

The Wi-Modbus TCP is a wireless Modbus gateway for communications over TCP/IP networks which performs wireless mesh network management tasks, collects wireless sensor data and communicates control commands to the compatible wireless devices.

### Features at a Glance

- Communicates wireless sensor data to a Controller over standard Modbus TCP/IP protocol
- Supports TCP/IP networking stack with DHCP or static IP assignment
- RJ45 connector via Ethernet 10Base-T/100Base-TX interface to Modbus Controller
- Compatible with most Modbus TCP Controllers
- Operates on a worldwide and license-free 2.4 GHz ISM radio band with 15 user-selectable channels
- Provides bi-directional communication to and from devices on the wireless network
- Controls the wireless network
- 18 dBm maximum RF transmit power
- Data rates up to 250 kbps
- FCC-compliant hardware module
- RoHS-compliant

### Wireless MeshScape Gateway

The Wi-Modbus TCP gateway allows network monitoring and control of a wireless mesh network via Modbus TCP embedded controller. The gateway serves as the focal point of a MeshScape wireless network. It aggregates data traffic from all mesh nodes and end nodes within radio range, and communicates to the host. Wi-Modbus TCP operates as proxy server of data coming from all wireless devices in the mesh network. The gateway also relays commands from the host computer to the mesh nodes and end nodes and supervises the operation of the network. The. It is readily compatible with most Modbus TCP controllers.

### Ease of Integration

Wi-Modbus TCP can be easily integrated with any ModbusTCP controller on the market through RJ45 port via Ethernet 10Base-T/100Base-TX interface. LED indicators allow for strategic positioning in areas with reliable network connectivity. The Wi-Modbus TCP I runs on a low voltage power supply (4.5 – 30 VDC) which is easily obtained from a power line or other sources.

### Long Range

The Wi-Modbus TCP serves as the focal point of a MeshScape wireless network. It transmits at a radio power of 60-mW, allowing for communication distances between Wi-Modbus TCP and wireless devices to span at least 750 feet outside line of site, depending on the local conditions affecting radio transmission. The MeshScape Networking System is scalable to include hundreds of nodes and cover thousands of feet.

#### Try it for yourself

Setting up a wireless mesh network is fast and easy. The MeshScape self-forming and self-healing network is designed for rapid deployment and easy operation. For more information, visit [www.millennialnet.com](http://www.millennialnet.com)

### MeshScape GO Networking

The Wi-Modbus TCP uses the industrially-proven MeshScape GO networking system, which employs patented Persistent Dynamic Routing™ (PDR) techniques to form a self-configuring wireless mesh network. PDR uses a node-initiated network formation to enable efficient topology discovery and facilitates network re-formation (required in ever-changing RF environments) by applying “best route” information. With MeshScape, you can deploy industrial-class wireless mesh networks that are:

- **Self-administrating:** a self-forming and self-healing mesh network requires no administration
- **Robust:** a network that ensures reliable data transmission
- **Responsive:** a network that quickly adapts to changes in topology and radio frequency (RF)
- **Power efficient:** can run for years on a single battery set
- **Scalable:** with the application, can scale to hundreds of wireless nodes with minimal overhead
- **Low latency:** very short network data delivery times

The Wi-Modbus TCP is designed to be part of the MeshScape GO LAN- based system, which can be configured to provide either single-site monitoring/control via a local controller or multi-site monitoring/control via an internet web interface.



Wi-Modbus TCP Wireless Modbus Gateway

### Remote Monitoring/Control Software Features

The Wi-Modbus TCP is designed to interface with any Modbus®- or MeshScape-compatible Remote Monitoring and Control software application, such as Millennial Net's Wi-EMS or other.

## Wi-Modbus TPC Specifications

**Power**

Parameter	Value	Unit	Notes
External DC supply	12	VDC	

**Communication Interface**

Interface	Connector	Notes
Ethernet 10Base-T/100Base-TX	RJ45	Supports TCP/IP networking stack with DHCP or static IP assignment
Communication protocol	Modbus TCP/IP	Wi-Modbus TCP operates as proxy server of data from all devices in the mesh network; all wireless devices including Wi-Modbus TCP are Modbus slave devices to Modbus masters. Wi-Modbus TCP supports communication with Modbus TCP/IP devices through its Ethernet interface.

**Radio**

Parameter	Value	Unit	Notes
Operating frequency range	2405 ~ 2480	MHz	ISM band
Channel number	16		IEEE 802.15.4 channels 11 ~ 26
Channel spacing	5	MHz	
Maximum RF transmit power	18	dBm	
Receiver sensitivity	-95	dBm	At 10 <sup>-5</sup> bit error rate
RF data transmission rate	250	Kbits/sec	

**Environmental & Mechanical**

Parameter	Value	Unit	Notes
Operating temperature range	10 ~ 40	°C	
	50 ~ 104	°F	
Storage temperature range		°C	
		°F	
Dimension (L X W X H)	3.9 X 5.5 X 1.3	in	
	100 X 140 X 32	mm	
Weight	5.1	oz	
	150	g	

**Regulatory Compliance**

FCC & IC for unlicensed operation

