JVA SMS Gateway User Manual

PTE0319

Introduction

The PTE0319 JVA SMS Gateway enables a group of JVA Z Series energisers to be controlled and monitored by SMS from anywhere in the world.

With a phone call or short SMS, users can obtain an up-to-date status report of all their energisers, turn on (arm) or off (disarm) all the energisers at once, as well as switch handy output relays for custom applications.

This unit can store up to 9 phone numbers. If an energiser goes into alarm, or one of two inputs are triggered, an SMS will be automatically generated and sent to each stored number.

Designed with ease of use in mind, the system does not have an endless list of configuration options or complex methods of set-up. All configuration is via SMS to the unit, secured with a user definable PIN.

The JVA SMS Gateway communicates on the widely supported and robust GSM mobile phone network, and will work in any country with 2G coverage. Simply insert a valid topped-up SIM card from your preferred carrier and you are ready to remotely control and monitor your energisers, from anywhere in the world.

Features

- Works with entire JVA Z range of energisers, as well as the ZM1 and ZM20 monitors
- Can monitor and control up to 15 devices (linked via Keypad bus) , as well as two dry contact inputs and two 30Vdc 8A relays
- Produces an up-to-date status report including arm state, alarms and primary voltages of each device, and input and output states
- Responds to status request by SMS or missed call
- Can store up to 9 phone numbers to be notified if a device goes into alarm, or one of two inputs are triggered
- All commands secured by user configurable PIN
- Easily configurable by SMS
- Compatible with the all types of JVA Keypad and with Perimeter Patrol

Specifications

Power supply	12 V DC 1A
Inputs	Dry contact or active pull-down
Outputs	30Vdc 8A SPDT
SIM	Micro
Antenna connector	Female SMA

