VM2 Vibration Detection Monitor
Product Manual

(Draft 7) Jan 2020

Contents

Instruction

The JVA VM2 is a Perimeter Intrusion Detection System utilising Microphonic Cable. The VM2 (PTE0342) is designed to monitor one or two zones of Microphonic (acoustic) cable to enable the detection of a breach of a perimeter by detection of noise and vibrations created by unauthorised access or vandalism. The monitored cables may be buried to detect digging, attached to a fence or placed inside a wall, roof or floor etc. to detect illegal activity. The VM2, coupled with correctly installed cable creates fully monitored, zoned intrusion detection system. The VM2 has adjustable threshold and time parameters to allow the installer to tune the system to differentiate between an intrusion attempt and normal environmental sounds or vibrations. The VM2 complements JVA's range of security electric fence energisers and monitors. The VM2 is also compatible with the JVA Z-Series accessories and software solutions. The VM2 comes with an inbuilt Wi-Fi Webserver which creates a professional Virtual Keypad ™ for setup and control. A well as providing the features of a wired keypad, the Virtual Keypad ™ is equivalent to both a user and an installer App, however it does not require any App to be downloaded.

This unit can operate as a stand-alone alarm system through the addition of a Siren and Strobe; however the addition of one of the optional user Interfaces makes the system more user friendly. These options include a 4-Line Keypad, Touch Keypad, Perimeter Patrol and the Cloud Router application.
There are a variety of system integration options ranging from low level IO to a HLI based on JVA's Perimeter Patrol software.

Scope

This manual applies to the VM2 (PTE0342) PCB version 1.0, firmware version 1.0.
The latest manual can always be found online on the product guide page www.jva-fence.com.au/vm2 or the general support page. https://www.jva-fence.com/downloads.php. *(Draft note, these are coming soon).*

Limitations

PCV 0v2. Firmware 1.0
At the time of writing the VM2 is in Beta Test stage and the following limitations applied.

1. 4-Line keypad is not yet compatible (VM2 emulates a 2 zone basic energiser for alarm reporting)
2. Touch keypad is not yet compatible
3. Perimeter Patrol is not yet compatible
4. Cloud Router is not yet compatible. Emulation will allow a VM2 to be monitored for alarms.
5. The inputs and output functions are fixed. Changes made using CLI or the Virtual Keypad will not change the functions.

Standard System Components

Draft Note: Show pictures of each of these:
The VM2
Sensor cable
Zone terminators
Cable joiners
Power supply

Sensor cable

The VM2 is compatible with JVA WR043 acoustic sensor cable.
Compatibility with other manufacturers cable has not been tested at this time, but it probably compatible with AcousTek 10 and 20 and Senstar Mk1 and Mk2 cable.

Accessories

Accessories for standalone operation

Draft Note: Show a basic stand alone wiring diagram.
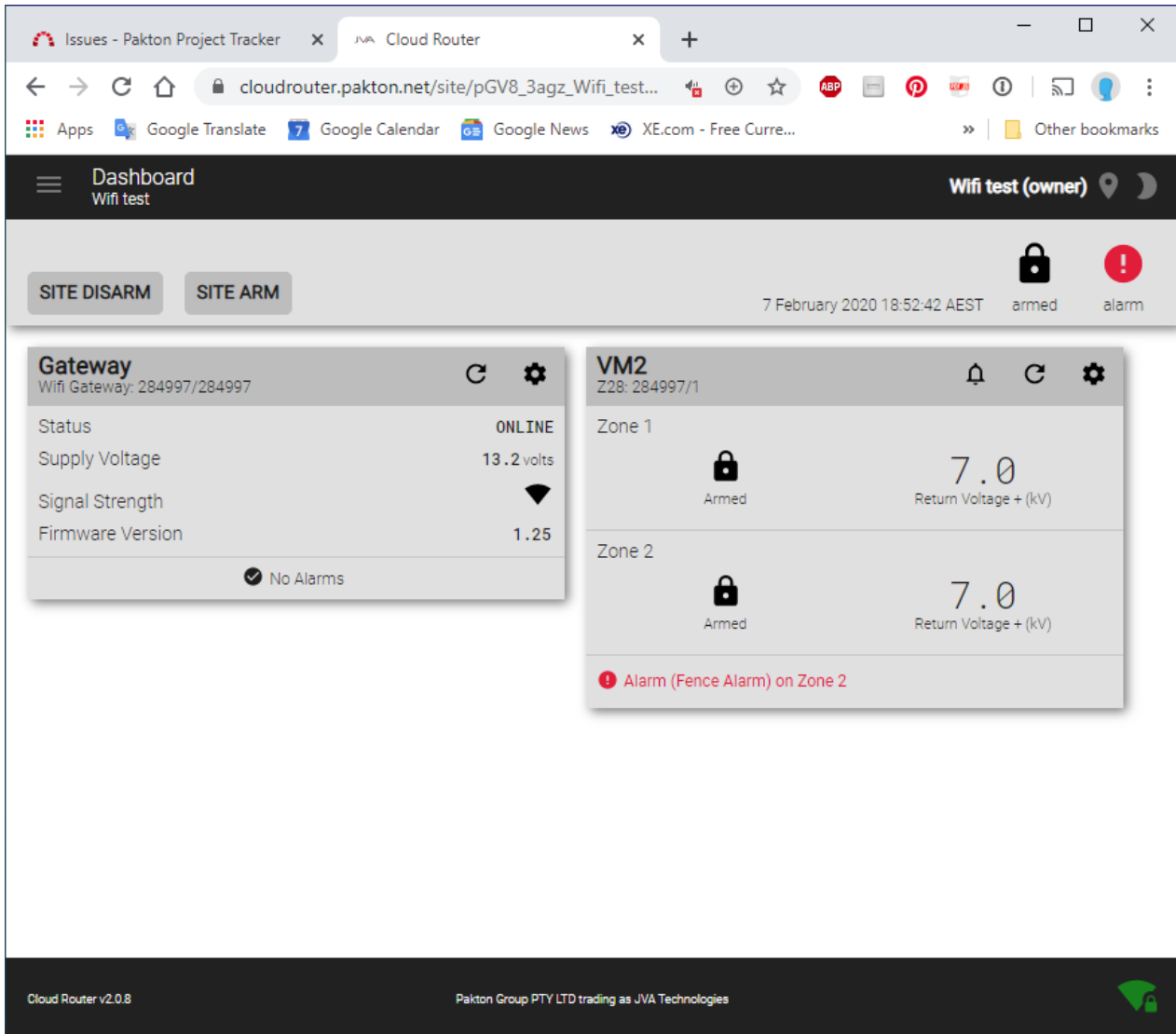

