Frequently Asked *Nano*Hub™ Questions

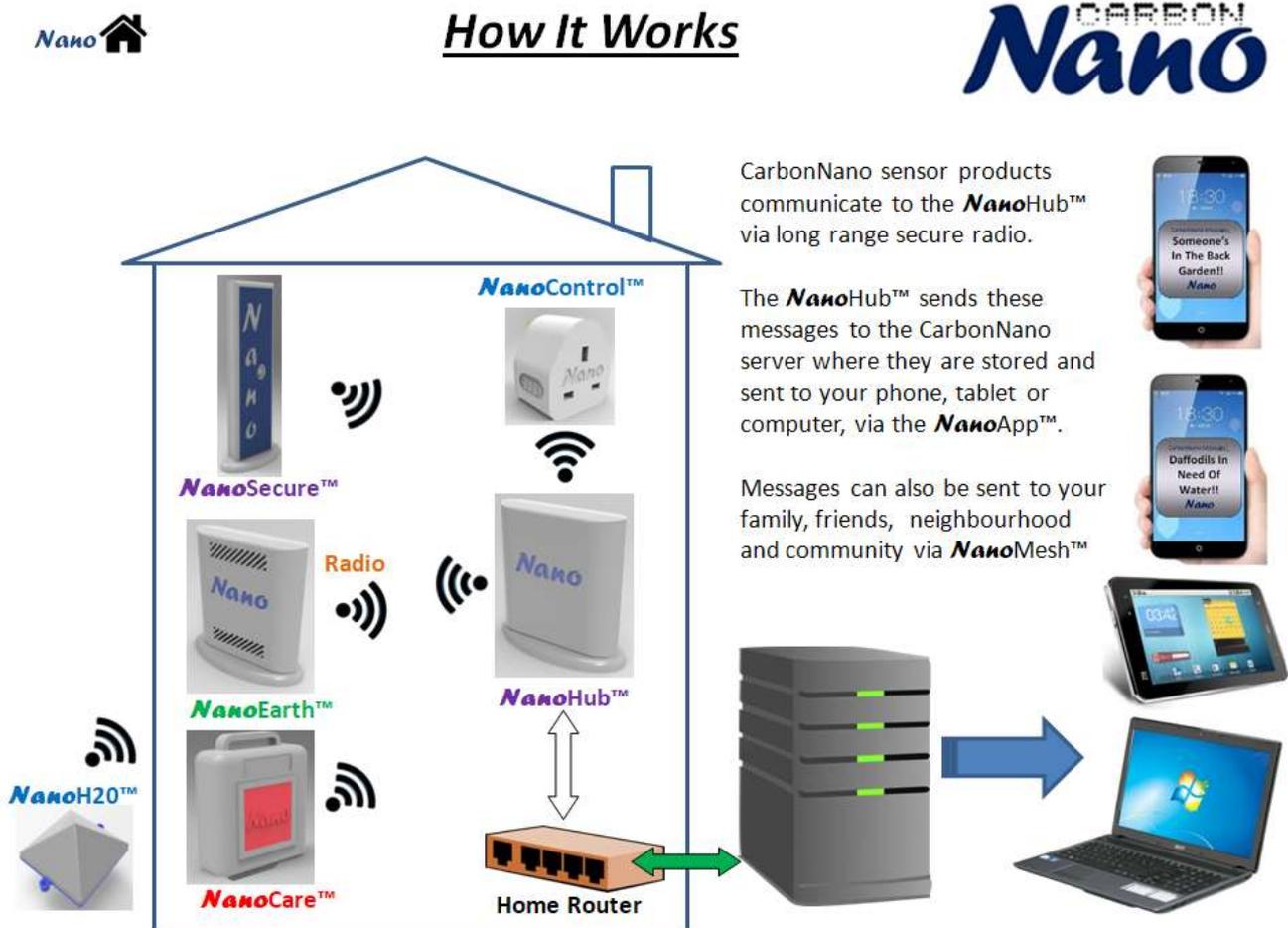# Contents

1   How does it work?

- The *Nano*Hub™ product is an Ethernet gateway. The *Nano*Hub™ receives messages from CarbonNano sensor products, and sends these messages to the CarbonNano server. The *Nano*Hub™ also receives messages from the CarbonNano server and sends these messages to the CarbonNano sensor products. Additionally the *Nano*Hub™ sends and receives its own messages to and from the CarbonNano server.

- The *Nano*Hub™ simply connects to your broadband router. If you do not have a fixed broadband connection, it is also possible to connect the *Nano*Hub™ to a wireless broadband router as long as you have a good mobile phone signal in your area. Wireless broadband routers use the mobile phone network to send and receive data; they are equipped with a data SIM card.

- The *Nano*Hub™ is powered through its USB port via a mains power supply.

2   How many **Nano**Hub™ gateways can be fitted at the same time?

- Normally only 1 **Nano**Hub™ would be connected to your router, however it is possible to have more than 1 **Nano**Hub™ if you wish. You would require more than 1 account for this.

3   How many **Nano**Hub™ sensors can be fitted at the same time?

- Currently, up to 16 CarbonNano sensors can be fitted to each **Nano**Hub™, however with further updates to the **Nano**Hub™ this will increase further.

3   How do I install the **Nano**Hub™ gateway?

- Easy, just connect to your broadband router and the power supply.

- The online registration process will take you through the required steps, you just need to create your account and enter the **Nano**Hub™ serial number.

4   How much data is sent?

- The data that is sent is very low but depends upon the number of alerts that are sent.

- This also depends upon how many CarbonNano sensors you have. If you had 1 sensor and 1 alert per hour, the total amount of data would be less than 0.5Mb for the whole month.

5   How secure are the products and the data?

- Every product has its own unique encryption key and uses the AES128 encryption algorithm.

