RAEM1 Wi-Fi Module Quick Start Guide

1. What's included:

RAEM1 with magnetic base	Antenna with magnetic base	Connector with Ethernet cable and power
Sensor and magnetic holder	Sensor Coaxial cable	12V power adaptor

- RAEM1 Top Part Details:

RAEM1
SN:qc_raem1_164
Input: 12V/1A Output: 28V
Filter: 125-170kHz (150kHz)
Debug Port: 6171
https://www.aendt.com
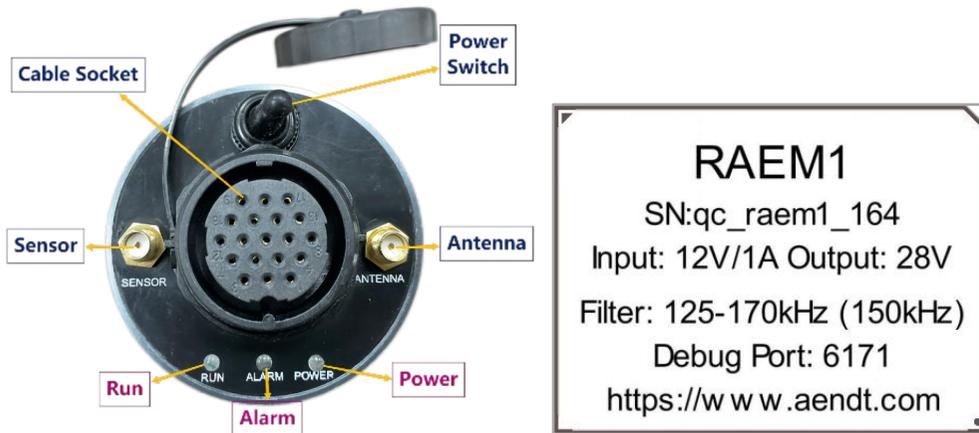
2. Setup

1) Before the hardware connection, please read the RAEM1 label to figure out the matching power adaptor and sensor. The sensor type is normally the integral sensor with built-in preamplifier. The preamp voltage is supplied through the "Sensor". The analog filter in RAEM1 also requires the sensor frequency range to match. If mismatching the sensor, it may cause some damages on the sensor or not fully functioning. So please pay attention to the label.

2) connect all the parts to RAEM1. Connect the power adaptor to the wall outlet.
3) turn on the power switch. When it starts, the "POWER" light is solid on. After a few minutes, the "RUN" light starts flashing every second to indicate the device is operating.
4) the device is now ready to operate and to connect.

3. Connect to Configuration Software

The device can connect to the RAEM1 configuration software through three communication modes, Ethernet, Wi-Fi Hotspot mode and Wi-Fi Router mode.

3.1 Ethernet Connection

① Plug the Ethernet cable from the RAEM1 to a computer. If there are multiple RAEM1 to connect, connect them to a switch and then to a computer.

② Some computer settings need to be changed in order to connect:

➢ **Ethernet Duplex Mode:** open "Control Panel" >> "Network and Internet" >> "Network Connections". Choose the local area connection. Right click and choose "Properties" and then choose "Configure..". In the "Advanced" Tab, choose "Speed & Duplex". On the "Value" drop-down menu, select "**100Mbps Full Duplex**".

details.
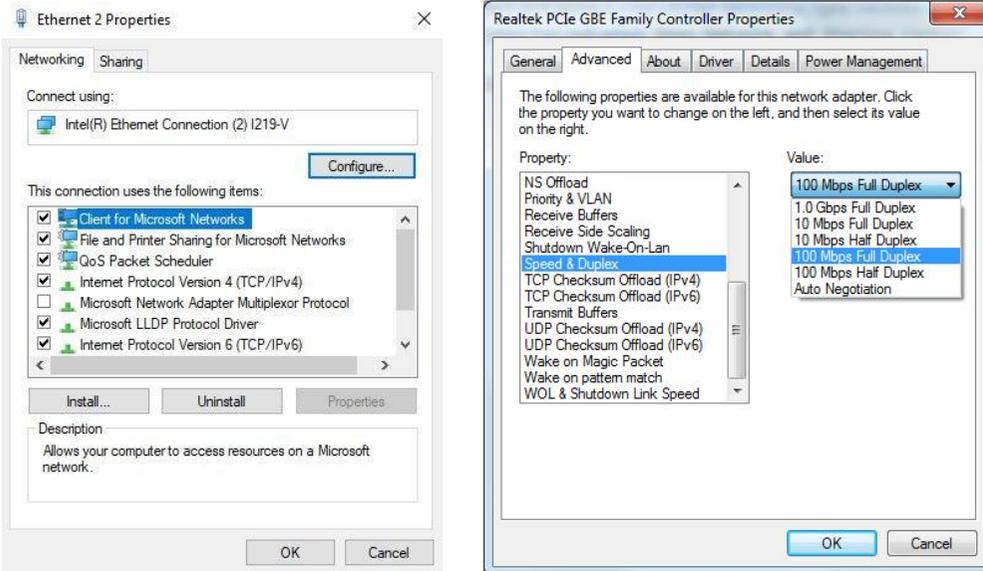
➢ **Configure Ethernet IPv4:** choose "Internet Protocol Version 4 (TCP/IPv4)", and then click "Properties". In the pop-up window, check "Use the following IP address:". Then enter the "IP address:" as **192.168.0.XX** (XX can be any two digital numbers). "Subnet mask: " is 255.255.255.0. "Default gateway" is 192.168.0.1.

