



Ethernet General Purpose IO Technical Manual

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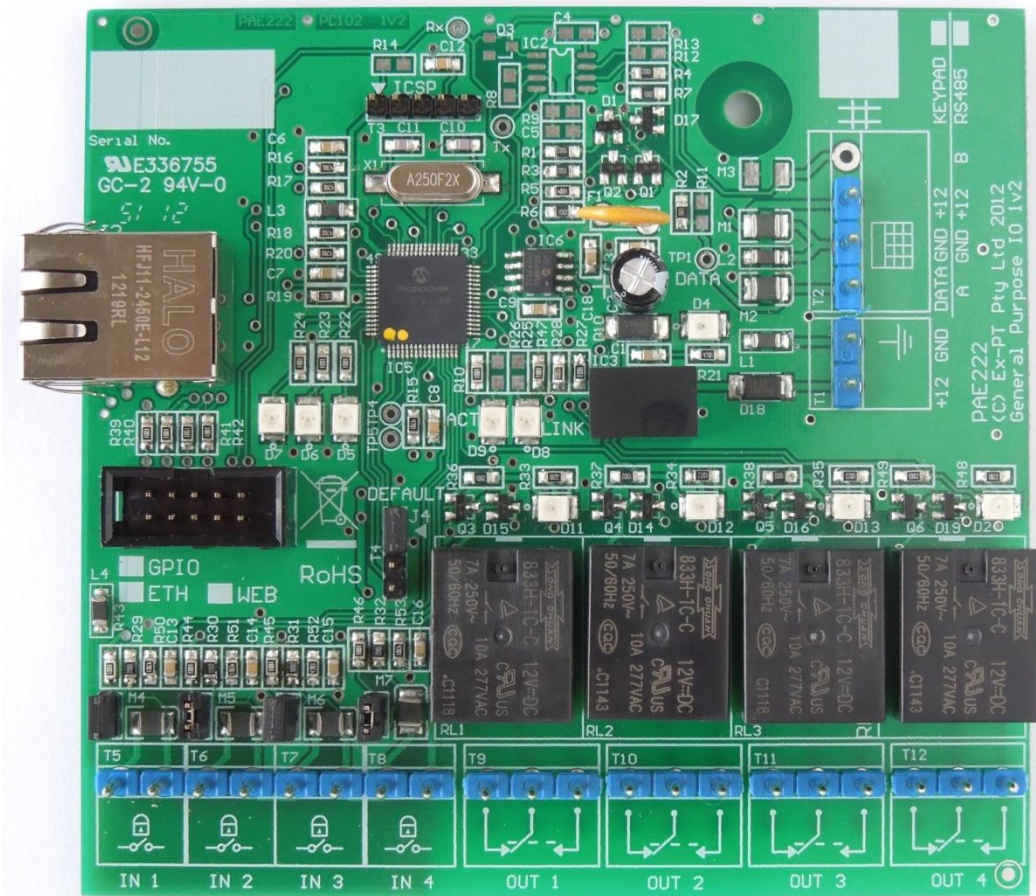


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INTRODUCTION

The Z-Series Electric Fence Energisers and Peripheral Devices are designed and manufactured in Brisbane, Australia.

This document is a manual for the JVA General Purpose IO (Input/Output) board. It provides stand alone Inputs and Outputs that easily integrate external equipment into the Perimeter Patrol System. The inputs can be used monitor devices such as motion detectors, IR beams or door contacts, while the outputs can be used to turn on security lighting, sirens or even water pumps.

This product can also be used as a substitute for the PAE201 as it can provide Output Expansion for one or more Energisers by monitoring its/their status. This Output Expansion is available for all current Z-Series Energiser variants (Z13, Z14, Z18, Z28) and Monitors (ZM1, ZM20).

Finally, the GPIO board can be configured to provide a combination of Perimeter Patrol Outputs and Energiser Expansion Outputs on the one board for greater flexibility.

This manual relates to:

PCB version: 1v0 and higher

Firmware version: 1.00 or higher

Current Firmware: 1.00

Scope and Purpose

- This document is intended for the training of engineering and technical personnel.
- As a reference for the features and specifications per version, as such it will be kept up to date and re-issued with each revision of the PCB or firmware. Please ask JVA for the latest version.

