

# FAQ – C1000

## 1. Can the C1000 be connected with a sensor (example: accelerometer and be used to transmit sensor data between each other

Yes, the C1000 can backhaul sensor data at up to 1 kbit per second.

There are a variety of options for connecting sensors to the C1000 for real-time data. One option is RS-485, which many of the mining sensors use. RS-485 support is active in our standard software load and instructions for connecting via RS-485 are found in the User Guide beginning on page 83.

Other connection types are supported as well. In some cases an adapter can be used - for instance, one customer is working with RS-232 sensors and using an RS-485 to RS-232 adapter with our built-in RS-485 support. In other cases we can turn on software settings to support other connector types. Here are the connector types we can currently support:

- RS-485 over TTE wireless link supported out of the box
- RS-422,
- RS-232
- 10/100 Base-T Ethernet
- 801.11b/g Wi-Fi
- USB
- Bluetooth

## 2. What does the C1000 Weigh?

- a. The C1000 terminal weight is 11 lbs.
- b. The C1000 terminal shipping weight is 21 lbs. with mounting brackets and power supply
- c. RX Antenna + Rx Junction Box = 7 lbs.
- d. TX Junction Box = 5 lbs.
- e. Shipping weight = 22 lbs. ( Includes: Rx Antenna, Rx Junction Box, Tx Junction Box, Keyboard, Headset)

**3. Does the communication range depend on the water content of the earth ?**

- a. If the water is distributed in cracks in the rock strata and not salty then it has little effect on the range. Large volumes of salt water will reduce the range.

**4. What languages are supported by the C1000 (HTTP interface, front LCD screen)**

- a. Currently the C1000 support English only
- b. It is technically possible to support additional languages. Please contact your Vital Alert sales person or distributor for details.

**5. Does the C1000 support an RS-232 interface ?**

- a. The C1000 provides an RS-485 interface and USB interface points
  - Option A: Use an RS-232 to RS-485 adapter commonly available in the market
  - Option B: Use a USB to RS-232 dongle
  - Option C: Use a USB Hub plus multiple USB to RS-232 dongles

**6. How can I upgrade the software on the C1000 ?**

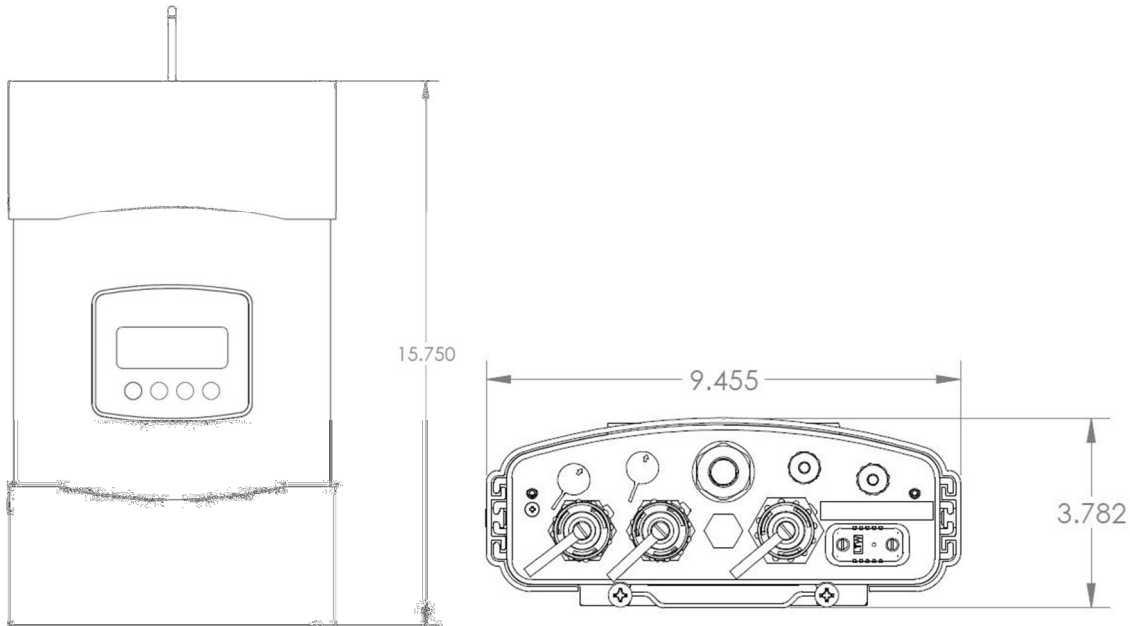
- a. There are several options to upgrading the software on the C1000 and the preferred methods are described in the Release notes. ( Using a USB Flash key and over an Ethernet connection )

**7. My USB flash key doesn't work with the C1000. What can I do ?**

- a. Some USB flash keys, especially 4G and larger require more power than the current C1000 can deliver. When you run the "dmesg|tail" command, you may see a message like ""rejected 1 configuration due to insufficient available bus power". If this is the case, you will need to use a powered USB hub to connect your flash device to the C1000.

**8. What are the C1000 terminal dimensions ?**

- a. 40 cm X 24 cm X 9.6 cm
- b. 15.75 in X 9.455 in X 3.782 in



**9. Can the C1000 run from a battery source ?**

- a. The C1000 required a 24v DC source. Either a 24v battery or 2 x 12v batteries in series would work
- b. A 50 A-hr battery provides approximately 100 hours of standby operation or up to 10 hours of voice / data transmission at 1kb/sec.
- c. Battery size approximately 25 cm x 15 cm x 20 cm
- d. The C1000 can be wired so that the unit could be switched to an AC supply when needed ( This would be wiring external to the C1000 )

**10. Can we connect a hotline phone to the C1000 and send/receive from surface to underground ?**

- a. A wide range of audio devices can be connected to the C1000 including a hotline phone connection
- b. The audio interface J3 provided by the C1000 is similar to the input and outputs found on a PC. The PTT (Push-to-talk) pin must be tied to Ground for non-PTT applications.
- c. To connect the telephone line or a headset with MIC to the C1000
  - Connect the PTT pin to ground
  - Use the Headset OUT and Auxiliary IN pins to connect the tip and ring.
  - Additional information can be found in the C1000 User Guide

**11. What is the recommended C1000 TX Antenna configuration ?**

- a. It all depends on the location, distance between the two radios, and the type of environment
- b. A large area TX antenna provides a greater TX signal
- c. A loop or square made from 100-200 feet of #14 wire will work well
  - 200ft of wire in roughly circular shape yields an area of 300 sq m.
  - The gain in Dipole moment from using more wire ( larger area) is not that great beyond 300 sq m. for the C1000 as the inductance reduces the transmitter current.
- d. RX antenna should not be too close to the Tx antenna wire ( > 10 feet )
- e. It's good to check the location by just setting up the RX antenna and measuring the noise as this is what will ultimately determine the range.
  - An RX noise level of < 20 will be necessary to operate over 300ft
  - The RX antenna can be rotated +/- 45 degrees off axis to minimize the noise
- f. Don't site the radio near transformer or switching stations or high power electrical machinery
  - High AC current will generate magnetic noise in the 4kHz range and can swamp the RX signal
  - Fluorescent lights can also generate noise in the operating band of the C1000
- g. Ideally locate the TX antenna away from large (i.e. similar in size to the antenna) steel structures above and below the antenna.
  - This can be an issue in steel reinforced buildings