③ **Before using the software, please turn off all firewall and anti-virus programs. Check the user's manual for detail.**

④ Start the RAEM1 Configuration software. The software has 32-bit and 64-bit versions and it runs in Windows 10 and below system. For the first time running, it might pop up a firewall warning window. It must check both the private and the public network options and then click "Allow access".
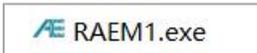
⑤ Once the software is opened, the devices should show in the "Device List" with the IP address (192.168.0.101) and their own ID. Now you can choose a device and view or modify their configuration settings. Please see the user's manual for more
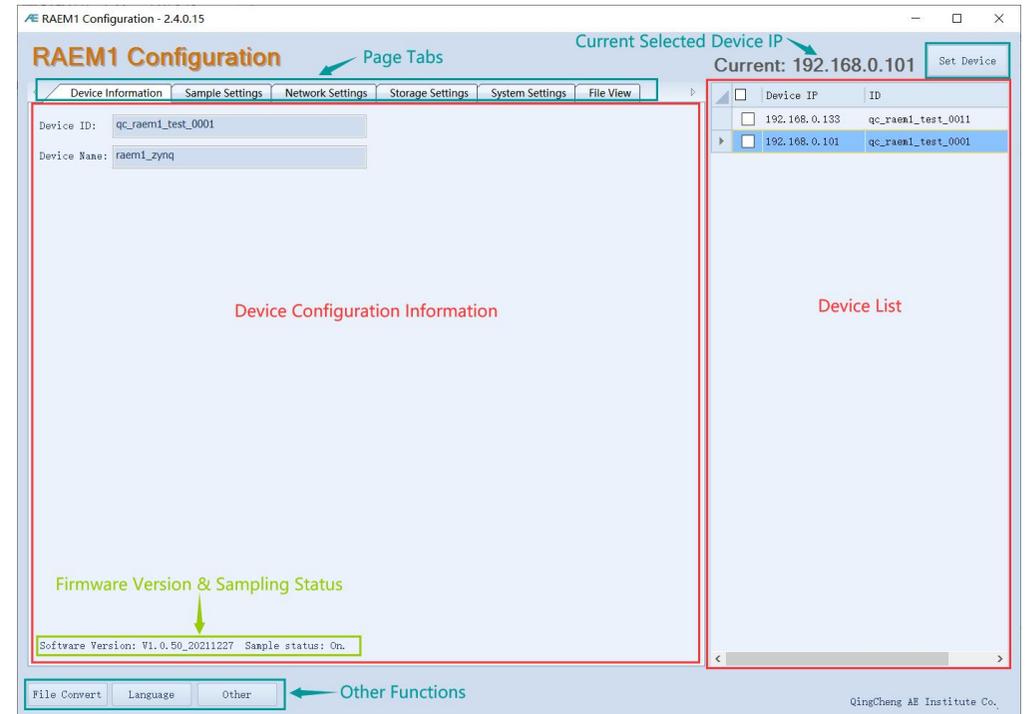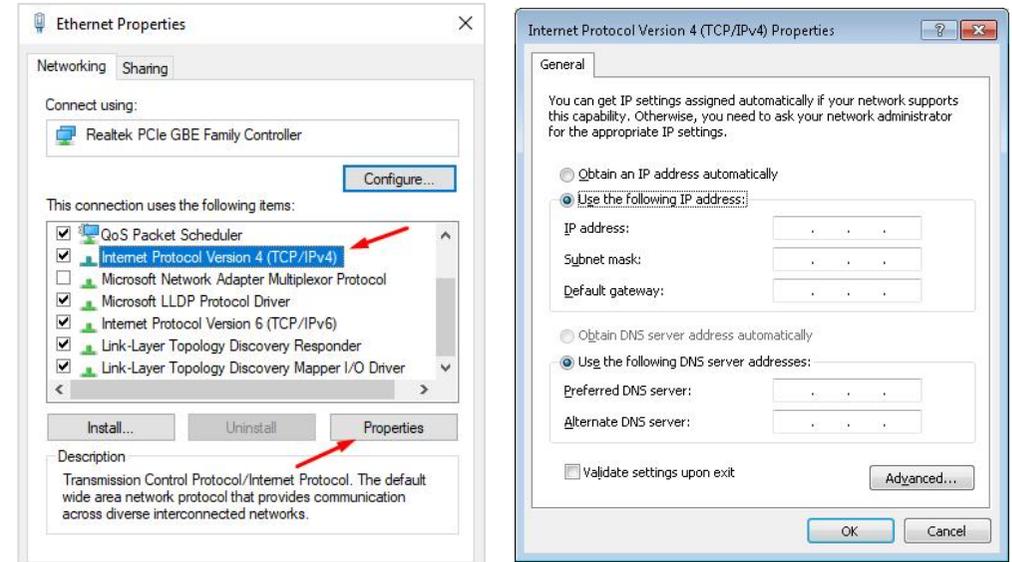
3.2 Wi-Fi Hotspot Mode

