

## QGW820 Wi-SUN Smart Gateway



### Functional Brief

Wi-SUN (Wireless Smart Ubiquitous Network) protocol is based on the open specifications of IEEE 802.15.4g, IEEE 802 and IETF IPv6 standards, and has better security, power efficiency, scalability and other advantages, as well as has built a sound ecosystem in wide-area and large-scale IoT applications.

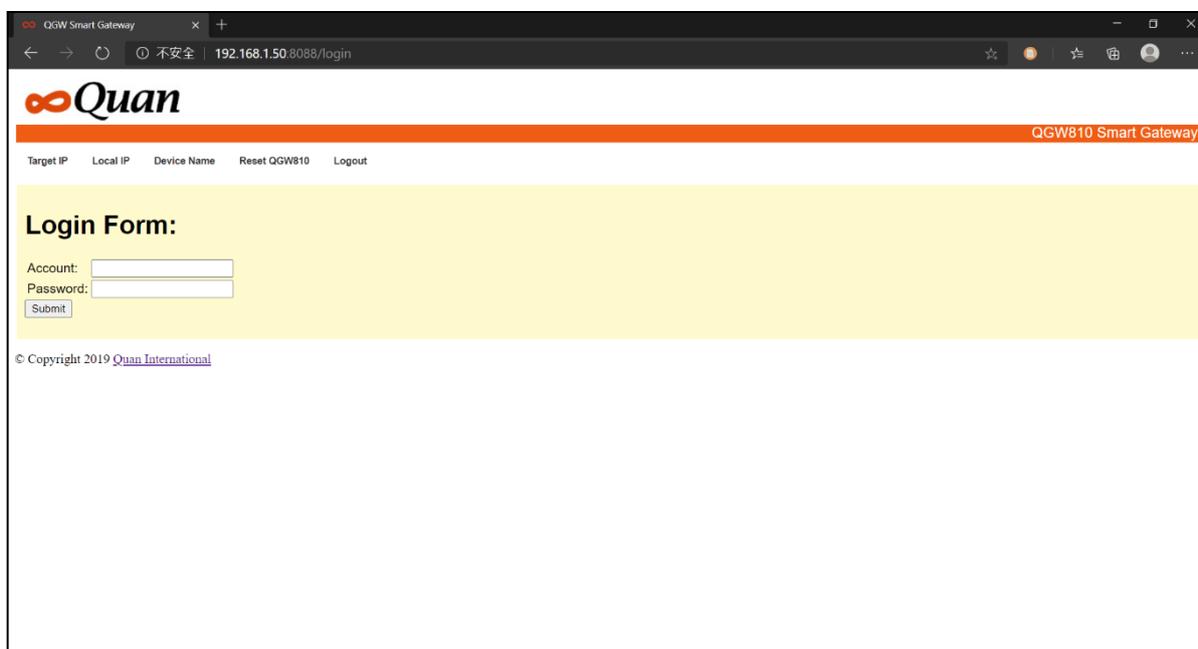
Based on these features, QGW820 can receive data from other Wi-SUN nodes across several kilometers (by multi-hopping), process the data and then forward the result to a PC or remote server for further manipulation through its Ethernet/Wi-Fi interface. Also, QGW820 is able to receive commands from the PC or server which can be used to configure itself or forwarded to control the deployed nodes.

QGW820 is powered by dual computing units, which gives QGW820 strong

processing capability. One is an MPU MYC-Y6ULX, which is responsible for networking and data storage. The other one is a real-time computing MCU STM32F302, which controls I/O signals.

QGW820 is in itself a small programable single-board computer (SBC), and thus enable developers to write C or node.js programs to extend its functionality. For example, QGW820 can further communicate with PCs via TCP/IP or locally execute various automatic control processes. QGW820 can be either a server or a client. It can also actively send a set of passwords after connected to server for security purpose.

QGW820 has its internal web server. Users can configure QGW820 if needed, including local IP, target IP, network settings, request IP from DHCP server, sending server password, setting up server password, etc.



## Applications

- Smart Street Lighting
- Automatic Factory
- Smart cities
- Utility Industry & Energy Management
- HEMS (Home Energy Management System)
- Smart Agricultural System
- Monitoring & Asset Management

## Specifications

Dimension
<ul style="list-style-type: none"> <li>● 158(L) x 95(W) x 23(H)mm</li> <li>● 210(L) x 95(W) x 172(H)mm with antenna installed and bent 90 degrees.</li> </ul>
Connectivity
<ul style="list-style-type: none"> <li>● Wi-SUN           <ul style="list-style-type: none"> <li>➢ IEEE 802.15.4g Sub-1GHz (based on VC7300BU)</li> <li>➢ Frequency Band: 915 MHz ISM Band (902 MHz ~ 928 MHz). Versions for 435 / 490 / 868MHz are available upon request.</li> <li>➢ Data rate: 50kbps , 100kbps , 150kbps , 300kbps</li> </ul> </li> </ul>

- Transmit output power: 0dBm , +13dBm , +20dBm
- Best in class receiver sensitivity: -109dBm at 50kbps GFSK (PER=1%)
- Connectivity: Up to 100 wireless sensors. (depends on the actual situation, like data size, sampling rate, etc.)
- Ethernet (TCP/IP)
  - RJ45 100/10MBbps
- Cellular (Optional)
  - GSM / WCDMA / LTE
- Wi-Fi (Optional)
  - IEEE 802.11 b/g/n (2.4 GHz)
  - Built-in web server to configure its device name, local IP, target IP, etc.
  - Built-in avahi-daemon, which actively announce its own IP address.
  - Actively send a security password after TCP/IP connection established.

### Computing units

- MPU: MYC-Y6ULX, 528MHz
- MCU: STM32F302, 72MHz

### Memory

- RAM 256MB, ROM 256MB
- SD Card Slot x 1(Max 64GB)

- USB Host x 1

## I/O

- Automatic control interfaces: Digital output x 6, Digital input x 4
- Digital communication: RS485 port x 1
  - Works fine with WS485 transmitter, which converts RS485 signal into Wi-SUN signal, then forward to a specific address.

## Power

- DC 7-24V, 2.5W

## Others

- Physical buttons: 1. Pari with sensors. 2. Defined by firmware.
- LED status indicators x 12
- Users can develop customized programs according to its API document