

Ethernet Gateway Reader - Integration

Main features

- Transfers Tags and sensor data to cloud
- Wireless communication to repeater
- Real Time Location technology
- 3.3V power supply
- Easy to install
- Wall/pole mount
- Narrow Band RF

Applications:

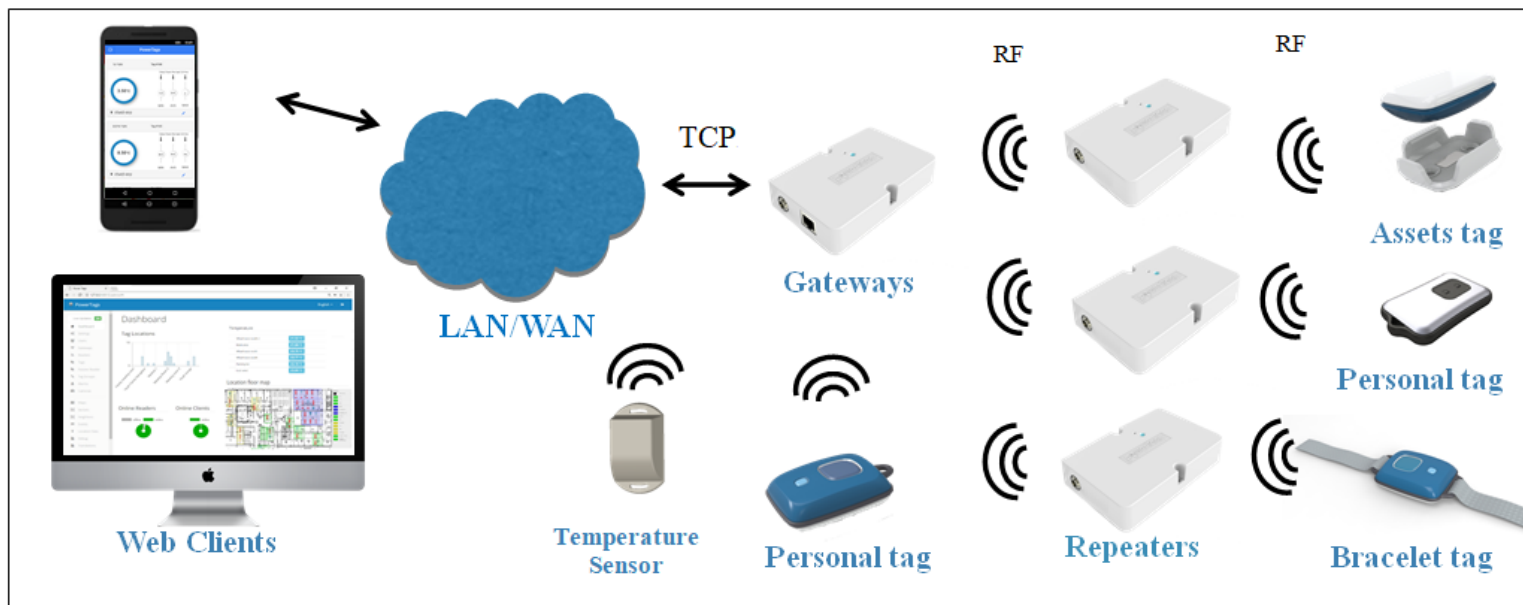
- Real Time Location Tracking - RTLS
- Asset tracking
- Patient, residents tracking
- Assisted living supervision
- Duress button
- Location based services, alarms and monitoring residents
- Wireless Sensor networks



PowerTags' redefines location tracking for people and asset via an innovative approach using active RFID/Narrow band technology. The first component of the system is an ultra-compact tag operated by a small, long- life battery that lasts years and doesn't require replacing or recharging. It communicates via sub-1GHz Radio Frequency with a number of Readers placed in the facility that triangulate the tag's position and transmit the data to a gateway. The data is sent from the gateway RJ45 Ethernet connector to the software or PowerTags' CMS which then calculates the tag's real-time as well as historical movement patterns that are then displayed on a map/table providing components monitoring, variety of analytics and automatous rule engine that operates based on user's profiles.

The Gateway Readers can receive communications from the repeater-reader or tags up to 100 meters range (default configurations for tag long battery life) and over 500 meters for sensor operations upon demand.