User Interfaces

4-Line Keypad

The 4-Line LCD keypad can arm and disarm the VM2. It can also display some of the more important running information such as seen below. For more information see the support page.
Draft note, the 4-line is not yet compatible.

Cloud Router

The VM2 can be linked to a [Wi-Fi](#) or [GSM](#) Cloud router gateway for control and monitoring via [Cloud Router](#).
Draft notes: At time of printing the VM2 is only recognised when emulating a Z28. See below. The voltages are fixed at 7.0kV (and are meaningless). The Alarms are live and it can be armed and disarmed.

Touch Keypad

The Touch Keypad gives the most professional local user interface. It can also be configured to provide email alerts and depending on the version, it may also provide a Cloud Router gateway function.
Draft note, the touch keypad is not compatible with the Beta test units.

Perimeter Patrol

To connect a VM2 to Perimeter Patrol you will need a Keypad bus to USB adapter or a KPB to TCP/IP adaptor (PTE0212). For more details on Perimeter Patrol please see the [Manual](#).
 Draft notes: 1) The Beta Units are not compatible.

Features

- Low priced
- Compatible with Security Electric Fencing (can be used adjacent to or on the same fence)
- Operates with:
  - Z series keypads
  - Perimeter Patrol
  - Cloud Router
- Detects cut or shorted cables
- Buried cable sensor system able to monitor two runs of up to 300m of active cable.
  - Detects digging with any reasonable tool, shovel, pick, crowbar etc.
- Able to be coupled (cable tied) to palisade or mesh fencing
  - Detects cutting by a power tool
  - Detects hammering or crowbar bending bars apart
- Simple setup of sensitivity levels (Threshold, Event limit and Window)
- Independent settings for each zone
- On board Wi-Fi for
  - Virtual Keypad ™ for programming
  - Cloud Router Gateway
- LCD display
- Z series Keypad Bus Mk2
- IO (inputs and relays)
  - Arm 1, 2
  - Three switched 12V outputs
  - Three form C dry contact OR 12V switched relays
- Battery charger for standalone operation
- 12 or 24V DC operation, low power requirements
- Self diagnostics with on board LEDs for:
  - Wi-Fi status
  - PCB Error
  - Cut or shorted cable
  - Events
  - All Power rails
  - Battery Power
  - Supply Power
  - Relay functions

Installation

It is recommended that all installations are performed by trained personnel. Training is available from JVA.

System elements and design
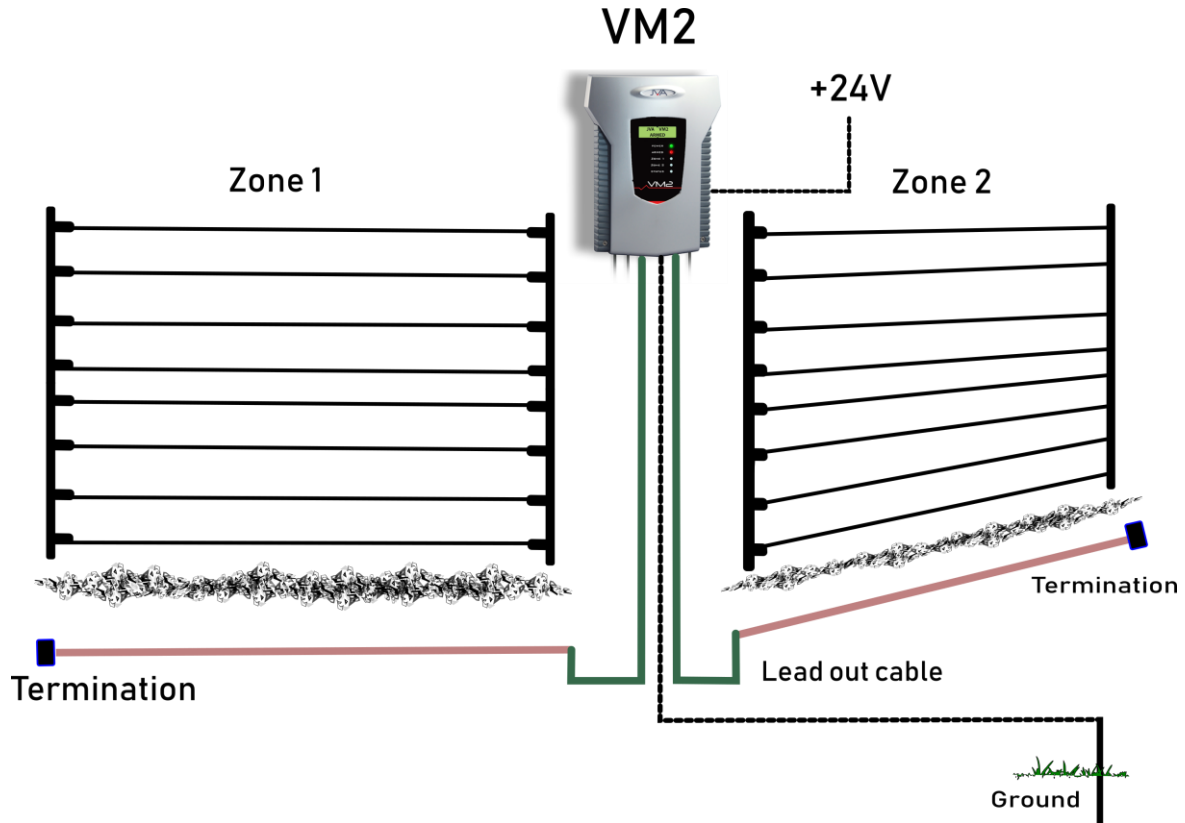
Installation Steps