Glossary

GPIO	– General Purpose IO board (acronym for this product)
IO	– Inputs/Outputs
Zone	– A high voltage fence output and return to provide perimeter security.
Bi-polar	– A Bi-Polar fence is an all-live wire fence. A Bi-Polar Energiser has the ability to pulse synchronised positive and negative pulses down alternate wires of the same fence line.
Conventional	– A Conventional electric fence is wired in such a way that alternate live and earth wires are on the fence.
On/Armed	– The Energiser is transmitting high (or low) voltage pulses onto the fence. The fence is secure.
Off/Disarmed	– The fence zone is unsecure, but is safe to perform maintenance on.
PCB	- Printed Circuit Board

SPECIFICATIONS

Specification Name	Specification
Energiser Connection	Keypad Bus (+12, 0V, DAT)
Max Power Consumption (+12Vdc)	120mA
User Inputs	4
Switched Outputs	4 x Form C (5 Amp) relay
Recommended Operating Temperature	-15°C to +50°C
Enclosure	IP4x ABS Plastic
Size – PCB only	100mm high, 100mm wide, 30mm deep
Size – Enclosure	120mm high, 72mm wide, 35mm deep
Weight – packed (PCB only)	80 grams
Weight – packed (with Enclosure)	120 grams

Specifications Table

Notes for all Z-Series energisers

2.1 ⚠ DANGER ⚠

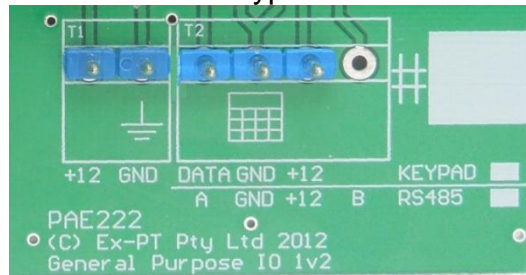
- ***There are potentially lethal high voltages inside the Z Series Energisers.***
- ***The high voltage inside the Z Series Energisers may take a long time to discharge. Wait at least 10 minutes after turning off before opening the case.***
- ***Before working on the high voltage wiring of an electric fence, it is recommended that the energiser be disarmed and an intentional short circuit is placed from the fence live wires to earth. This is a sensible precaution against the energiser being turned on by others or malfunctioning while working on the fence.***
- ***If an electric fence is part of a multiple energiser system and the distance between two separate electric fences, each powered by separate energisers, is less than 2.5 meters, the energisers must be configured to operate in group mode.***

INPUT / OUTPUT CONFIGURATION

1. Install the GPIO (General Purpose IO) Enclosure in a water resistant housing
2. Install the GPIO circuit board into the GPIO Enclosure
3. Connect a 12V dc supply and a Keypad to the circuit board

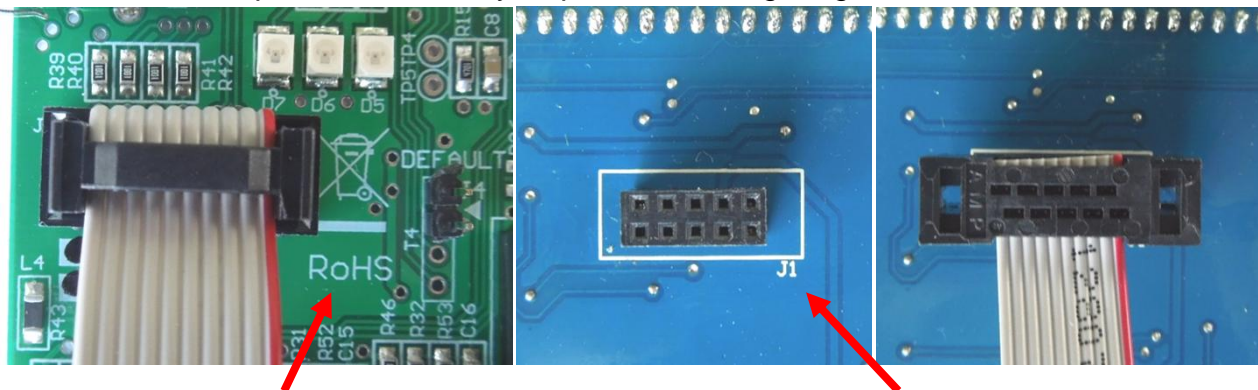
NOTE 1: As the programming options of the GPIO are different from the Z-Series Energisers, each board must be programmed separately. Ensure that only the Keypad is connected to the GPIO when configuring it.

NOTE 2: As the GPIO board consumes approximately 100mA for normal operation, it should not be powered from the Keypad Bus.



4. Connect a PAE091 programming display (not supplied) to the **DISPLAY** socket using the ribbon cable supplied with the unit.
 - a. The Red wire should align to towards the RoHS symbol on the GPIO PCB.
 - b. The Red wire should also align with the text J1 on the PAE091. Ensure the connector is centred left to right. Newer PAE091 have a 'keyed' connector at J1 making this connection easier

