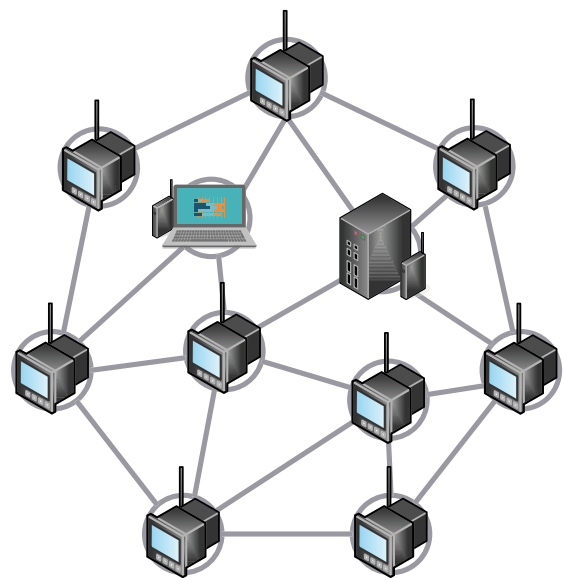## ACUMESH - WIRELESS METERING SYSTEM

The AcuMesh wireless metering solution is designed to connect energy meters and any devices by communicating with RS485 wirelessly. AcuMesh is a cost-effective solution that eliminates the need for installation of communicaiton wires. Saving premium time, labour, and reducing the challenges of retrofit applications.

KEY FEATURES

- All devices are connected automatically upon powering up without configuration, no software required.

- Compatible with devices running any protocols via RS485 port, e.g. Modbus-RTU.

- Highly secure communication with 128 bit Advanced Encryption Standard (AES).

- Advance configuration available for complex network setup with free software.

- Communicate wirelessly between power and energy meters, and any devices with RS485 running any protocol within a building or campus.

- Field upgradable firmware.

- Long-range communication: 1000 ft (305m) indoor / 4 Miles (6.5km) outdoor in a single hop.

- "Mesh" network structure allows each transceiver to act as extension points for the network, allowing for a longer range of communication.

- Point to multi-point communication enabled with "mesh" structure.

- Automatic self-healing and optimizing communication pathway with reliable "mesh" network structure.

ACUMESH
WIRELESS RS485 NETWORK

ACUMESH - WIRELESS METERING SYSTEM

The AcuMesh transceiver provides wirelessly transmits data from energy meters and devices with RS485 communication remotely. Allowing you to conveniently gather metering data from multiple locations in a building, or multiple buildings on a campus.

AcuMesh communication works out-of-box when connected to a meter or other MODBUS device. The automatic self-healing, self-optimizing network allows transceivers to find the optimal pathway for communication where other wireless methods such as Wifi and Zigbee failed to work.

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WHAT IS A MESH NETWORK?

The AcuMesh was designed to expand the communications capabilities of meters and MODBUS devices in these applications.
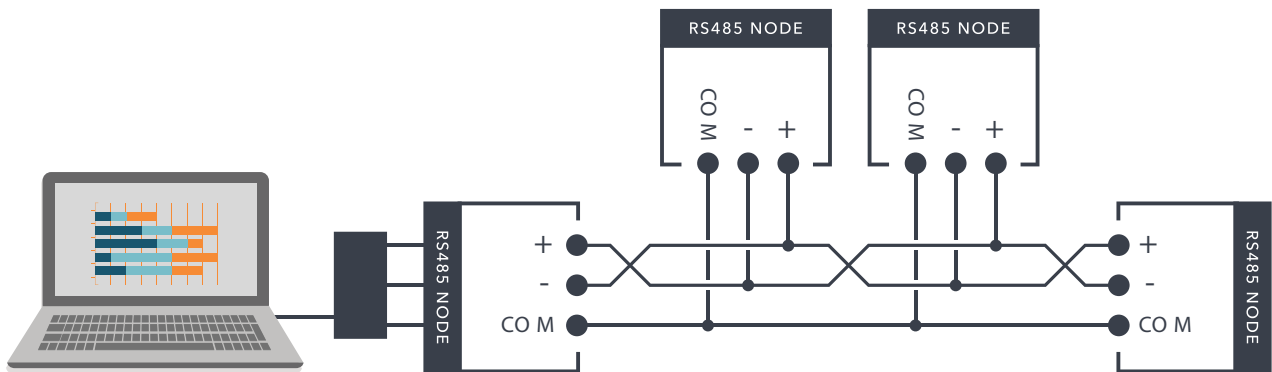
TRADITIONAL RS485 NETWORK

In a traditional RS485 network, each device requires three wires, +, - and common (shield). All devices in same network need to be daisy-chained together from the first device to last to form a complete connection. The wiring process is labour-intensive and tends to be a challenge in most retrofit projects.