The factory default Wi-Fi mode of REAM1 is Hotspot mode. RAEM1 releases a Hotspot for connection. The Hotspot information is as listed in the table below.

Hotspot Name	qc_raem1_test_xxxx_5g
Hotspot Password	88888888
Device IP Address	192.168.100.1

When the computer searches for and connects to the RAEM1 Hotspot, the device should be shown in the "Device List" in the RAEM1 Configuration software (see Step 3 - 5 in Page 2 above). Now the device can start to be configured.

3.3 Wi-Fi Router Mode

Use Wi-Fi Router mode if you want to connect multiple RAEM1 at the same time wirelessly, or want RAEM1 to connect to the cloud servers. Because the RAEM1 is in Hotspot mode by default, you need to change the RAEM1 to Router mode.

① Find out the router name, password and the router IP address that you want the RAEM1 to connect to.

⚠️ Because the Ethernet mode uses the network segment 192.168.0.xx (i.e. subnet 0). The Wi-Fi router must be a **non-zero** subnet to avoid communication conflicts.

② Connect RAEM1 to the RAEM1 Configuration software using either Ethernet or Hotspot mode. Tick the checkbox next to the device in the Device List.

③ Under the "Network Settings", change the WiFi settings to "Router mode" and then enter the router ID and password. Then click "Set Device" button on the top right corner.
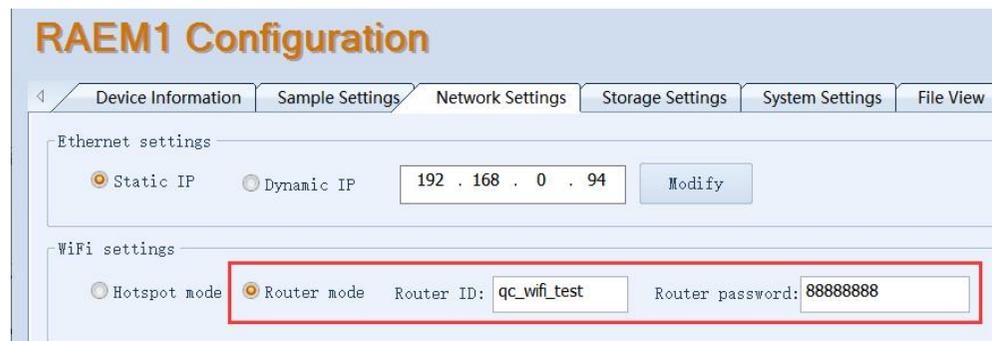
④ Right click on the device ID and select "Reboot" to make the changes take effect. Once the device finishes rebooting, it will automatically connect to the router.

⑤ Connect the computer to the router and open the software. It should show all the RAEM1 in the device list in the software now.

Follow the user's manual for more details and further operations.

4. Data Access and Display

RAEM1 starts data collections since turned on. Based on the data storage settings and the set desired destination, the data can be accessed locally or over the cloud servers.

