



## **Unite CANII User Manual**

VIB-E-US-389B-1.2

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# 1 Introduction

This User Manual contains some important information about the Vibration Technology Ltd seismic cell acquisition node (CAN) Unit. It is important that you read the information contained herein before putting your Unit into operation.

## 1.1 Related Documents

VIB-E-US-388	Unite System Installation & Network Deployment Manual
VIB-E-US-390	Unite System Maintenance Manual
VIB-E-PC-146	Unite System Software Update Procedure
VIB-E-US-389	Unite System User Manual

# 2 Electrical Interface and Connectors

## 2.1 Power Connector

The CANII unit has two 8-way power connectors on the right side of the enclosure wired in parallel to allow for battery hot swapping. The pinout is as follows:

Pin	Signal
A	+12V
B	GND

## 2.2 Ethernet Connector

The CANII unit has four 8-way Ethernet connectors on the front panel of the enclosure to allow for up to 4-off Ethernet connection. The pinout is as follows:

Pin	Signal
B	GND
D	+12V
E	TX+
F	TX-
G	RX+
H	RX-

## 2.3 RF Connector

The CANII unit has three N-type female RF connectors on the left side panel of the enclosure to allow for connection of the 3-sector antenna array. The connector can also be driven with a 5.1V power level on the inner core for future power over coax applications. The pinout is as follows:

Pin	Signal
Centre	Signal (+5.1V)
Outer	GND

### 3 Antenna Installation

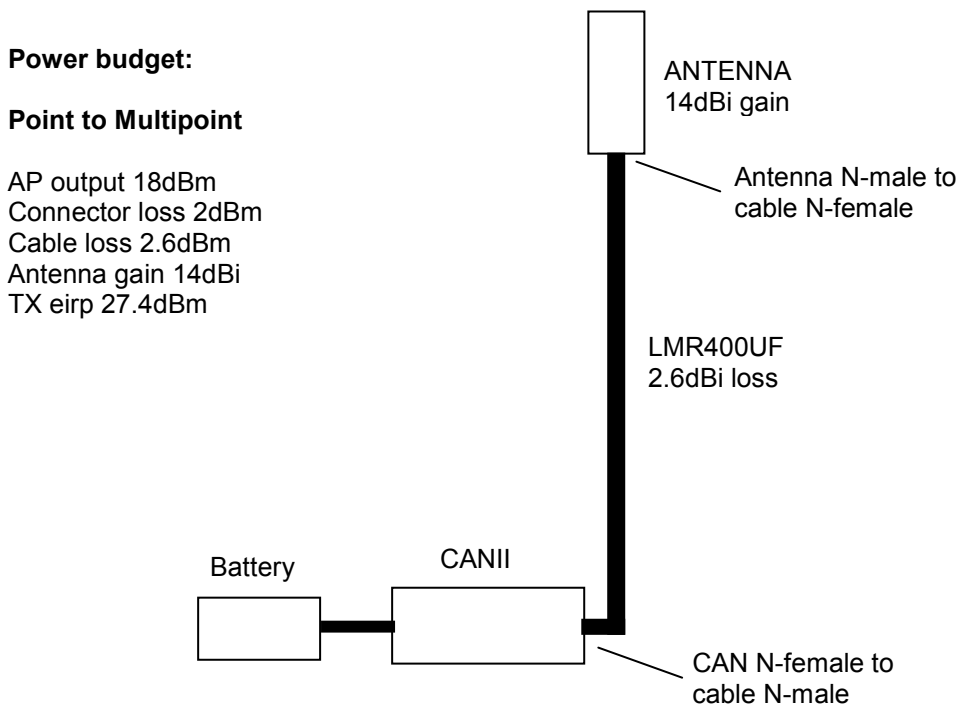
The antenna (and support equipment) is supplied and installed by Vibtech personnel.

#### 3.1 CANII Hardware

The CANII (deployment) hardware is comprised of the following components:

Vibtech CANII (VIB-999-0006B)	Vibtech p/n
CANII unit	VIB-999-0006B
CANII battery	VIB-400-0005
WLAN base station 2.4GHz sectored antenna, 14dBi, 16deg, N-male	VIB-800-0006
LMR400 Ultraflex cable, N-type (male-female), 50Ohm, 10m (3-off) (2.6dB loss)	VIB-350-0026BU
Shelley Clamp (upto 50mm tubing)	VIB-850-0016
Mobile Mast 28' (8.5m) steel inc carry bag and step	VIB-850-0056C

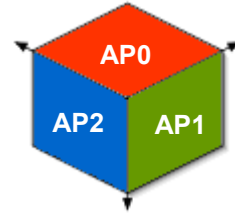
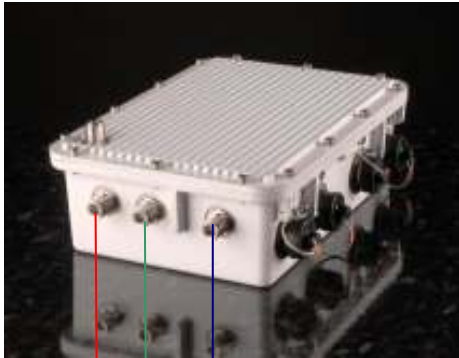
#### 3.2 CAN Network Schematic



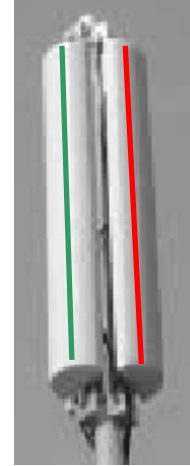
### 3.3 CAN Field Deployment

#### 3.3.1 CAN Placement

The CAN should be deployed with the red sector pointing north.