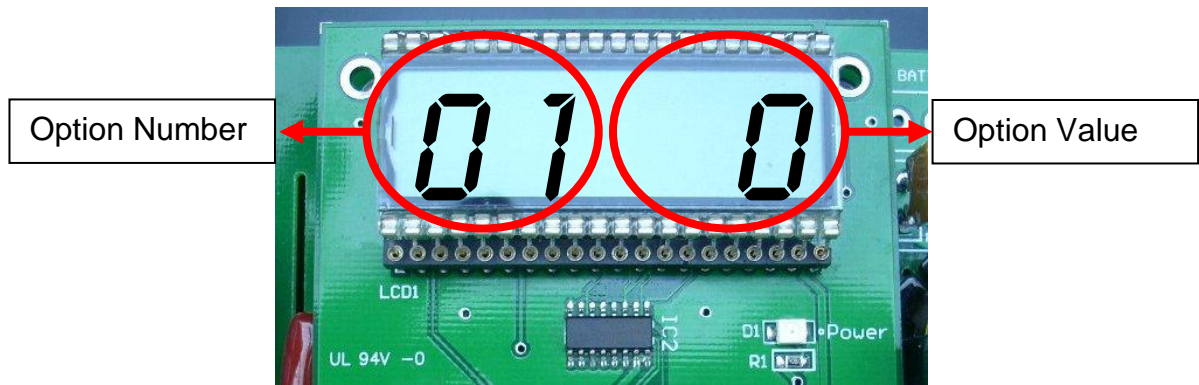
NOTE: The PAE091 is the same display as used in the Z28 and ZM1 and can be 'borrowed' from one of these products. It is only required for configuring the GPIO board.



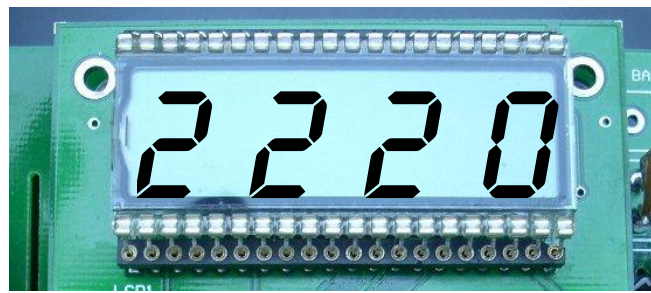
GPIO RoHS Symbol

PAE091 PCB J1

5. Turn on the Power to the dc supply
6. On the Keypad, type `[INSTALLER PIN]*0#` (Star Zero Hash) to enter Programming Mode (Note: The default Installer PIN is 012345)
7. The PAE091 programming display will now show Option 1 and the value in Option 1

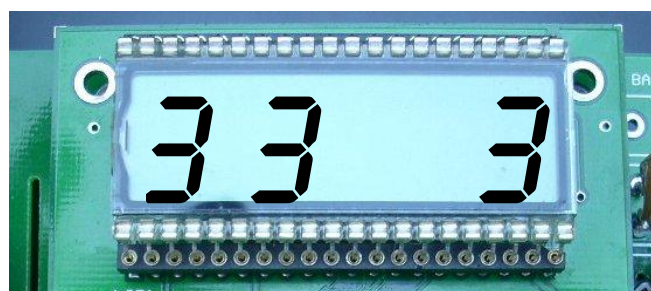


8. Configure the Inputs of the GPIO as required. Refer to page 16 (**INPUT TYPES**).
9. Change the Relay functions as required. Refer to page 18 (**RELAY FUNCTIONS**). For Example: to change **RELAY OUTPUT 2** to be controlled by Perimeter Patrol, type **2220#** on the keypad. The programming display will show this change



10. For each Relay Output that is not controlled by Perimeter Patrol, set the Energiser Expansion ID value. Refer to page 21 (**RELAY EXPANSION ID**). For Example: to set the **RELAY OUTPUT 3** to monitor the status of Energiser (**ID 3**) type **3303#** on the keypad. The programming display will show this change

NOTE: The GPIO relays are configured to provide Expansion for Energiser ID 2 by default



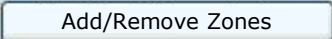
11. Change other Options as required
12. Exit Programming Mode by typing ***#** (Star Hash). The programming display will stop showing options. Remove the programming display
13. Disconnect the Keypad from the GPIO PCB and now connect the Energiser Keypad Bus to the DATA and GND pins of the GPIO PCB
14. Connect the external equipment to the Relay Output on the GPIO PCB
15. Connect the external equipment to the Inputs on the GPIO PCB

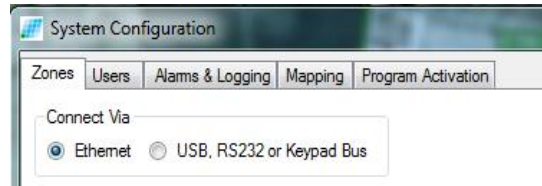
16. Test the Relay Outputs change state when the Monitored Energiser triggers the required Function
17. Close the GPIO Enclosure