PC or Any Master Device
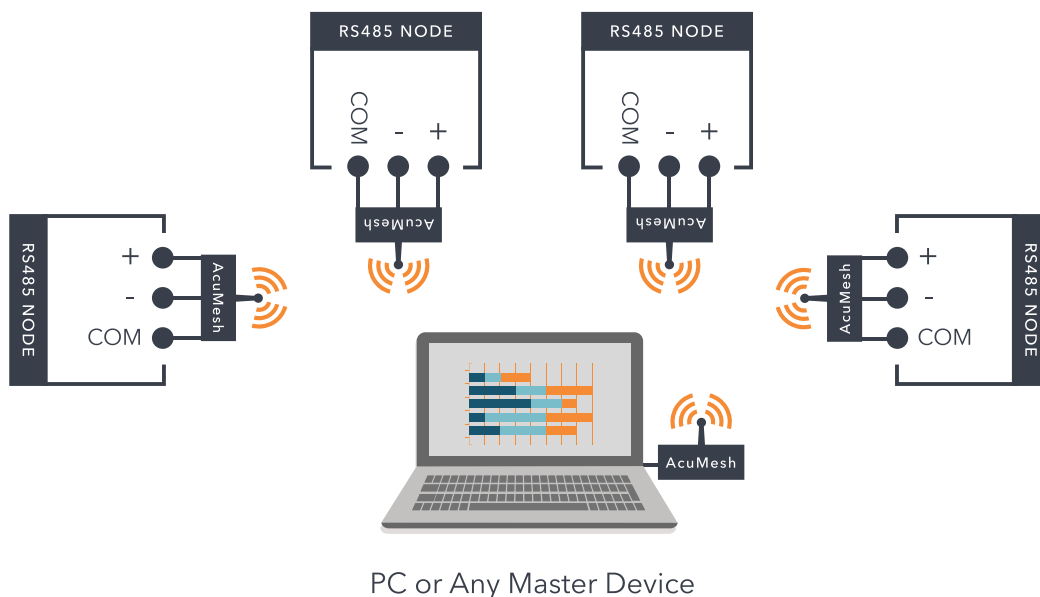
WITH ACUMESH

The AcuMesh wireless RS485 network solution completely eliminates the need for RS485 communication wiring. Each device, or group of devices can directly connect to an AcuMesh transceiver, and the job is done. The AcuMesh transceiver transparently runs with any protocol and transmits data and commands wirelessly within a network. The AcuMesh communicates from salve to master, from sensors and meters to data acquisition servers and gateways cost effectively and with minimal challenge.

COMPATIBILITY

The AcuMesh transceiver works with any device with a RS485 communication port running any communication protocol. For example, the most common protocol is Modbus. AcuMesh transceiver works with Modbus master, Modbus slave and data acquisition gateway, making the entire network wirelessly connected and reliable. The same compatibility applies to any other protocol running on RS485 network.

All Accuenergy meters can directly connect with the Mesh transceiver. We also designed the transceiver into a modular form that can directly plug-in to an Acuvim II power and energy meter.

AcuMesh Transceiver

Modbus®
BACnet®
DNP 3.0®
LonWorks®
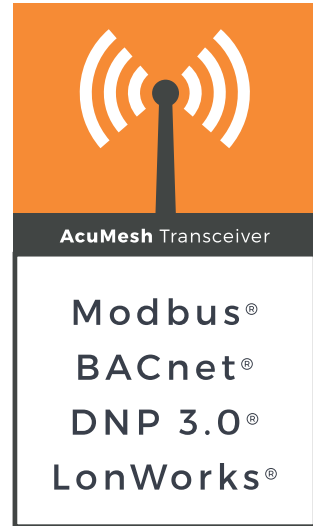
Transparent communication. Compatible with any protocls via RS485.

ACUMESH VS. ZIGBEE & WIFI

The AcuMesh takes advantage of Mesh technology to boost it's communication range.

	AcuMesh	ZigBee	WiFi
Relies on existing IT network range	No	No	Yes
Runs through walls	Yes	No	Yes
Range (Line of Sight)	6437 Meters	20 Meters	100 Meters
Mesh Structure	Yes	Yes	No

FORM FACTOR

The AcuMesh wireless solution comes in two form factors with equal functionality:

ACUMESH TRANSCEIVER

Able to connect to any device with an RS485 port running Modbus-RTU protocol, comes with an external power supply.

AXM-MESH MODULE

Native plug-in module for the Acuvim II series meters, allows Acuvim II power and energy meters to be enabled with AcuMesh wireless communication capability, no power supply needed.

KEY SPECIFICATIONS

	Transceiver	AXM-Mesh Module
Connection	RS485 Screw terminal, USB mini-B (power supply or configuration)	Attached to Acuvim II Power Meter
Data Rate	9600 bps	
RF Properties		
Operating Frequency Band	902 to 928 Mhz (900 Mhz ISM Band)	
Spread Spectrum	Frequency Hopping	
Number of Channels	64	
Transmit Power Output	24 dBm (250 MW)	
Receiver Sensitivity	-101 dBm	
Indoor/Urban Range	Up to 1000' (305 m)	
Outdoor RF Line-of-Sight Range	Up to 4 miles (6.5 km) with 2.1 dB dipole antennas	
RF Data Rate	Up to 200 kb/s	
Antenna		
Impedance	50 ohms unbalanced	
Networking and Security		
Supported Network Topologies	Mesh, point-to-point, point-to-multipoint, peer-to-peer	
Addressing Options	Personal Area Network Identifier (PAN ID) and 64-bit MAC add addresses	
Encryption	128 bit Encryption Standard (AES)	
Power Requirements	Power supply included	Directly powered by meter
Power Supply	100-240Vac 47-63Hz	NA
Receive Current	60 mA (@9V)	NA
Transmit Current	140 mA (@9V)	NA
Physical Properties		
Size	4.5 x 2.75 x 1.125 in. (11.4 x 7.0 x 2.9 cm)	NA
Weight	150g	NA
Operating Temperature	-40 to 85°C (Industrial)	

ORDERING INFORMATION

ACUMESH-K
Standalone transceiver, whip antenna and power supply.

AXM-MESH
AcuMesh module that plugs in Acuvim II series meter directly, include magnetic mount antenna with 3-meter extension cable.

ANTENNA-2DB-3M-S
Magnetic mount antenna with 3m extension cable and adhesive cup base.

ANTENNA-2DB-WHIP
Whip Antenna that connects with AcuMesh transceiver (AcuMesh-K) or AcuMesh Module(AXM-Mesh)