1. Install the WR043 sensor cable. See section x on cable handling. *Draft note not yet complete*
2. Join standard RG59 cable to feed into your active zones, or to cross any areas where detection is not required. Sealed cable joiners are available.
3. Join the WR024 cable from the fence to the VM2
4. Add a zone terminator (PTExxxx) to the end of each line
5. If using the internal back up battery, connect this before connecting 24Vdc. Note a battery is required if you are going to run a siren and or strobes from the VM2.
6. Connect power to the VM2
7. Check the cable LEDs are showing as green (ok).
8. Connect to the VM2 Virtual Keypad (see section x)
9. Put the system into test mode and check it
10. Tune the threshold, event limit and window settings for your site to get the best balance between sensitivity to attack and false alarms.
11. Perform a siren test
12. If using an internal backup battery, check the battery and AC fail by turning the 24Vdc supply off.
13. Create an alarm and check that the siren operates and that the User Interface(s) reports the alarm correctly.

Jumper Configuration

The VM2 is equipped with 9 jumpers. These are described in the table below.

Jumper	Function	Purpose
J3	Inhibit Mains fail error.	Fit J3 to inhibit Mains fail errors if the intention is to operate the VM2 on DC only.
J4	Factory default jumper Off to return programmable options to factory defaults on power up.	If the energiser needs to returned to factory default settings, remove all power (AC and battery) and remove the J4 jumper. Reapply the mains and the battery power. Reapply J4 jumper.
J9	Inhibit internal Beeper	Fitted to inhibit the internal beeper, irrespective of any option setting.
J6,7,8	Powered outputs	Add these jumpers to apply power to the common of the relay contacts for relays 3-5.
J2	Join channel 1-2 thresholds	Not applicable yet.
J10	Ch2 pull up	Not applicable yet. Linked out with PCB track.
J11, J12	Pad	Fitting a jumper to these lowers the zone "gain".

Vibration sensor cable connections

Connect the cable to the connectors on the left side of the front of the PCB as shown below.
NOTE: The earth must be connected to stop 50Hz mains noise from affecting the system.

Wiring and Indicators

USB
Power (+12Vdc)
Keypad Bus
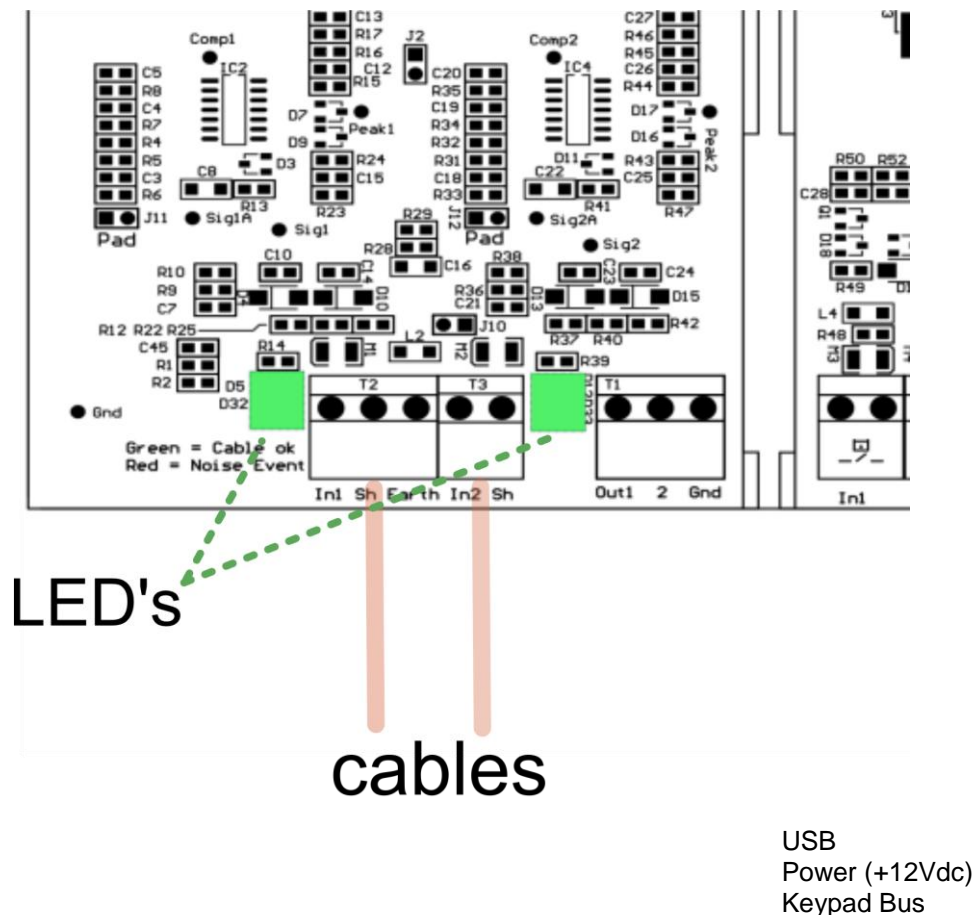
Example group wiring diagram

Cable Handling

This section contains information on how to make sure the sensor cable is not damaged in handling or installation. It also shows how to and where to place the cable for best results for a number of typical applications.