Overview
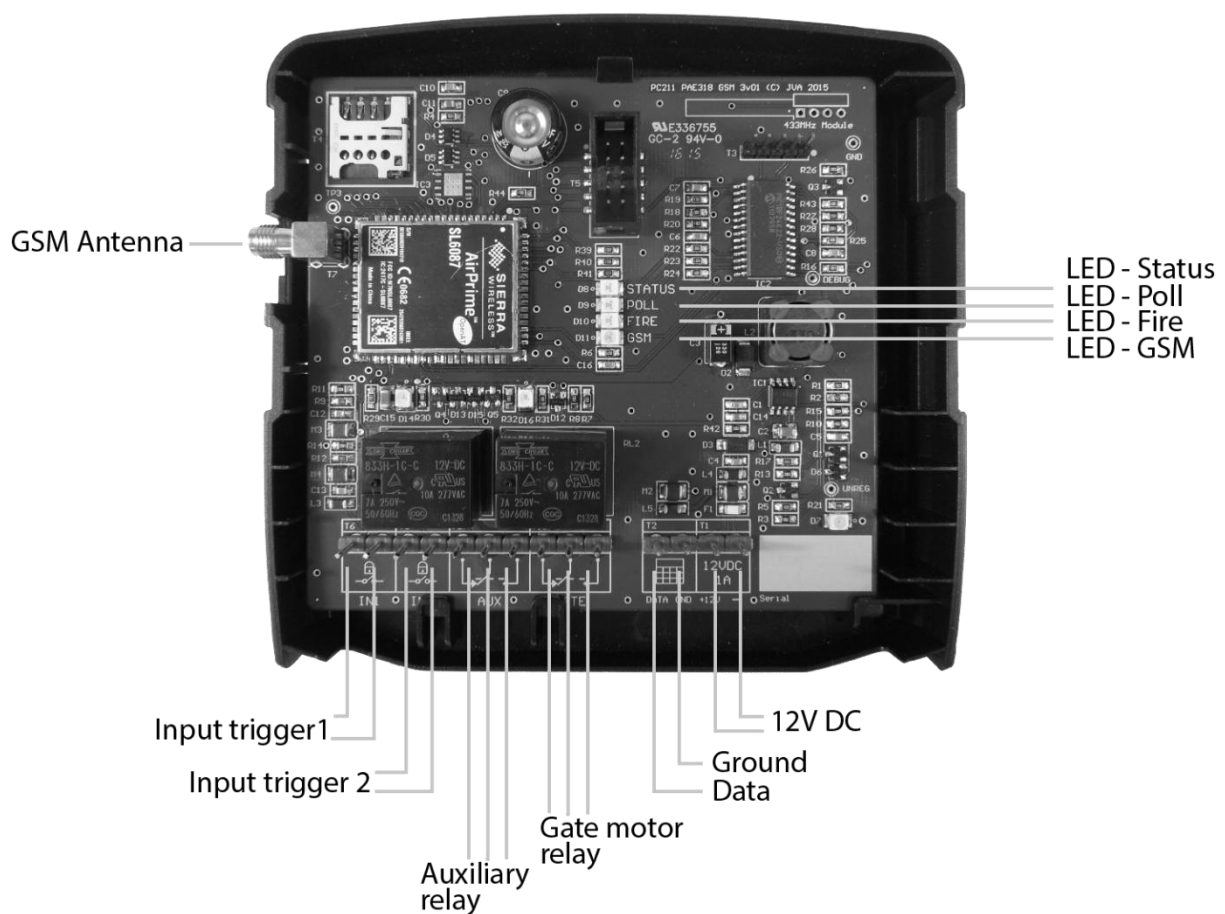
LED Indicators

GSM	On (no flash): If there is a problem with the antenna or SIM card, the LED will remain on, indicating the unit is not connected to the GSM network Slow flash: GSM network connected Very fast flash: The unit has corrupted software
STATUS	Blinks when the unit receives a status message from the group
POLL	Blink when the unit is sending a command to the group or requesting additional information
FIRE	Not used.

Inputs

Two dry contact inputs are provided. If the unit sees a short circuit between the input terminals it will register the input as being 'On'.

Just like the inputs on all JVA Z series devices, the input can also be asserted from an electrical source by driving the right-most terminal to ground.

Outputs

Two SPDT relays are available as general purpose outputs. These relays can switch DC voltage up to 30V and 8A. The outputs can be switched on or off by SMS, and are ideal for connection to external lights, pumps, electric motors, gate openers, or interfacing to an existing alarm or control system.

Antenna

A GSM antenna is supplied with the unit and must be connected to the unit for it to communicate on the mobile network. If mobile reception in the area is particularly weak, the antenna can be substituted for a more powerful one, provided it has a male SMA connector.

Ensure the antenna is mounted away from any high voltage cables or AC power cables which could cause interference. If the unit is mounted inside a metal enclosure, the antenna should be mounted external to the enclosure and the cable entry hole be sealed against water ingress.

Power and Keypad Bus

The keypad bus enables digital communication between the SMS Gateway and connected devices. Connect the DATA and GND terminals to the equivalent terminals of all connected devices.

The SMS Gateway requires 12V dc to operate. This power may be supplied from the keypad bus of a connected energiser, or for best results a separate 12V 1A power supply may be used. Do not connect the unit to a separate power supply **and** keypad bus +12V of an energiser at the same time.

The SMS Gateway operates as a keypad with keypad ID 2. Keypad ID 3 is reserved. If other keypads or keypad devices such as the PAE212 or Perimeter Patrol are to be used with the group, they should be set to keypad ID 1, 4, or greater.

SIM card

The SMS Gateway requires a Micro SIM card that is activated and has credit. The SIM card should first be tested in a phone to ensure it can send and receive text messages, and also receive phone calls.

Insert the sim card with the cut corner to the bottom right, unclipping the PCB from the enclosure temporarily if required. Connect the antenna and power and confirm the green 'GSM' LED flashes every 2 seconds. If the LED stays on (without flashing) the unit cannot connect to the network, indicating a problem with the SIM card or antenna.

A good value pre- or post-paid plan should be chosen for the SIM card. The unit does not use data or voice calls, only SMSes. Estimate how many SMSes are likely to be generated per day. If the unit is queried for status often, a plan offering unlimited SMSes may be good value, keeping in mind the ongoing cost will mostly likely be monthly. If the unit is unlikely to generate a SMS in normal operation and is only for emergencies, plans offering more expensive SMSes but longer credit expiry periods are also available.

Installation

Detach the front of the case by gently lifting the side clips. Unclip the top of the circuit board to remove from the case back. Mount the case back using suitable screws. Be sure the screw head will not contact the PCB when it is re-installed. The unit must be mounted indoors or in a suitable enclosure to protect it from moisture. It is NOT water proof and damage due to moisture is not covered by the warranty.

Obtain a suitable SIM card. Activate it according to the instructions, either via the internet or by phone, and make sure it has credit available. Insert the SIM card into a mobile phone and confirm you can receive calls and send SMSes. Remove the SIM card from the phone and insert into the unit, contact side down with the notched corner to the lower right. Clip the circuit board into the case back.

