VIOTEL Viot00571 Accelerometer Vibration Node User Manual

Contents

VIOLET

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Introduction

Warning

This guide intends to assist in the preferred mounting, operation and usage of Viotel's Accelerometer Node. Please read and completely understand this user guide in order to make sure the safe and correct use of the system as well as maintain the longevity of the device.
Protection provided by the equipment may be impaired if used in a manner contrary to this user manual. Changes or modifications not expressly approved by Viotel Limited could void the user's authority to operate the equipment. This product must not be disposed of in the normal waste stream. It contains a battery pack and electronic components and so should be recycled appropriately.

Theory of Operation

The Accelerometer is a low touch Internet of Things (IoT) device. It is designed to as simple as possible to install and activate, set and forget. Data is retrieved from the device via our cloud-based platform or via API to yours using the integrated LTE/CAT-M1 cellular communications. The device also uses GPS for time synchronisation where comparison of events between nodes is required.
The device sensor is always monitoring for events, and can be continuously monitoring, or set to a triggered state. Remote configuration is possible to change the acquisition and upload frequency.

Parts List

PART	QTY	DESCRIPTION
1	*1*	*Accelerometer Node*
2	*1*	*Battery pack (will be p re-installed into the device)*
3	*1*	*Cap*
4	*1*	*Magnetic Key*
5	*1*	*Optional Pole Mount B racket*

Required Tools

Tools are not required for installation other than hand tools specific to your installation scenario. The following tools are required for changing the batteries.

- T10 Torx Screwdriver
- Thin Needle Nose pliers

Dimensions

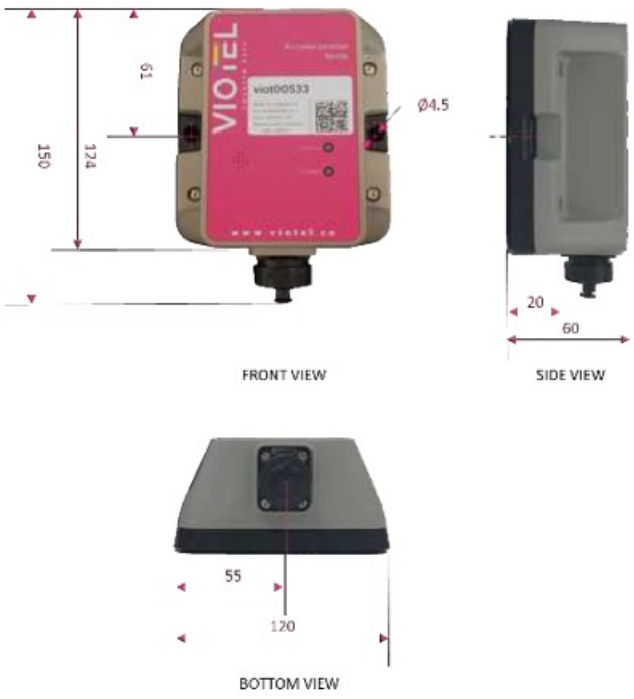

Figure 1 Dimensions in mm

Usage

Mounting Options

Viotel's Accelerometer Node comes with three primary mounting options. It is recommended that a combination of two is used for optimal use.

MOUNTING	DESCRIPTION
1. **Two-Sided Adhesive** *2.* **Threaded M3 Holes suitable for optional pole mount bracket or mounting to an enclosure.**	*Clean and dry the mounting locations surface. Peel off the red plastic layer on the back of the node and firmly press it onto the required location. Keep the device and surface under this same pressure for approximately 20 minutes (to achieve 50% bond strength in room temperature).*
	Figure 2 Node Rear
3. Side Mounting holes	*Side mounting points designed for M5 countersunk bolts or screws.* *Figure 3 Node Front*

Orientation Description

Figure 4 Photo showing X, Y, Z Axis Orientation

Figure 4 Photo showing X, Y, Z Axis Orientation

Indicated Key Location

The switch that the magnetic key (Part 4) operates on the accelerometer (Part 1) is located between the STATUS LED and the COMMS LED.