PowerTags Diagram Options:



***All tags are provided with Location Tracking, sensitive Tilt sensor, a Button and years lasting battery life-span**

RTLS technology..... Active RFID /Narrow band RF
 Power supply stabilized transformer.....3.3V, 1 Ampere or more

Product specifications:

Power supply stabilized transformer.....3V, 1Amp or more
 Gateway Dimensions 122 x 81 x 26 mm
 Weight..... 100 grams
 Temperature.....-30C to 80C
 Reception Frequency range868/915 MHz (720 - 970 Mhz by demand)

Complies with FCC/ CE/ IC regulatory standards:

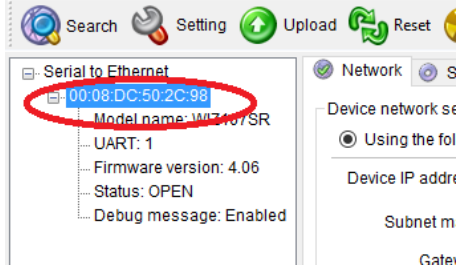
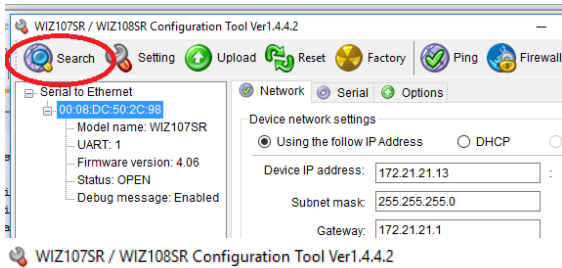
- Tag FCC ID: 2AEXTTAGS3V04V0
- Tag IC ID: 21825-TAG3V04V0
- REPATER/GATEWAY FCC: 2AEXTPOWER TAGS

Downloadable:

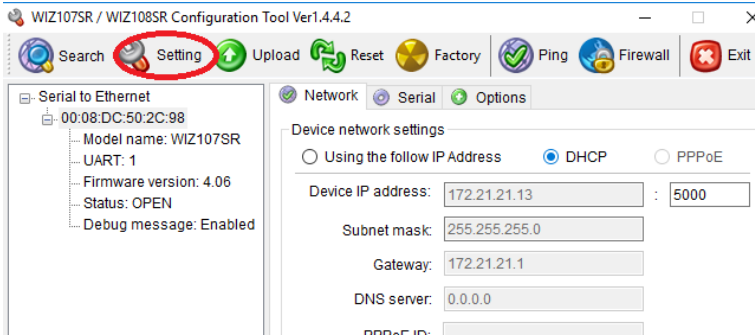
- Configuration tool [link](#) for Windows computers
- Network configuration description [link](#)

Installation guidelines:

1. Run the ConfigTool and search for LAN connected Ethernet Gateway or directly connected to PC with Static IP address
2. Search for connected Gateway devices



3. Configure DHCP of STATIC IP, Subnet mask and network gateway IP
4. Under the "remote IP/host name" section Configure the software Management IP address and choose TCP client IP address and type Port number
5. Press the setting button to send configuration to the selected Gateway



Software integration instructions:

The PowerTags hardware consists of wireless Tags/Sensors gateways and optional wireless repeaters, this tutorial describes all the information required to perform hardware to software integration and includes the different frame formats from the gateway to/from software management software.

The gateway message format is as described is send over TCP raw-data in bytes as described:

Byte #	0	1	2	3	4	5	6	7	8
Field type	opcode	ReaderID		deviceID		Index #	RSSI	flag	Delimiter
		MSB	LSB	MSB	LSB				~

- opcode 1 means the deviceID and data was detected by the sending Gateway device.
- opcode 2 means the deviceID and data was detected by a repeater device that contains ReaderID as described.
- ReaderID is the receiving device's ID (gateway or repeater)
- deviceID is the transmitting devices' ID (wireless Tags or sensor)
- Index # - is a running index number of the wireless tags between 1 to 124
- RSSI-256 is the RSSI in dBm is the power level the receiving device (gateway or repeater) for the tag transmissions, provides indication for the range of the tags from the (gateway or repeater). is measured in dBm with values ranged from 0 to -110 dBm

Temperature data is the same as any tag with 2 additional bytes flag is 0X32

Byte #	0	1	2	3	4	5	6	7	8	9	10
Field type	opcode	ReaderID		deviceID		Index #	RSSI	flag	Temperature	Temperature	Delimiter
		MSB	LSB	MSB	LSB				(uint8_t)measured_temp	(uint8_t)(measured_temp>>8)	~

- The get measure temperature a simple conversion is required by (Byte[8]+Byte[9])
*0.0625 = degrees in Celsius

Both Repeaters and Gateways receive tags transmission, when a gateway is the receiver the opcode 1 is being marked in Byte [0].

When a repeater is detecting the tag/sensor it will retransmit the data towards all gateways within its area and these gateways will then write opcode 2 in byte[0] and the ReaderID of the repeater.

Flag	Info
0x09	Broadcast
0x0F	Button 1 pressed
0x10	Button 2 pressed
0x11	Battery low
0x12	Tag TILT
0x13	Tag tilt is active + battery is low
0x14	Tag button 1 pressed + battery is low
0x15	Tag button 2 pressed + battery is low
0X16	Tag tilt + button 1

0X17	Tag tilt + button 2
0X32	Temperature

Gateway Keep alive send to Server every 30 seconds

0	1	2	3	0
Opcode [5]	GatewayID		Delimiter [~]	
5	MSB	LSB	~	

Reply on Opcode 5 KEEP ALIVE response from Server

0	1	2	3	0
'0'	'0'	'0'	~	

If no reply has been received by the gateway it will reboot itself and try to reconnect