Cable care.

- Don't kink it
- Don't knick the outer
- Don't let the core slide out
- Don't stretch or break the core

Joining and terminating the cable

The cable will need to be joined if you are using a non sensitive lead out cable. Such lead out MUST be coaxial cable such as RG59, Do not use multi-core alarm cable, twin flex or Cat5/6 cable. Even though this system does not use high frequency it is *very* sensitive to induced voltages from external sources such as 50Hz mains electricity.

The conductors in the cable must remain insulated from the earth and any metal structure.

Use a weather proof junction box and standard double entry terminal strip, or a Gel filled cable joiner kit.

Do not run this cable in the same conduit as electric fence lead out cable.

Method for burying cable

The VM2 was designed primarily as an anti-dig sensor system. For best results bury the sensor cable in coarse sand or gravel. *Draft note: this section is not complete.*

Method for attaching cable to palisade or wire mesh fences

Draft note: Cable ties, Overlap of zones, Service Loops
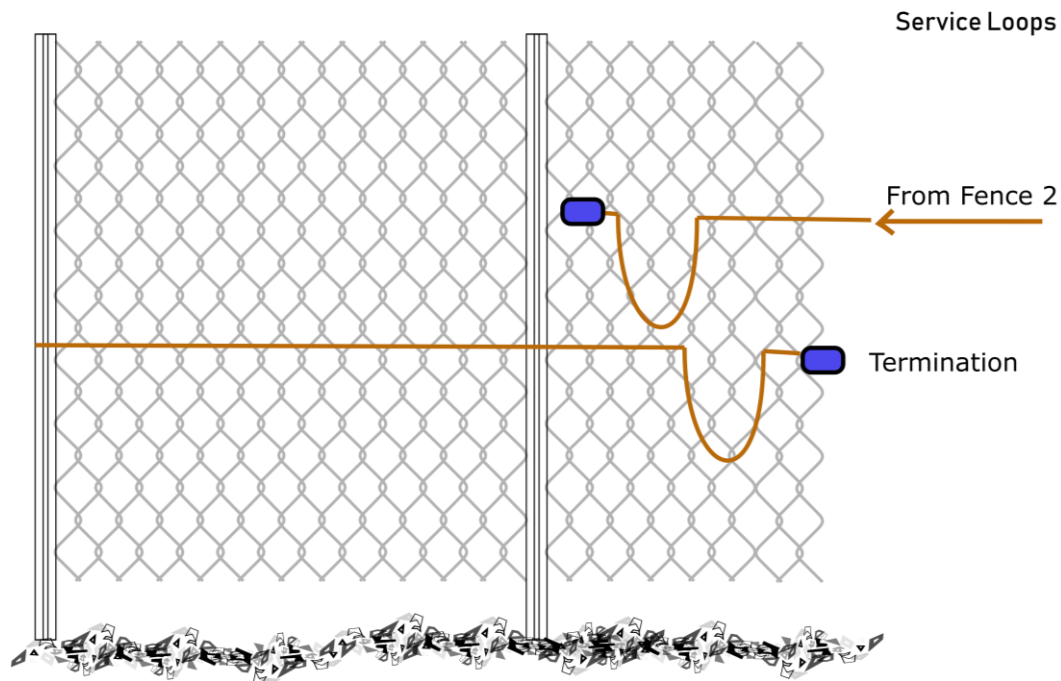
Tuning

This section contains information on how to adjust the adjustable parameters to get the best balance between sensitivity and false alarms.

The VM2 compares the sounds it picks up on the sensor cable to a preset limit called the **Threshold**. Any sound that exceeds the adjustable Threshold is called an **Event**. If the number of Events in a preset **Window** of time, exceed the **Event Limit** then that zone will go into alarm. An extra Event is counted if the signal exceeds the threshold for longer than the **Sample Time**. This means that one long loud sound can create several Events. Note that the front end of the VM2 is done in hardware not sampling software. This means it will not miss an event even if the event is much smaller than the Sample Time.

The main parameters work in this way:

Parameter	Lowering this:	Raising this:
Threshold	Increase Sensitivity, generates more Events	Reduces false alarms
Events Limit	Increase sensitivity	Reduces false alarms
Window	Reduces false alarms	Increases sensitivity
Sample Time	Increase sensitivity	Reduces false alarms

Test Mode

Put the VM2 into test mode, one zone at a time. Using the Virtual Keypad open the Device setup screen, you will need the Installers PIN to do this, the default is 12345. Click on Test Mode for zone 1 and then 2.
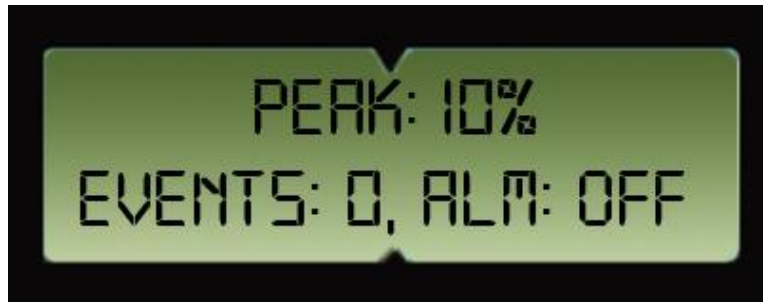
Assuming the cable is attached and properly terminated (the Cable status LED is Green). The LCD will show the Peak and Average sound recorded and the number of recorded events in each window of time as currently set. The alarms will not be latched and the siren will not sound. If there is an "Alarm" the number on the LCD will increment.