- Any product does not know any other product's encryption key.

- All messages are encrypted, from sensor to the **Nano**Hub™ and to the CarbonNano Server.

- In the very unlikely event that a Hacker did manage to discover an encryption key, only that one particular product would be affected.

- CarbonNano does not use easily "hackable" systems such as WiFi, Zigbee, Z Wave and Bluetooth. We have designed our own unique communications protocol.

- Unlike many competitors' products, the **Nano**Hub™ that is connected to your router does not contain a software operating system such as Windows, MAC or Linux. This means that a hacker cannot take advantage of any weaknesses in those operating systems to gain control of your **Nano**Hub™.

- The **Nano**Hub™ also does not use software to respond to internet messages. This means that if a hacker attempted to perform a DoS or DDoS attack onto your **Nano**Hub™, it might slow the **Nano**Hub™ down a little, but otherwise it would not be affected.

6   How much does the **Nano**Hub™ cost to run?

- The **Nano**Hub™ gateway is powered from the mains supply using a USB Charger type power supply.

- The **Nano**Hub™ gateway uses approximately 2.5 watts, therefore over the period of a year this equates to approximately 22kWh. At a cost of £0.25 per kWh, the **Nano**Hub™ would cost approximately £5.50 for the whole year.

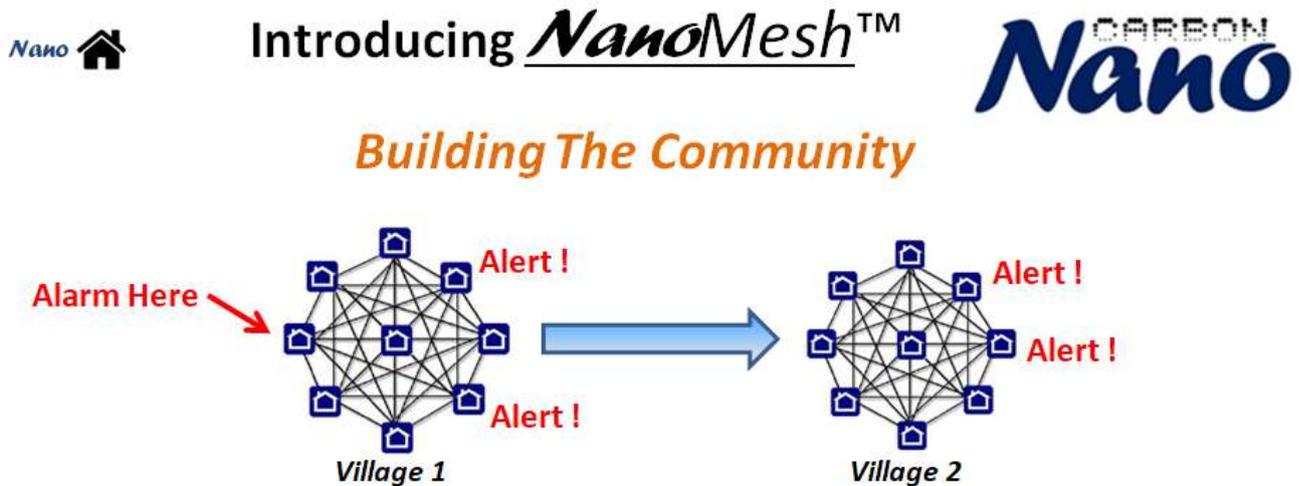## 7   What happens if I switch off my **Nano**Hub™?

- We don't recommend that you switch off your **Nano**Hub™, because messages will not be sent.

- However, certain data does get stored inside CarbonNano sensor products, therefore, when the **Nano**Hub™ is switched back on again, the sensor products will attempt to "catch up" their stored readings. Please note that there is a limit to the amount of time that you can switch off your **Nano**Hub™ before data from the CarbonNano sensors in permanently lost.

- You can setup your **Nano**Hub™ to switch on its alarm bleeper when it receives an alarm message from a CarbonNano sensor product if you wish to.

8   What happens if I do not want to receive alarms?

- Alarm notifications can be switched off or on using the **Nano**App™.

- You can also select what type of alarms you receive.

9   How do my neighbours, friends and family get alerted?

- CarbonNano offers the *Nano*Mesh™ network as a free of charge service.

- From your online account, you can choose to add people to your *Nano*Mesh™ network, and they will also receive your alarms.

- When alarms are raised from **one person's** home or garden, **everyone** in the *Nano*Mesh™ network receives the alert.

- For early **warning of flooding**, the home that is closest to the rising water level can alert the whole village, and the next village , and so on etc.

- For early **warning of intruders**, the home that is affected can alert their neighbourhood watch, friends, family or sheltered accommodation schemes, and so on etc.
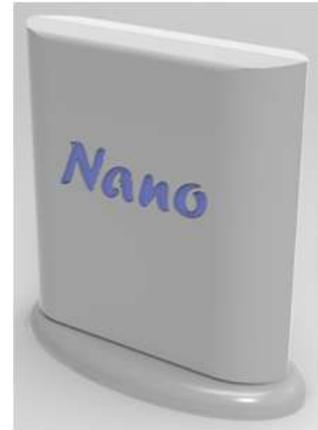
10   What are the *Nano*Hub™ specifications?

NanoHub™ Features :-

- Simple to install, just connect to your Router.

- Mains powered, very cheap to operate.

- Only 1 x *Nano*Hub™ required per household

- Up to 16 x CarbonNano monitors attached to 1 x *Nano*Hub™.

- **Programmable LED colours.**

- Non-hackable hardware Operating System

- **Long radio range.**

- Advanced message encryption.

NanoHub™ :-

10/100 Mbits Ethernet speed.

2 x Ethernet ports.

Internal warning buzzer.