- To blue (black) marked panel/cable on antenna
- To green marked panel/cable on antenna
- To red marked panel/cable on antenna



### 3.3.2 CAN Mast Assembly



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“The mast deployment is a two-man job. Each member of personnel must have steel capped boots, hard hat, goggles and safety gloves during the mast deployment.”

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The CAN mast should be installed as follows:

- Position mast at desired location
- Attach Antenna (p/n: VIB-800-0006) to mast (p/n: VIB-850-0056C) top section through mast tripod base section using clamp (p/n: VIB-850-0016)
- Connect RF cables (p/n: VIB-350-0026BU) to each of the antenna sectors (3-off) and tape off.
- Attach safety guys lines to clamp and stake in ground pegs 5m from mast base at 120degree separation
- Push antenna upwards (through tripod base) inserting a new pole section piece at a time until the desired height has been obtained
- Attach the guys lines to the pegs and tighten, All three guy lines should be tight with the antenna and mast vertically straight



### 3.3.3 CAN RF Coverage

Issue	Examination / Action
Antenna, Height & Tilt	<p>Ensure that the CAN antenna cables are damage free and that all three cables are correctly and securely connected. All damaged or faulty components should be replaced.</p> <p>Check the sequence of the RF cable assembly connections, the <b>RED, GREEN, BLUE</b> (black) sequence must be observed as per below.</p> <p>The CAN panel antenna has an azimuth beamwidth (radiation pattern or signal path) of 120° and an elevation beamwidth of 16°. These radiation patterns <b>must</b> be observed in order to assess RAU-CAN coverage.</p> <div data-bbox="598 560 1308 1030" style="text-align: center;"> </div> <p>The CAN sectorised antenna can be mechanically adjusted up to 15° of uptilt or downtilt per sector. This allows the flexibility to adjust the antenna radiation pattern to the surrounding terrain thereby maximising the pattern performance for optimal RAU coverage.</p> <p>On flat terrain a 0°, 1° or 2° of downtilt will be best. On slopes, gorges and hilly areas the mechanical tilt <b>must</b> be adjusted to alter the elevation beam width in order to maximise RAU coverage.</p> <p>The height of the CAN antenna should be at least 5m, higher if possible, unless forest canopy would restrict RF propagation.</p>

### 3.3.4 Network Connection

- Power up the CAN using the battery cable assembly pigtail (p/n: VIB-400-0005). There are LEDs on the outside of the CAN to show power up status and connectivity/activity on all the external port connectors.
- Check the CAN has powered up by viewing the LEDs next to battery port# 1.



CANII with battery connected

- The main CAN power LED should be lit and indicate red.



- If the CAN has failed to power up, check the battery connection and voltage level, replace the battery if required. If the battery is okay (>12V) swap out the CAN. The CAN should be examined as per maintenance procedure (VIB-E-US-389, Unite System Manual).
- When successfully connected, the first CAN should appear on the NIPGUI CAN list.

## 4 LED Indicators

The CANII incorporates an array of LEDs to indicate status as defined in the following table:-

LED	Colour	Status
Side panel bottom	Red	On – power good Off – no power
Side panel top	Green	On (flashing) – power up test On (constant) – Status good Off – status bad
Ethernet Port front panel connectors	Green	On - LAN Port connection LINK OK, Off - no or bad connection

Table 1 : LED Indicators

The status LED is placed in an off state during sleep mode.

## 5 AP Information

The table below contains the AP properties

Parameter	Data
RF output power (max)	18dBm (software selectable)
Receiver sensitivity (802.11b)	-95dBm (1Mbps), -90dBm (11Mbps)
Operating frequency	2.402 – 2.480 GHz, ISM band
Power	12V

## 6 Regulatory Information

### 6.1 FCC Compliance

#### 6.1.1 FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**NOTE:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

#### 6.1.2 Caution

No modification to the radio or antenna is permitted, and any modification could cause the device to cease to comply with FCC rules part 15, and thus void the user's authority to operate the equipment.

#### 6.1.3 RF exposure statement

This modular transmitter **MUST** have a separation distance of at least 20cm between the antenna and the body of the user or nearby persons, excluding hands, wrists, feet, and ankles.

## 7 Guidelines for Safe and Efficient Use

### 7.1 General

Read this information before using your CANII.

For any exceptions, due to national requirements or limitations, when using your CANII, please contact Vibration Technology Ltd.

***Note: Changes or modifications to the product not expressly approved in writing by Vibration Technology Ltd will void the user's authority to operate the equipment.***

### 7.2 Product Care

- Do not open or disassemble your CANII. Doing so will void any warranty. The CANII does not contain any user serviceable or replaceable components. Service may only be performed by Vibration Technology Ltd or an authorised service agent.
- Do not expose your CANII housing to solvents or any substance containing solvents such as paints or lacquers.
- Do not expose your CANII to hot or cold temperatures outside of those specified in the data sheet.
- Do not expose your CANII lit candles, cigarettes, cigars, naked flames etc.
- Do not drop or throw your CANII as it could sustain damage
- If your CANII is to be stored, store it in a place that is dry and protected from extreme heat or cold.

### 7.3 Personal Care

The CANII contains radio transmitter and receiver devices. During communication with Unite Infrastructure or Data Harvesters, the Unit receives and transmits radio frequency (RF) electromagnetic fields (microwaves) in the frequency range 2400 to 2500 MHz. The output power of the radio transmitter is very low.

If you are in proximity to a CANII whilst it is powered on, you will be exposed to some of the transmitted RF energy. This exposure is well below the prescribed limits in all national and international RF safety standards and regulations.