Assuming there is a quiet environment what you are seeing on the screen is now your base line measurements. Hopefully the sound % figures are low and there are no events.

If you have an average level of over 50% something may be wrong. Check that the earth terminal on the VM2 is connected to a cabinet or site earth. If you cannot reduce this level consider purchasing or borrowing a phone audio adaptor and recording the sound on this zone onto your phone or laptop. See later section on Recording using a phone. *Draft Note, add this.* You may also consider reducing the overall sensitivity of this zone using the Pad jumper.

If your cable is accessible you can check it is "live" by tapping on the sensor cable. Tapping with a pen should create a peak of close to 100% and some events and an eventually an alarm.

Create the sounds of an intrusion on your fence or boundary and measure these. You will need someone standing by the VM2 watching (or recording it with a phone camera).

For a false alarm free system, the sound levels for intrusion events must be much higher than your base level (normal) sound levels.

Set the zone Threshold above the base level and below the intrusion peak sound level.

Leave the Window setting where it is. Reduce the Events Limit until you are happy that an intrusion sound will cause an Alarm.

If you change the settings for Threshold, Events Limit or Window, re-enter test mode and check that an intrusion sound causes an alarm.

Draft note we will need to create some diagrams to make this process easier, or perhaps some videos.

Repeat for the second zone.

Pad

If all the noise levels are too high (the system is too sensitive) you may engage the **Pad** on this zone (place a jumper on the Pad pins J11 or J12) to reduce the amplification level (gain) on that zone.

Recording sounds for analysis

The VM2 has an audio output terminal on the PCB. JVA can supply a 3.5mm stereo to 3.5mm headphone cable to allow you to connect to a smart phone to record the sounds as "heard" by the VM2. You can use any MP3 sound recording App to do this. Play it back on your phone to make sure the recording has worked.

Send this file to us and we can analyse it for you.

Note: The equipment you use to record the sound should be isolated, i.e. NOT connected in any way to earth. An Android or Iphone is perfect. A laptop may be used, so long as it is not plugged in to power.

Draft note this is not working on the V0.2 Beta samples.

Operation

Display LEDs

The LED's on the VM2 Display PCB allow for easy diagnostics while installing the system.

Power   -   On (Green) whenever the unit has power
Armed   -   On (Red) when the unit is armed, flashing for partial armed (1 zone)
Zone 1   -   On when there is a zone 1 alarm, short flash for an event
Zone 2   -   On when there is a zone 2 alarm, short flash for an event
Status   -   Used to flash error codes, see the table below

Error Codes
1   Tamper
2   AC Fail
3   Low Battery
4   PCB Error – see LCD for more information

LCD display

The LCD display shows the status of the VM2 at all times.

Diagnostic LEDs

The VM2 has several diagnostics LEDs visible when the lid is removed.

XBee Status   -   Shows Wi-Fi status see table ??
D22   -   Battery (12V) power present
Status   -   Same as Display LED status
D2   -   3V3 rail present
D1   -   Excitation present
D21 – D27   -   Relay 4 to 6 status
D28   -   24V power present
Cable ok LEDs   -   Green if cable is connected, terminated and not shorted
Event LEDs   -   Red when an Event has been detected

VM2 LCD Screen

The VM2 will show the status on the LCD display.
When Armed

```
JVA VM2
ARMED
```

While armed, the LCD display cycles the following information.

```
NOISE 1: 2%          VM2 ARMED
NOISE 2: 5%          ALL CLEAR
```

Peak: means peak noise recorded in the last window of time.
Avg: means the average noise level.
Ev's: means the events counted in the last window of time.

When an alarm occurs the screen will detail the type of alarm and the sector if applicable.

```
ALARM: ZONE 1        ALARM: ZONE 2        ALARM
CABLE SHORT          NOISE TRIGGER        BAD BATTERY
```

Various "troubles" are also displayed, such as AC fail or low battery.

```
BATTERY 11.5V
AC FAIL
```

When the VM2 is disarmed, any latched alarms are shown.

```
JVA VM2              ALARM: ZONE 1
DISARMED             NOISE TRIGGER
```

Keypad Control

The VM2 contains a Virtual Keypad ™. You can use any Wi-Fi enabled device with a browser to access this. See section x. While mainly designed for configuration the Virtual Keypad ™ may also be used to arm and disarm the VM2.

