

## ACUMESH - WIRELESS RS485 NETWORK

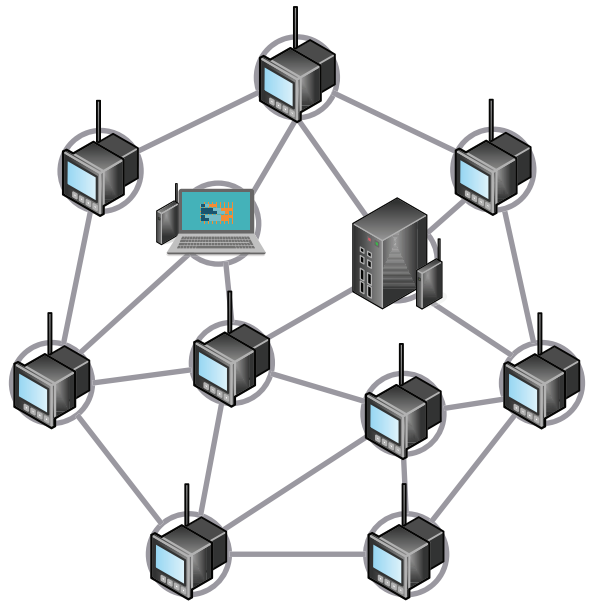
The AcuMesh wireless metering solution is designed to connect energy meters and any devices by communicating with RS485 wirelessly. AcuMesh is a cost-effective solution that eliminates the need for installation of communication wires. Saving premium time, labour, and reducing the challenges of retrofit 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.
- Available in 900MHz and 868MHz frequency. Compatible for most countries and regions.
- Available in Din-Rail, Wall mount or Surface mount form factor.



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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## KEY SPECIFICATIONS

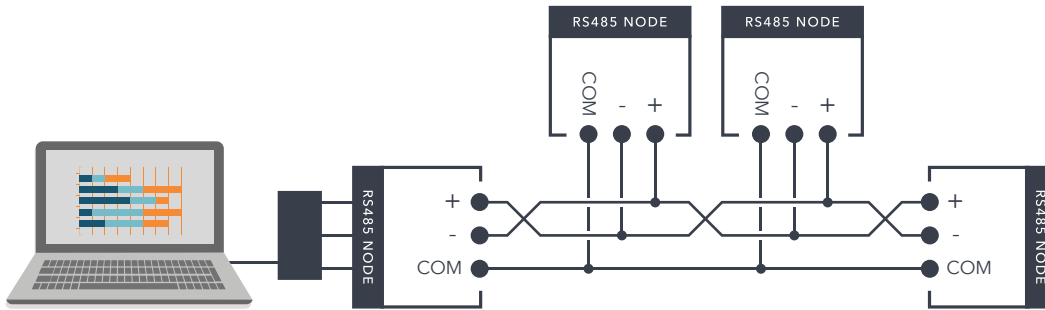
	AcuMesh-K Wireless Transceiver Kit	AcuMesh-L Wireless Transceiver Kit
Part Number	AcuMesh-K	AcuMesh-L-868
Compatible Countries / Regions	North and South America, Oceania, part of Asia. International Telecommunication Union Region 2 and 3	Europe, Middle East, Africa, part of Asia. International Telecommunication Union Region 1
Connection	RS485 screw terminal, USB mini-B (power supply and/or configuration)	
Serial Baud Rate Range	9600 - 230400	
<b>RF Properties</b>		
Operating Frequency Band	902 to 928 MHz (900 Mhz ISM Band)	863 to 870 MHz Configurable band
Number of Channels	64	30 channels, Listen Before Talk (LBT) + Automatic Frequency Agility (AFA)
Spread Spectrum	Frequency Hopping	Frequency Hopping
Transmit Power Output	24 dBm (250 MW)	14 dBm (50 mW)
Receiver Sensitivity	-101 dBm	
Indoor/Urban Range	Up to 1000' (305 m)	Up to 275' (84 m)
Outdoor RF Line-of-Sight Range	Up to 4 miles (6.5 km) with 2.1 dB dipole antennas	Up to 2.6 miles (4.2km) with 2.1 dBi antenna
RF Data Rate	Up to 200 kb/s	Up to 80 kb/s
<b>Antenna</b>		
Impedance	50 ohms unbalanced	
<b>Networking and Security</b>		
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	Power supply included in kit
Power Supply	100-240Vac 47-63Hz Wall Plug	100-240Vac 50/60Hz Din-Rail Mount
Receive Current	0.54W	
Transmit Current	1.26W	
<b>Physical Properties</b>		
Size	4.5 x 2.75 x 1.125 in. (11.4 x 7.0 x 2.9 cm)	3.54 x 2.1 x 1.26 inch (9 x 5.3 x 3.2 cm)
Weight	150g	80g
Mounting	Surface mount	Din-Rail or Wall Mount
Includes	Transceiver, Antenna, Power Supply	
Certification	United States (FCC Part 15.247) Industry Canada (IC) Australia C-Tick	ETSI (Europe) United States (FCC Part 15.247) Industry Canada (IC) Australia C-Tick

