

The 6424 MeshScape® Wireless Pulse Counter (Wi-Pulse) Accumulates Meter-Output Pulses and Communicates as a Node in a Self-Forming and Self-Healing Wireless Network

Features at a Glance

- MeshScape-compatible wireless sensor node
- Operates on a worldwide and license-free 2.4 GHz ISM radio band with 15 user-selectable channels
- Available in two configurations:
 1. Battery-powered end node
 - Complete wireless operation
 - Low power consumption for extended use
 2. Line-powered end node
- Pulse rates of up to 10 pulses per second
- Detects pulses of 10 msec. or greater
- Built-in de-bounce feature filters noisy signals
- 32-bit accumulator
- Two RJ11 connectors support one or two pulse inputs
- CE- and FCC-compliant hardware module
- RoHS-compliant
- Available in indoor/outdoor (NEMA) enclosure

Wireless Pulse Counter

The 6424 MeshScape Wi-Pulse functions as pulse accumulator (counter) for pulse rates of up to 10 pulses per second. Counts are communicated wirelessly through the mesh network at configurable frequencies with bidirectional acknowledgement. The Wi-Pulse can accumulate up to 4 bytes of time-stamped pulse counts. High accuracy counting ensures that pulses are not missed.

Ease of Installation

The Wi-Pulse can be installed in minutes at the local meter. There is no need to run network wires. The Wi-Pulse is designed to consume minimal amounts of energy and to enable battery-powered operation with configurable duty cycling, allowing for optimal battery life. It serves as a MeshScape 6424 End Node in a star or star-mesh topology. Installation is also made easier by the connection between the RJ11 connectors and the sensors.

Typical Applications

The Wi-Pulse is ideal for retrofit installations, new installations, or temporary consumption studies of water, electricity, or gas metering in municipal, commercial, residential, and industrial environments. With optional I/Os, users can monitor measurements such as water temperature or gas pressure.

Long Range

The Wi-Pulse transmits at a radio power of 60-mW, allowing for communication distances of at least 750 feet clear line of sight.

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

MeshScape GO Networking

The Wi-Pulse 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-Pulse 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 PC or multi-site monitoring/control via an internet web interface.



The Wi-Pulse supports two pulse outputs with RJ11 connectors for easy installation. Additional I/O interfacing is also possible.

Remote Monitoring/Control Software Features

The MeshScape Wi-Pulse is designed to interface with any Modbus® or MeshScape-compatible Remote Monitoring and Control software application, such as Millennial Net's Wi-EMS. The Wi-EMS is a full-featured and easy-to-use Wireless Energy Management System that provides all the tools you need to report, trend, and analyze energy consumption.

MeshScape®

6424 Wi-Pulse Specifications

Parameter	Value	Unit	Notes
Power			
External DC supply	4.5 ~ 30	VDC	
Internal batteries	4.5	VDC	Three AA size batteries
Estimated battery life	4.5	Years	Alkaline batteries, 1 Hz pulse rate, 5 minutes transmission interval and 1.8 msec de-bounce filter; battery life reduces with higher pulse rates, shorter transmission intervals or longer de-bounce pulse width filter.
Pulse Signal			
Input channel current	0.033, 0.33, or 2,2	mA	Selectable by jumper setting; for open collector pulse signals, no jumper needed
Maximum input voltage	3.3	V	
Positive input threshold	1.3 ~ 2.2	V	Logic high level
Negative input threshold	0.6 ~ 1.3	V	Logic low level
Input hysteresis	0.4 ~ 1.1	V	Typical difference between logic high and low trigger levels
Minimum pulse width	10	Milliseconds	Open collector, non-bouncing
De-bounce filter	1.8 or 10	Milliseconds	Eliminates bounces (false pulses) less than 1.8 msec or 10 msec, selectable by jumper setting
Pulse Counter			
Pulse input channels	2	channel	Two independent input channels
Cumulative pulse count capacity	32	bits	Can be reset to zero remotely
Interval pulse count capacity	16	bits	
Interval count value transmission intervals	5, 6, 10, 12,15, 20 or 30	Minutes	Time stamped interval count values transmitted on specified interval
Radio			
Operating frequency range	2405 ~ 2475	MHz	ISM band
Available Communication Channels	15		IEEE 802.15.4 channels 11 ~ 25
Channel spacing	5	MHz	
Maximum RF transmit power	18 (63)	dBm (mW)	
Receiver sensitivity	-95	dBm	At 10 ⁻⁵ bit error rate
RF data transmission rate	250	Kbits/sec	
Environmental & Mechanical			
Operating temperature range	-10 ~ +55	°C	
	-14 ~ +131	°F	
Storage temperature range	-40 ~ +85	°C	
	-40 ~ +185	°F	
Dimension	5.5x4.5x1.5	in	
	140x114x38	mm	
Weight	10.5	oz	Excluding batteries
	300	g	
Regulatory Compliance			
FCC, IC & CE for unlicensed operation			