The VM2 is compatible with the PTE0240 4-Line LCD and the PTE0230 Android keypad.
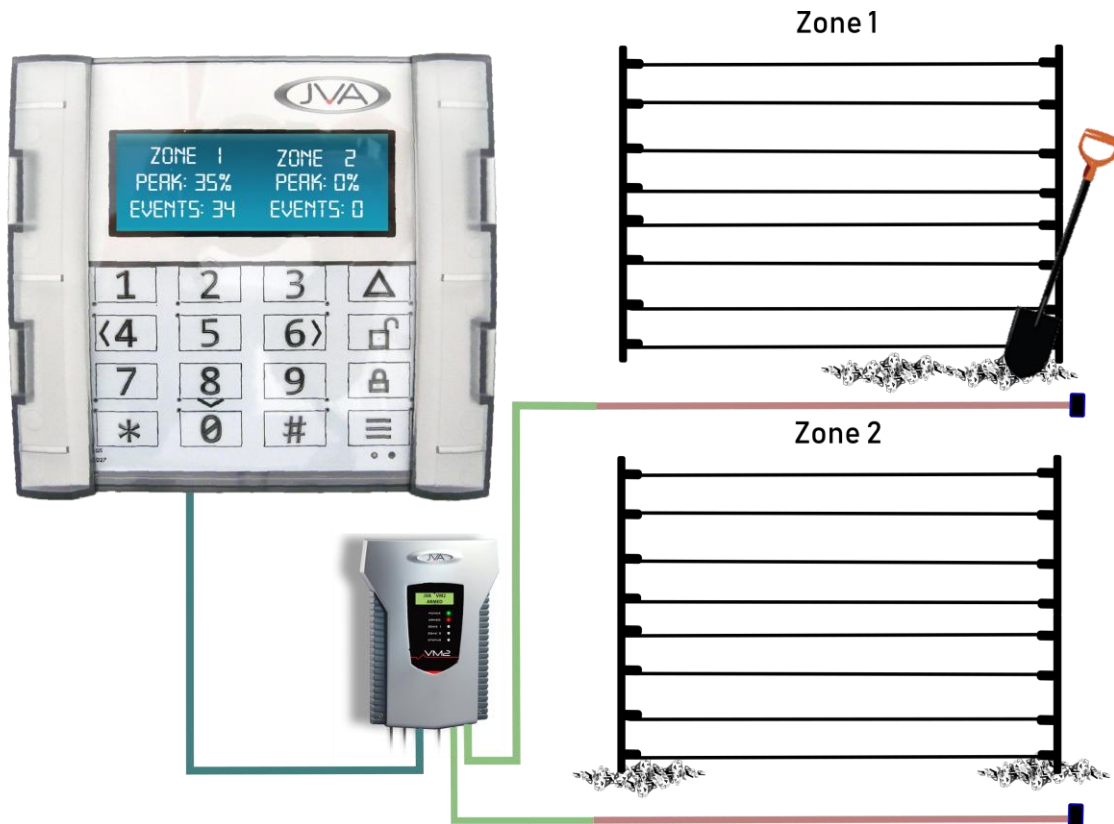
Compatibility

If you need to connect this device to a JVA keypad or Perimeter Patrol Software that pre-dates the release of updates that support this device, you will need to turn emulation on. See options in section ?.

With emulation on the VM2 will appear on the keypad as a generic 2 channel electric fence energiser. The fence voltage will always who as 0kV. The Zone 1, 2 and gate alarms will display properly as will the warnings such as ac-fail and low battery. The keypad will be able to arm and disarm the VM2 zones. Programming with a non compatible keypad will not work, use the Virtual Keypad ™.

To Arm/Disarm the VM2

You may use the control inputs (In1, In2), a keypad, a RF remote control, or one of the JVA software solutions (Perimeter Patrol or Cloud Router) to arm and disarm the VM2.

When an Alarm Occurs

An Alarm will occur if any of the Zones goes into fault (triggers) while the Zone is armed. If attached, the siren will sound and the zone strobe will light. This alarm will be indicated on any connected User interface.

The siren will cycle on and off based on the VM2 programming options. The strobe will remain on even after the VM2 is disarmed. This will turn off when the VM2 is either re-armed, or a User Interface switches it off.

To Silence the Alarm

If there is no Keypad attached simply disarm the VM2 to silence the siren.

Backup Power

The VM2 may be fitted with a 12V battery inside the case for backup power in case of mains fail. As the VM2 draws very little power (see section x specifications) a standard 7.5aH battery will last much longer than 8 hours.

Programming Options

Default Installer PIN

12345

The VM2 has non-volatile memory in which programming options (or setup parameters) can be stored. These are factory pre-set (defaults), but can be field programmed using a JVA 4 Line keypad or the Virtual Keypad ™.

Programmable Options Table

Option	Function	Default	Description
01	Group ID	1	If used as part of a group, this sets the device ID.
02	Zone 1 **Threshold**	25%	Sets a limit above which a sound is considered an **Event** worth counting.
03	Zone 2 **Threshold**	25%	As above
04	Zone 1 Events limit	5	The number of times a sound must exceed the threshold, within the **Window** time, to cause an alarm
05	Zone 2 Events	5	As above
06	Zone 1 Window	30	A moving window of time over which **Events** are counted to see if they exceed the Events setting. 30 = 3.0 seconds
07	Zone 2 Window	30	As above
08	Zone 1 Squelch	Off	Squelch reduces the effect of any constant noise i.e. 50Hz hum
09	Zone 2 Squelch	Off	As above
10	Sample Time	10	Time in mS that we sample the comparators to check for an event. NOTE we may lock this off from the users.
11	Spare		
12	Battery Charger Float Voltage	137	Battery float setting at 25C.
13	Low Battery Level	110	90-135 (9.0V – 13.5V) Low battery level below which a low battery event is triggered. Do not enter the decimal point.
14	Wi-Fi Enable	1 (On)	
15	Monitor Type		Not used yet
16	Emulation	1 (On)	Emulate a simple 2 channel energiser for compatibility with old devices
17	Fire Cycle Time	13	13 = 1.3 seconds. If the VM2 is a slave this is not used.
18	Sectors		Not used yet
19	Spare		
20	Input 1 Function	Arm Zone 1	Input 1 function (see table xx)
21	Input 2 Function	Arm Zone 2	Input 2 function
22	Input 1 Type		Input 1 Hardware type (see table xx)
23	Input 2 Type		Input 2 Hardware type
24	Alarm Delay	3	Delay from cable fault to alarm in seconds
25	Entry Delay		Not used yet
26	Exit Delay		Not used yet
27	Siren On Time	4	Sets the time that the siren (and keypad beeper) will stay on after an alarm
28	Siren Off Time	4	The amount of time the siren will be off after the *on* time has expired
29	Siren Cycles	3	The number of times the siren will sound for the time set in *on time* above. After this many cycles the siren will automatically

			mute
30	Chime Mode		As per Z series, allows the keypad beeper to be used as a door chime or siren etc.
31	Auto Rearm Time	0	Sets the time which must elapse after an alarm has timed out (completed the siren cycles) before the unit will automatically re-arm ready for the next alarm event.
32	Relay 1	Strobe 1	Used to assign an alarm function to relay 1 (siren output)
33	Relay 2	Strobe 2	
34	Relay 3	Siren	Not on PCB 0v2
35	Relay 4	Armed	Either zone armed
36	Relay 5	Alarm	Either zone in alarm
37	Relay 6	General	PCB error

