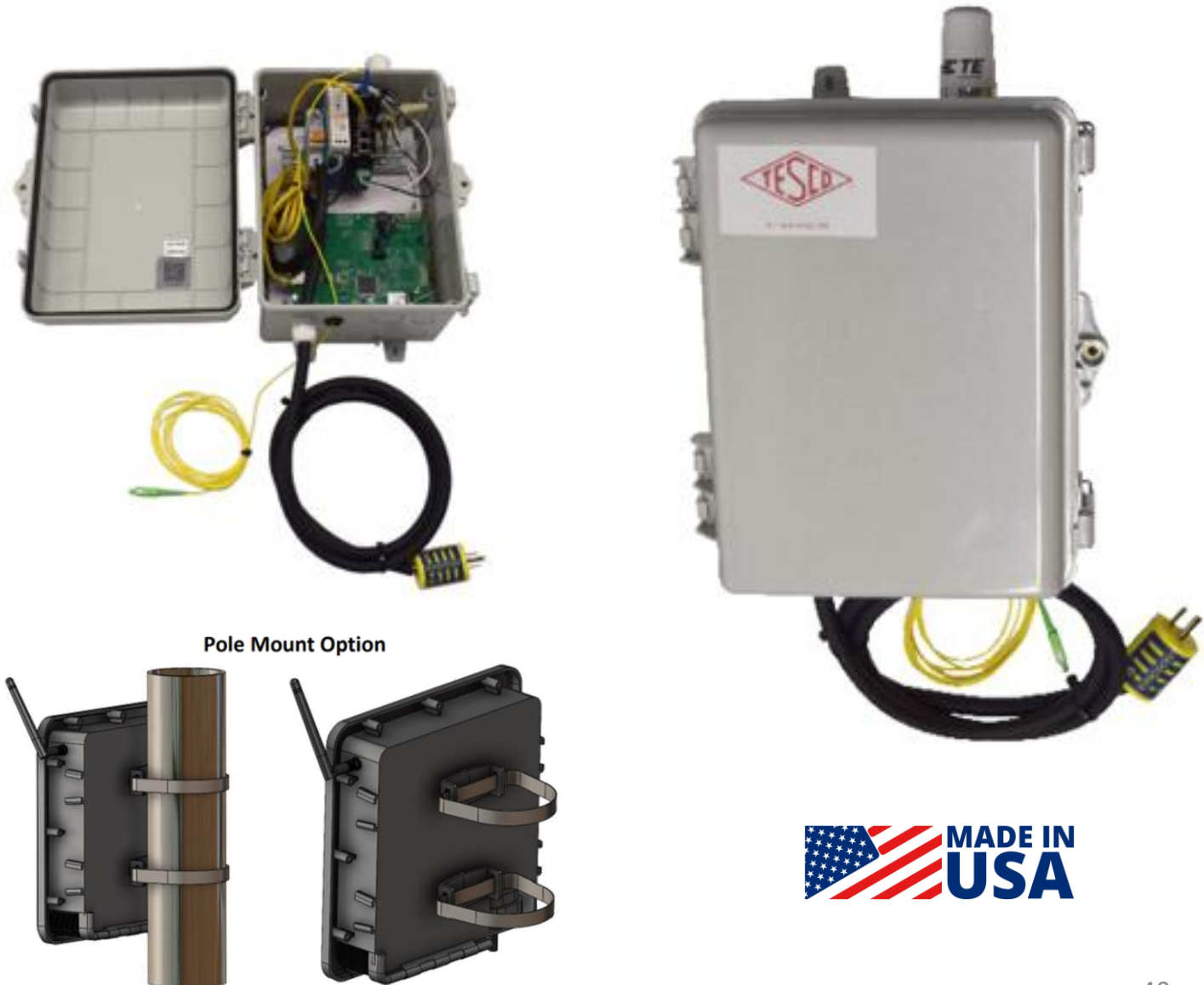
- 2.4 GHz RF Mesh Antenna (Supports greater than 20 LEAF devices per hub)
- Supports up to three (3) hops to maximize coverage

Processor: ST Micro STM32F767ZIT6 (Supports firmware updates over-the-air)

Security & Encryption: End-to-end encryption for data security

Battery Backup: 10-minute rechargeable backup for last-gasp outage transmissions

LED Status Indicators: Power, network uplink, & alarm status





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Walker Cabin

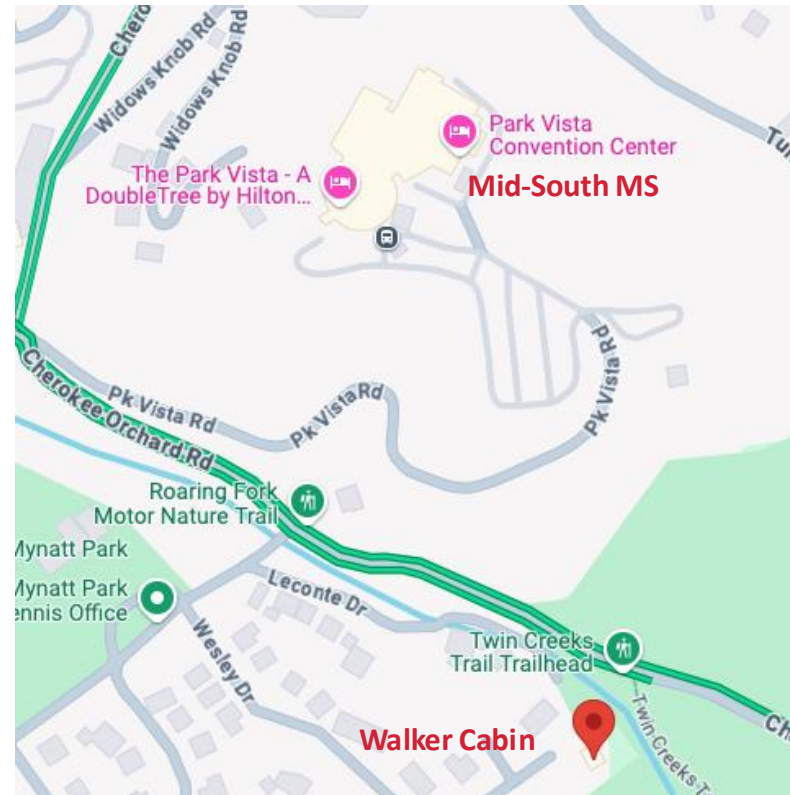
Come Relax with Us after a Day at Mid-South!

WHERE

The Walker Cabin,
Bottom of the hill
from the Park Vista;
872 Wesley Dr, Gatlinburg

WHAT

Corn Hole, Games, Snacks,
Dinner, Beer, Wine & Drinks
and talking about everything
from hunting to Meters
– of course!



REACH OUT to anyone on our team if
you have any questions

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Thank You!

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ISO 9001:2015 Certified Quality Company
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