Figure 5 Photo highlighting location of the magnetic key

Operating Instructions

Operation

By default, your Viotel Accelerometer Node will be set to Deep Sleep mode. To change the mode that the node is currently in; simply take the magnetic key (Part 4) and hover it over the activation area.
All operations and LED indications refer to firmware version: 3.02.14, please be aware future states may change some functionality.

TAP INSTRUCTIONS	FUNCTION	DESCRIPTION
Tap once (while in Deep Sleep)	*Current Status*	*This will light up the LED indicating the current status that this sy stem is in.*
Tap once (while Awake)	*Diagnostic*	*The device will quickly record 10 data entries and upload them. Once this data has been logged, the device will return back to it s standard operation automatically.*
Tap once, Tap again wit hin 3 seconds	*Upload and chan ge status*	*This will cause the device to initiate the upload and update sequ ence. In total; this process should take a few seconds to complet e and then set the device automatically to a new status.*

System Status

STATUS	DESCRIPTION
Awake	*In this status, the device will consistently record data given the user defined interval, check for firmware updates, monitor for user defined triggers and check for Magneti c Key inputs (Part 4).*
Diagnostic	*This status will set the data recorded interval to 3 minutes and quickly record 10 ent ries along with GPS data. After approximately 30 minutes, the device will return to it s Awake status automatically.*
Communicating	*The device is currently trying to communicate with the server to update firmware, lo ad data and status information.*
Deep Sleep	*The device will check for any wake-up commands, such as the Magnetic Key (Part 3) or user defined data collection interval.* *Every 7-days, the device will initiate a connection to provide status updates and che ck for system updates. Then it shall return to a Deep Sleep unless otherwise specifi ed by the server.*

System Status Indicator

LIGHT	INTERVAL	MEANING	DESCRIPTION	VISUAL
Green Blink four times	*1s*	*Successful Firmware Update*	*Firmware update requested, downloaded and installed successfully.*	
Green Blink Twice (100ms)	*every 30s*	*Awake*	*Device is Awake, running normally. See the section 3.2 System Status for details.*	
Green Blink Twice (50ms)		*Status Change Confirmation*	*The device has confirmed that it will now switch from Deep Sleep to Awake.*	
Solid Green	*<3s*	*Status Change Confirmation*	*The device has confirmed that it will now switch from Awake to Deep Sleep*	
Solid Green + Yellow Blink	*3s 1s*	*Status Change Confirmation*	*Device is Awake, and preparing to run a Diagnostic.*	
Red Blink four times	*1s*	*Failed Firmware Update*	*Firmware update requested and failed to download.*	
Solid Red (300ms)		*Device is Busy*	*The device is currently busy and will not accept commands from the magnet.*	
Solid Blue	*3s*	*Deep Sleep*	*Device is in Deep Sleep. See the section 3.2 System Status for details.*	
Purple Blink Twice (100ms)	*Every 30s*	*Diagnostic*	*Device is Awake, running Diagnostic. See the section 3.2 System Status for details.*	
Blank	*N/A*	*Deep Sleep*	*Device is in Deep Sleep. See the section 3.2 System Status for details.*	

System Communications Indicator

LIGHT	INTERVAL	MEANING	DESCRIPTION	VISUAL
Solid Green	*1s*	*Communicating*	*The device will stop Communicating, successfully rep orting all available data.*	
Yellow Blink (100ms)	*Every 1s*	*GPS Fixing*	*The device is currently acquiring a GPS signal.*	
Solid Yellow	*1s*	*GPS Fixing*	*The GPS signal has been acquired and successfully got a v alid position.*	
Solid Red	*1s*	*GPS Fixing*	*The GPS signal has not been ac quired and failed to get a valid po sition.*	
Solid Red	*2s*	*Communicating*	*The device will stop Communicating, failing to reporti ng any data.*	
Blue Blink Twice (150ms)		*Communicating*	*The device has begun Communicating, network has suc cessfully connected.*	
Blue Blink (150m s)		*Communicating*	*The device is Communicating, tu rning on its internal modem.*	
Solid Blue	*2s*	*Communicating*	*The device is Communicating, su ccessful connection to the AWS s erver is established.*	
Green/Red Alter nating		*Firmware Update*	*Firmware update requested, dow nloading and installation underwa y.*	
Blank	*N/A*	*N/A*	*Device is not communicating.*	