Draft Note: There are a number of other system settings that we will leave fixed (and hidden) for now:
- Filter Order. This sets the reaction time of the squelch which comes from the long term filter of the peak signal. Set to 5 (Filter time const approx 2^5 * Sample time).

Programming Options in Detail

See the programming options table above. Programmable Options are also known as Configuration or Setup. The default settings have been chosen to be useful for a "normal" site. If you need to return the unit to default settings see below (Return to Defaults).

Group ID

A group of Z series devices connect on a wired Keypad Bus must have only 1 master. The other Energisers/Monitors in the group are slaves. The VM2 should be a master only if it is not in a group with Z series energisers or monitors. I.e. if it is in a group the VM2 should be a slave.
If a PAE212 TCP/IP adaptor is used, it is the group master. All other devices should be set to slaves.
The VM2 defaults to a master (ID=1) so that it will operate correctly with a Keypad or Gateway.

Threshold (1 and 2).

If the VM2 detects a peak noise over this level it will register an event. This should be set above the normal background noise level on your site. This is often the only setting that will need to be adjusted on a typical site.
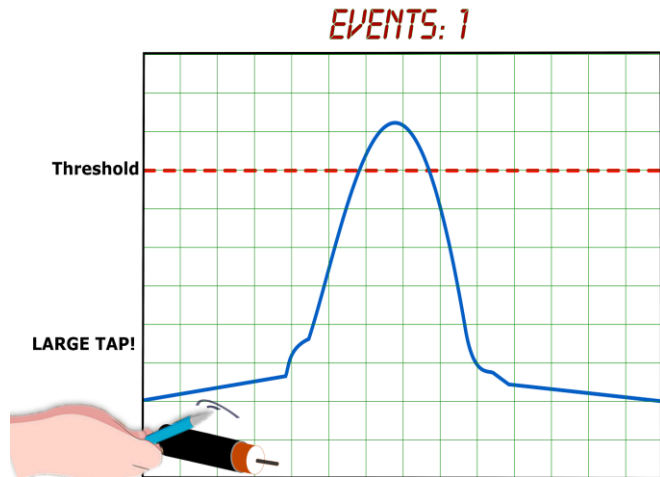
Events Limit (1 and 2)

If there are more than this number of Events in a single Window of time, then there will be an alarm. Increase this to reduce false alarms. Adjust Threshold before changing this setting.
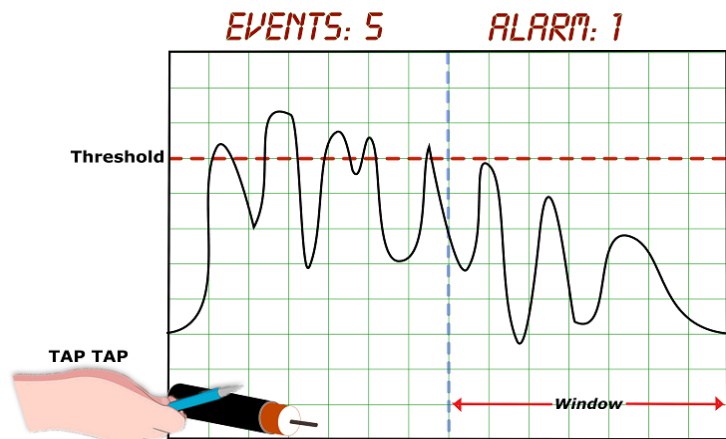
Window (1 and 2)

This setting determines the amount of time in the moving Window used to count Events. This means that 5 events spread over a long period will not trigger an alarm. Five events in rapid succession (within the one Window) will trigger an alarm if the Events Limit is below 5. Reduce this to reduce false alarms. Adjust Threshold before changing this setting.

DNY (Squelch 1 and 2)

This is not used yet.
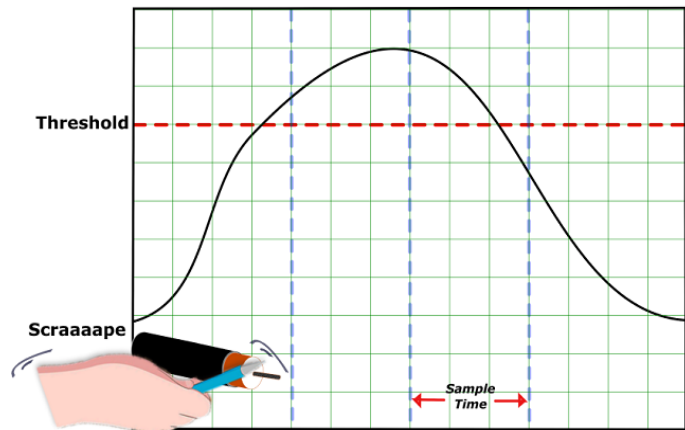
Sample Time

This setting can be used to reduce the number of Events that occur from a single strike to a fence. This is usually the last setting to adjust of all those above.