Connect the antenna. Mount the antenna away from high voltage and mains power cables, vertically if possible. If the unit is housed in a metal enclosure, the antenna should be mounted outside the enclosure and the enclosure earthed.

Connect +12V, Data and Ground wires from the unit to a JVA energiser. Power on the energiser. The unit should also power on.

Confirm the GSM light flashes briefly once every 2 seconds, and that the STATUS light flashes approximately every second.   Clip the case front back on. Your JVA SMS Gateway is ready to use.

Operation

SMS Commands

The unit is controlled and configured by SMS. All commands are of the format

PIN command parameter

with spaces separating each part. The commands and parameters are not case sensitive. Many commands may be replaced with only their first letter.

A help message can be requested by issuing the **help** command. The unit will reply with a summarised list of available commands.

PIN

All commands are prefixed by a PIN number, to secure the unit against unauthorised changes. The PIN must be between 4 and 12 digits long. **The default PIN is 1234**. The

PIN can be changed by issuing a **changepin** command, with the new PIN as the parameter. If successful the unit will reply and inform everyone on the report list of the new PIN.

If you forget the PIN, a factory reset must be performed. See the section 'Factory Reset' for more information.

Querying the Status

The SMS Gateway can be queried to return the status of the inputs, outputs and all Z series devices connected to it via the Keypad Bus. Simply issue a **status** command, or alternatively call the unit. It will detect your call and hang up after two rings, then SMS you with a complete status. For this to function it is important your Caller ID information is not blocked, otherwise the unit will not know which number to send the reply to.

The SMS will take the format:
Model(**ID**) <On (**V1**, **V2**) or Off> <**Alarms**>
Model(**ID**) <On (**V1**, **V2**) or Off> <**Alarms**>

...
In1:<on|off> In2:<on|off> Out1:<on|off> Out2:<on|off>

Model	Energiser model eg Z14, ZM20
ID	Keypad bus device ID (1-15)
V1, V2	Primary voltages, usually feed and return, in kV
Alarms	CommsFail OR FenceAlarm1 FenceAlarm2 AcFail LowBatt BadBatt Tamper Fault GateAlarm OR No Alarms

The hardware status of the unit can also be requested by issuing a **gsm** command. The unit will reply with signal strength, the last system start date and time as stored in memory, and the firmware version.

Report List

The unit can store up to 9 phone number which it will SMS if a device goes into alarm, or an input changes. This list is configured and maintained using the **add** and **remove** commands. You can retrieve the current list of numbers using the **numbers** command.

Issuing an **add** command, followed by a valid number, will add the number to the report list. It is possible to add duplicate numbers to the list, which will result in that number receiving multiple SMSes each time an SMS is broadcast. Numbers can be in either the

national format, eg 0412 345 6789, or international dialling format, eg +61 412 345 6789. After successfully adding a number the unit will reply with the report list, and an SMS will be sent to the new number informing them they were added.

Numbers can be removed by issuing the **remove** command, followed either by the number, or the position of the number in the report list. If entering a number, it must be in the same format as it is stored in the list. After successfully removing a number the unit will reply with the report list, and an SMS will be sent to the removed number informing them they were removed.

Controlling Energisers and Outputs

The unit can turn all energisers on (arm) or off (disarm) by issuing the **on** or **off** command. When arming, the unit will arm in high power only, and arm both channels of any dual channel energisers. When the unit has confirmed the new arm state it will reply to the sender with a confirmation message.

The unit has two relays than can be turned on or off. Issue an **output1** or **output2** command with the parameter **on** or **off**. Note there is no space between "output" and the number "1" or "2". The unit will reply with a confirmation message.

Alerting users of alarms

The unit monitors the connected energisers and will send a SMS to everyone on the report list if the following things occur:

- A fence alarm occurs, usually due to a short on the fence
- An energiser stops communicating
- An input changes

If multiple energisers report changes at the same time, the unit will send one SMS for each change.

Basic Commands

The following is the minimum commands you will need to know to get your JVA SMS Gateway working. It assumes the PIN is still set to the default of 1234.

When you have installed and powered on your unit for the first time, the connected energiser(s) are powered on, and the GSM light is flashing once every 2 seconds, issue a status command

1234 s

The unit will reply with a summary of all connected energisers.
Next, add your number to the report list. For example if your phone number was 0412 345 6789, send

1234 a 04123456789

The unit will reply with "1.04123456789" indicating there is one number on the report list – yours.
Now try arming you energiser(s) by sending

1234 on

You should see the energiser(s) arm, and receive an sms saying "Energiser(s) are on". Now disarm the energiser(s) by sending

1234 off

You will see the energiser(s) disarm and receive another confirmation text. For a complete list of commands, refer to the section "Command Summary".