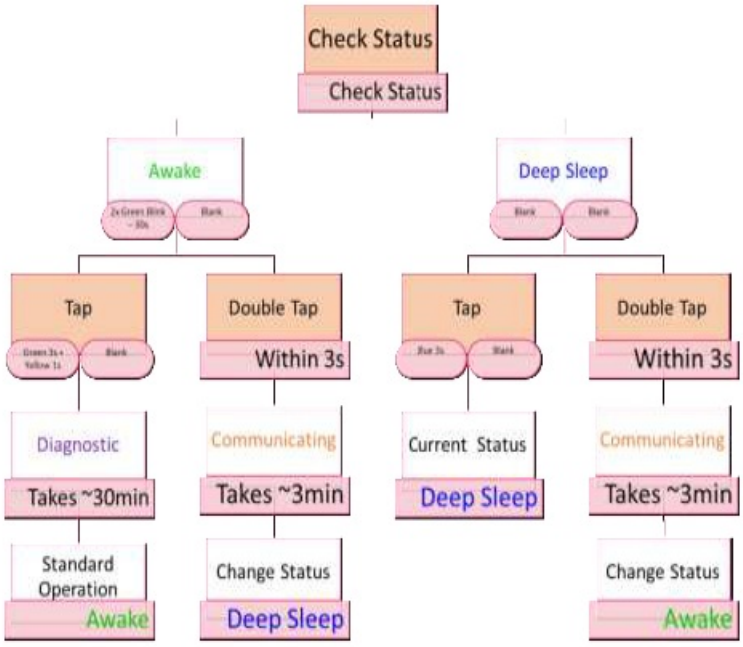

Figure 6 Flow Diagram for Cycling System Status with Magnetic Key

Maintenance

The product should not require any maintenance after installation. If the need to clean the product should arise, use only a damp cloth and mild detergent. Do not use any solvents as this may damage the enclosure.
Only service personnel authorised by the manufacturer may open the inner enclosure. No user serviceable parts are located inside.

Changing Batteries

STEP	DESCRIPTION
1	*Please ensure the node is in Deep Sleep mode (see Section 3 – Operations for details)*
2	*Using the T10 Torx Screwdriver, unscrew until the 4 bolts on the front of the* node's enclosure *are loos e. Please note that the bolts are designed to remain in device section.*
3	*Flip over the top half of the enclosure making the battery pack is clearly visible. Position two fingers ar ound the battery and firmly pull up; the battery should pop out of its holder. Ensure you do not pull or rip the red & black cables attaching the battery pack to the device.*
4	*Gently pull out the exposed plug connecting the battery to the device. Please dispose of this used batt ery pack correctly based on legislative requirements.*
5	*Gently push the new battery packs plug into the devices socket. A pair of thin needle nose pliers may b e required to confirm it has been adequately plugged in.*
6	*Slide the battery pack into position and push firmly on the battery until it clicks into place.*
7	*Once the device is screwed back into the base, your node can be safely turned back to Awake mode fo r use.*

External Power

Please ensure the node is in Deep Sleep mode. It is strongly recommended that the battery be taken out of the enclosure by following steps 1 to 4 and step 7 in the changing batteries section.
A seven-pin male CNLinko plug will be required to power externally.
PIN 5: Ground PIN 7: Positive Voltage
POWER REQUIREMENTS: 7.5 VDC only.

Downloading Data

The only way to retrieve data is over the cellular communications. This can be activated on demand using the magnetic key. However if the device is in the field and is unable to upload data, the device is programmed to keep trying in decreasing increments to conserve battery. If after 4 days of attempting to upload, it will reboot.
Data is stored on non-volatile memory; therefore it is stored when rebooted and after power loss.
Data is deleted from the device once successfully uploaded.

Further Support

For further support, please email our friendly staff at **support@viotel.co** with your name and number and we will get back to you.

Documents / Resources

	VIOTEL Viot00571 Accelerometer Vibration Node [pdf] User Manual Viot00571 Accelerometer Vibration Node, Viot00571, Accelerometer Vibration Node, Vibration Node, Node, Viot00571 Accelerometer Vibration Node

References

- Viotel - Smart Monitoring Solutions
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