Battery Float Set

The VM2 contains an inbuilt battery charger for a standby 12V lead acid battery. If you are not using the battery ignore this setting.

This setting adjusts the voltage at which a lead acid battery will be charged and held at when fully charged. Please consult your battery manufacturers specifications for the correct value.

If power outages are frequent use the recommended cyclic value; typically 14.7V.

If power outages are rare use the standby value; typically 13.7V

Raising this setting will NOT increase the speed at which a flat battery is charged. Setting it too high will damage the battery.

Note that the temperature of the PCB is used to adjust this value. This assumes a lead acid battery type.

If you are measuring the float voltage at the battery leads using a multimeter, you must do this within 10 minutes of power up, otherwise the controller will determine that there is no battery connected and show an alarm.

Low Battery Level

Low battery level below which a low battery event is triggered.

Set this to less than 130 (13.0V). Default setting is 110 (11.0V). The Low Battery Alarm will clear when the supply has increased to 1.0V above the Low Battery Level.

Wi-Fi Enable

Turn this off if you are not using the Virtual Keypad ™. If you wish to secure the virtual keypad, change the WiFi password using the Virtual Keypad instead.

If you turn this off, you will NOT be able to use the Virtual Keypad ™.

Fire Cycle Time

Not Used.

Input Functions

The defaults are:
- Input 1- Arm Zone 1
- Input 2- Arm Zone 2

Input Types

The defaults are normally open dry contact.

Alarm Delay (Cable fault alarms)

This sets the amount of time between a cable fault and an alarm. The default is 3 seconds.

Entry Delay

0-255 Seconds of Entry/Gate Delay. Only applicable if an input is set to a Gate input or a general entry zone input.

Exit Delay

0-255 Seconds of Exit Delay. Only applicable if an input is set to a general exit alarm zone input.

Siren on Time

This option sets the duration of time that the siren will remain on after a fence alarm occurs. After this time the siren will turn off for the Siren Off Time indicated in the table. The siren will sound again if the alarm is still present after this off time has passed.
The default is 3 Minutes. This may be the subject of local regulations to stop an alarm causing undue disturbance to neighbours, etc.

Draft note: None of the siren features are work on the Beta Test units

Note: the siren on time will be cut short if the battery falls below the low
Battery level.

Siren Off Time

This option sets the amount of time the siren will be off for after the Siren On Time has expired. If an alarm is still present after this off time the siren will sound again.

Siren Cycles

This option sets the maximum number of times the siren will sound for the "on time" if the alarm continues. This may be limited by local regulations to stop an alarm causing undue disturbance to neighbours etc.
Note: This is the maximum number of cycles for 1 continuous alarm, intermittent alarm events could cause more than this number of siren soundings.

Chime mode

Draft note complete this.

Auto Re-Arm time

This option sets the time which must elapse before another alarm will sound after the first alarm has timed out (gone completely through its cycles).
If an event occurs which triggers the siren, any other events which would otherwise trigger the siren (such as a gate alarm) will be ignored while the siren is sounding and until after the Auto re-arm time has passed.
The default is 0 Seconds (Immediate).

Relay Functions

All relays can be set to any of the available functions (user assignable).

The defaults for the VM2 are:
- Relay 1 – Strobe 1
- Relay 2 – Strobe 2
- Relay 3 – Siren (The 0V2 PCB did not have this output)
- Relay 4 – Armed (or partially armed)
- Relay 5 – Any Zone Alarm
- Relay 6 – General Alarm

Return to Factory Defaults

At some point, you may want to return the VM2 to Factory Defaults. To do this remove all power from the VM2. Remove J4, reapply power and replace J4.

Specifications

Control, Power and IO Terminals

Label	Type	Description
IN1	2 Way	Wired control Input with user selectable functions
IN2	2 Way	Wired control Input with user selectable functions
Keypad	3 Way	Supplies power and data line for an external keypad. The +12V source on these terminals is protected with 1A self resetting fuse.
Siren	2 Way	Switched 12V (a battery must be used)
Strobe	2 Way	Switched 12V (a battery must be used)
Power	2 Way	24Vdc @ 1A
Relay 3	3 Way	Form C contacts, common may be linked to 12Vdc
Relay 4	3 Way	Form C contacts, common may be linked to 12Vdc
Relay 5	3 Way	Form C contacts, common may be linked to 12Vdc

The specifications table below outlines the power consumption of the VM2 and the acceptable voltage and current ranges for different inputs and outputs.

24Vdc Power consumption – no battery or battery fully charged	100mA
24Vdc Power consumption – battery being charged	1.25A
12V Power consumption of VM2 **(Note 1)**	200mA
Maximum voltage on "In1", "In2"	12Vdc
Coaxial cable excitation voltage (measured without a cable terminator connected).	32Vdc

Note 1: With no Siren or Strobe on

Requirements and Options

Power Requirements

- 24Vdc (with or without an internal backup battery) – COP016x
- Optional backup internal 12V 7aH SLA or Gel Lead Acid battery. This must be fitted if you intend to run a siren or strobes from the switched 12V outputs
- OR 12V from an external 12V battery or power source

Cable joiner / Terminators

The PAE346 cable terminator / joiner PCB can be used to terminate a zone or join two sections of coaxial cable together. If using as a terminator you must fit the Jumper. Four are supplied with each VM2.

Options

- 12V Siren and strobe light (30W combined - maximum)
- JVA Keypad – PTE0240 or PTE0233
- Cloud Router Gateway
  - Wi-Fi – PAE253 / PTE0253
  - GSM - PTE0320
- TCP/IP interface – PTE0212 / PAE248
- Windows PC
  - Windows 7 or later
  - Perimeter Patrol PC application