Command Summary

The table below summarises all available SMS commands. The default PIN is used in examples but you should replace this with your own PIN if it has been changed.

Command	Description	Example	Response
changepin <PIN> or **c** <PIN>	Changes the PIN	1234 changepin 4321	PIN is now 4321
		4321 c 1234	PIN is now 1234
		1234 c 123	Invalid PIN
add <number> or **a** <number>	Adds the specified number to the report list	1234 add 041 234 5678	1.0412345678
		1234 a +61 41 234 5678	1.0412345678 2.+61412345678
		1234 a 555JVAROCKS	Invalid phone number
numbers or **n**	Requests the report list	1234 numbers 1234 n	1.0412345678 2.+61412345678
remove <index> or **r** <index>	Removes the number at the given index from the report list	1234 remove 1	1.+61412345678
		1234 r 2	Number not found in report list
remove <number> or **r** <number>	Removes the specified number from the report list	1234 remove 041 234 5678	Number not found in report list
		1234 r +61 41 234 5678	Report list is empty
gsm or **g**	Requests GSM status	1234 gsm	Signal: 25 System up: 13:56 2015-06-10 Fw: 1v3.0
status or **s** or **?**	Requests energiser/monitor primary voltages, arm and alarm state, and unit input and output state	1234 status 1234 s 1234 ?	Z14(1) On (6.8kV, 6.4kV) No alarms ZM20(2) Off LowBatt In1 Off In2 Off Out1 On Out2 Off
help or **h**	Requests a command summary	1234 help 1234 h 1234	This table, in 160 characters
on or **arm**	Arms all devices	1234 on	Energiser(s) are on
off or **disarm**	Disarms all devices	1234 off	Energiser(s) are off

Command	Description	Example	Response
output1 <on|off> or **out1** <on|off> or **1** <on|off> or **aux** <on|off> **output2**<on|off> or **out2** <on|off> or **2** <on|off> or **gate** <on|off>	Controls relay 1 or 2	1234 output1 on	Output 1 is now on
		1234 1 off	Output 1 is now off
		1234 out2 on	Output 2 is now on
		1234 gate off	Output 2 is now off

Troubleshooting

The JVA SMS Gateway is designed to work straight out of the box with little set up or configuration. The only crucial step is to ensure the unit has good mobile reception and an activated SIM card with credit. Refer to the troubleshooting table below for more information.

Fault	Likely Cause	Remedy
No lights are on	Power is not connected Power wires are reversed	Check power connections Check voltage at power connections with a multimeter
GSM light is on, not flashing	SIM card not activated	Confirm SIM is activated by inserting into a mobile phone and sending and receiving texts
	Poor signal strength	Check antenna connection Move antenna mounting place
GSM light flashes fast and continuously	Software corruption	Contact your nearest JVA distributor
Status light not flashing	Keypad bus is not connected	Check the keypad bus DATA and GND connections
	Energiser malfunction	Confirm a JVA keypad can control the energiser using the same connections
	Group configured incorrectly	If there is more than one energiser, ensure one is configured as master (device ID 1) and the others have unique device IDs of 2 or more

Fault	Likely Cause	Remedy
Unit does not reply to phone calls with a status message	Caller ID information blocked	Use the same phone to call another number and confirm your number appears on their phone. Check phone settings for 'Caller ID blocking'
Unit does not control energisers	Another keypad or keypad device is connected with keypad ID 2	Disconnect the other keypad, or change its ID to 1, 4, or greater
Unit responds to SMS commands but does not reply	Insufficient or expired credit	Check the SIM card has credit available

If the unit is still not working correctly, contact your nearest JVA distributor for technical support.

Support

Factory Reset

If the PIN has been changed from its default setting and has been forgotten, the unit will need to be factory reset. Confirm the unit has signal and the SIM card has credit by issuing the command '1234 g' and awaiting the reply "Incorrect PIN". Contact your nearest JVA distributor with the mobile phone number of the SIM card and they will remotely reset the unit for you.

JVA Distributors

If you have any questions or need further assistance, please email us at

sales@jva-fence.com.au

or phone one of the numbers listed below

Region	Number
Australia	07 3103 0582
South Africa	0861 782 349
World Wide	+61 7 3103 0582

For more information on our complete range of electric fencing products please see the JVA website

www.jva-fence.com.au