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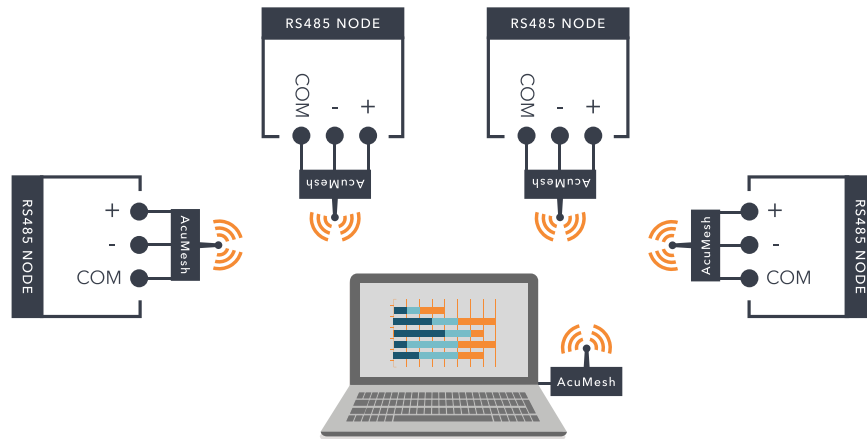
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## WHAT IS A MESH NETWORK?



### 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 slave to master, from sensors and meters to data acquisition servers and gateways cost effectively and with minimal challenge.

## ACUMESH APPLICATIONS

The AcuMesh was designed to expand the communications capabilities of meters and RS485 devices within any building, facility and infrastructure.

- Retrofit metering in existing buildings.
- Metering in campus.
- Metering in commercial buildings.
- Multi-tenant billing and submetering.
- Renewable energy-array, string and inverter metering.
- Industrial facilities metering.
- Data acquisition from entire infrastructure.



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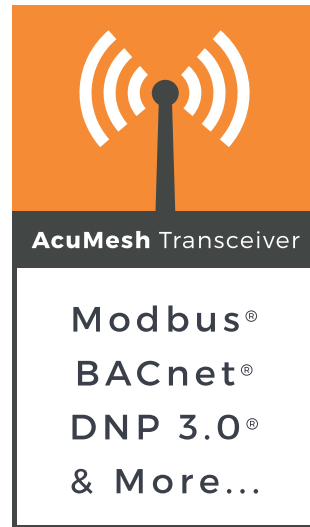
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## COMPATIBILITY

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.



**Transparent communication. Compatible with any protocols via RS485.**

## ACUMESH VS. ZIGBEE & WIFI

The AcuMesh takes advantage of Mesh technology to boost its 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

## ORDERING INFORMATION

The AcuMesh wireless solution comes in a variety of options:

### ACUMESH-K

Transceiver with 900MHz Frequency, Surface Mount.

### ACUMESH-L-900

Transceiver kit with 900MHz Frequency, Din-Rail or Wall Mount.

### ACUMESH-L-868

Transceiver kit with 868MHz Frequency, Din-Rail or Wall Mount.

*The Wireless transceiver kit includes transceiver, whip antenna and power supply.*

### 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)

Wireless transceivers can be connected to to any device with RS485 or USB port.

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