4.1 Local Access

Access the RAEM1 data packages through the RAEM1 Configuration software. Before data collections, please check the RAEM1 configurations to make sure it is configured to store data in the local memory. Under the "Storage Settings", enable the "Save Wave" and "Save Param".
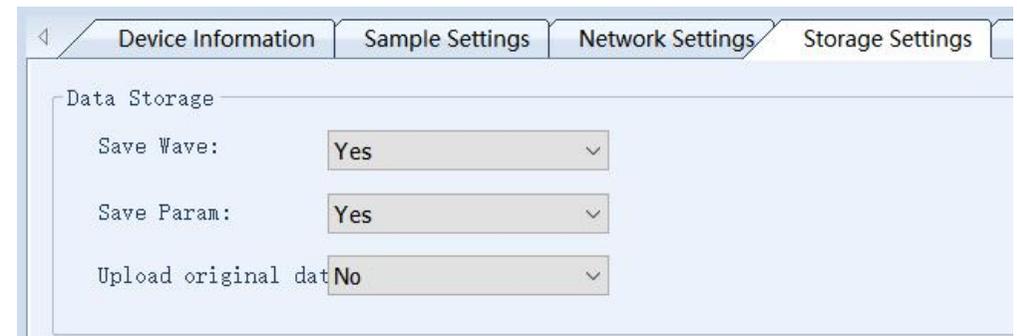
After data collections, you can connect the RAEM1 to the configuration software and view the data files of the RAEM1 under the "File View" tab. Right click on the files to download, delete or convert formats.

4.2 Download from the Cloud

If the RAEM1 can upload data to the cloud through Wi-Fi router, it can access data from the cloud server.

◆ **Qingcheng IoT Platform**

All RAEM1 can upload data to the Qingcheng IoT platform. Make sure to enable "Save Wave", "Save Param", "Upload original data" under the "Storage Settings" in the RAEM1 Configuration software. It may take some time for the data to upload to the cloud.

It can also configure the RAEM1 through the Qingcheng IoT Platform. Please see the user's manual for more detail.

◆ **Alibaba Cloud**

RAEM1 can also upload real-time data to the Alibaba Cloud by configuring RAEM1 with the Aliyun key and secret. In Alibaba Cloud, it displays the acoustic emission parameters in real time but not for downloads. You can also configured the RAEM1 remotely through Alibaba Cloud. Please see the user's manual for more detail.

◆ **AWS S3**

RAEM1 can also upload data to AWS S3. Just need to set up your AWS S3 account and enter the storage tank information in the REAM1 configuration settings. Then you can see the uploaded RAEM1 data packages in the AWS S3 buckets.

4.3 Real-time Data Analysis

RAEM1 can also display and analyze data in real-time using SWAEU3H(RAEM1) software through Ethernet cable and Wi-Fi. Before connecting to U3H(RAEM1), make sure that "Send U3H", "Send Wave" and/or "Send Param" are enabled in the configurations. Also importantly, set the "Address type" to "Use IP" and enter the target PC IP address that the RAEM1 should send to. Inside the U3H(RAEM1) "Sample Settings" enter the IP address same as the target IP address above. So it should be able to connect to the U3H and send data.

No	Arrival time(dd:hh:mm:s...	AE cha...	Amplit...	Counts	Duration(us)	Energy(KpJ)	Rise
10	6:23:35:31:664 100000	1	95.2	23	1348	57142.525	
11	6:23:35:31:667 241000	1	60.1	35	610	27.418	
12	6:23:35:31:670 604000	1	58.9	10	239	18.840	
13	6:23:35:35:088 760000	1	95.6	19	1456	52214.099	
14	6:23:35:36:207 796000	1	94.2	36	1345	25639.810	
15	6:23:35:36:871 860000	1	95.5	18	1520	58513.934	
16	6:23:35:43:266 453000	1	95.5	27	1490	38946.721	
17	6:23:35:44:039 742032	1	95.5	35	1397	44770.026	
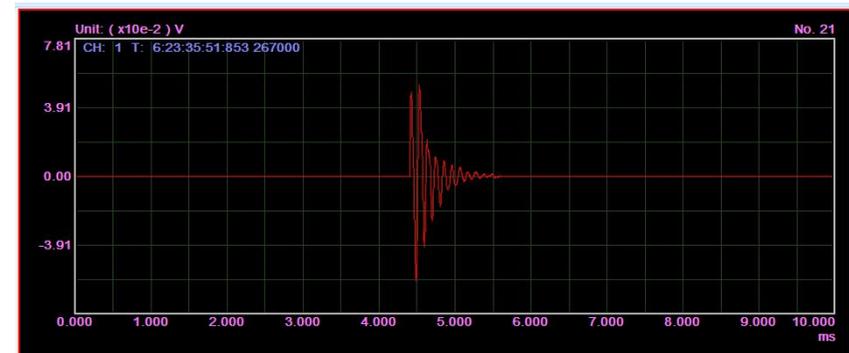
Please follow the user's manual for detail setups. If you have any questions, please don't hesitate to contact us.

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