PERIMETER PATROL CONFIGURATION

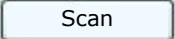
1. In Perimeter Patrol open the **SYSTEM CONFIGURATION** window
(**SETUP**→**SYSTEM CONFIGURATION...**)

2. In the **ZONES** Tab, Select the **ETHERNET** option


3. Press the  button

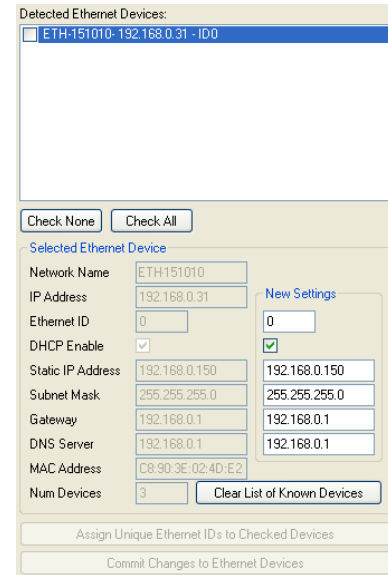


Automatically Detecting Connected Devices

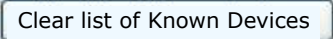
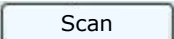
1. In the **ADD/REMOVE ZONES** window press the  button. This will detect all of the Ethernet devices connected to the same network as Perimeter Patrol. These will be displayed in the **DETECTED ETHERNET DEVICES** box

2. Click on each Detected Ethernet Device in turn and assign New Settings:

- Enter a number in the Ethernet ID (1-128). Each Ethernet Device **MUST** have a unique number as this is used to synchronise the PAE224 via the Ethernet connection.
- Disable DHCP (recommended)
- Enter a new Static IP Address (one that is unused)
- Press the  button



This will ensure that all Energisers will be synchronised and able to respond to Perimeter Patrol Commands.

3. The **NUM DEVICES** box at the bottom of the list indicates the number of Energisers the PAE224 has remembered. If this number does not match the number of Energisers connected, press the  button. This forces the PAE224 to re-evaluate the Keypad bus similar to the ***68#** function of a Keypad. Press the  button again to update the **DETECTED ZONES** box.

- In the **DETECTED ZONES** box, select and Add the Energisers to be monitored to the Active Zones box. The Detected Zones follow this numbering:


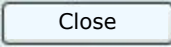
ETH-XXXXXX:Y:Z

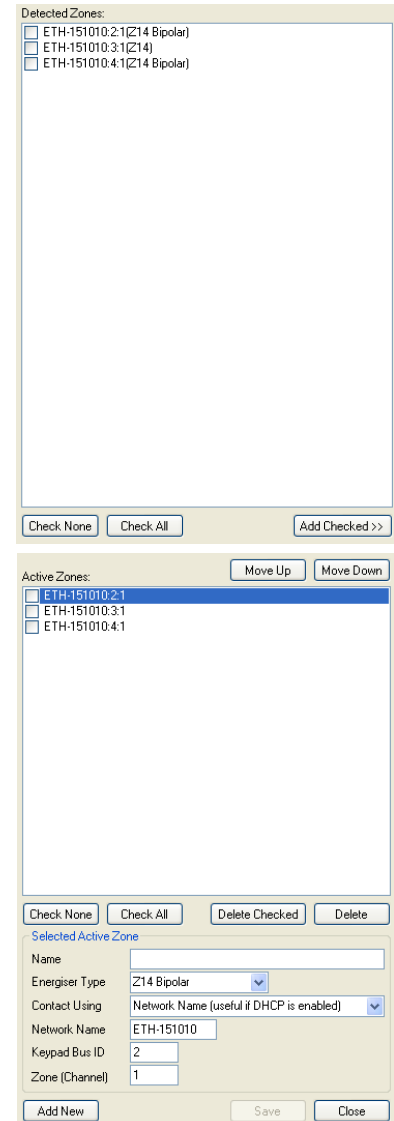
Where **ETH** represents **GPIO Ethernet Interface**

XXXXXX is the **Serial number of the device**

Y is the **Group Mode** Number of the Energiser (26xx#) with values from **2** to **15**


Z is the **Zone number** of that Energiser. **1** for a Single Zone Energiser, **1** or **2** for a Dual Zone Energiser

- All Zones that are Added to the system will be displayed in the **ACTIVE ZONES** box.
- Select each Active Zone in turn and update the **NAME** and **ENERGISER TYPE** to make it easier to distinguish the Energiser location
- Press the  button. If this is not done, all of the changes will be lost
- Press the  button
- The Map window of Perimeter Patrol will now have all of the Active Zone boxes in the top Left Corner of the Map



Manually Adding Active Zones

An Active Zone can be added to Perimeter Patrol before the PAE224 is connected to the LAN, or before the Energiser is connected to the PAE224. This requires knowledge of the Energiser configuration and the PAE224 Serial number.

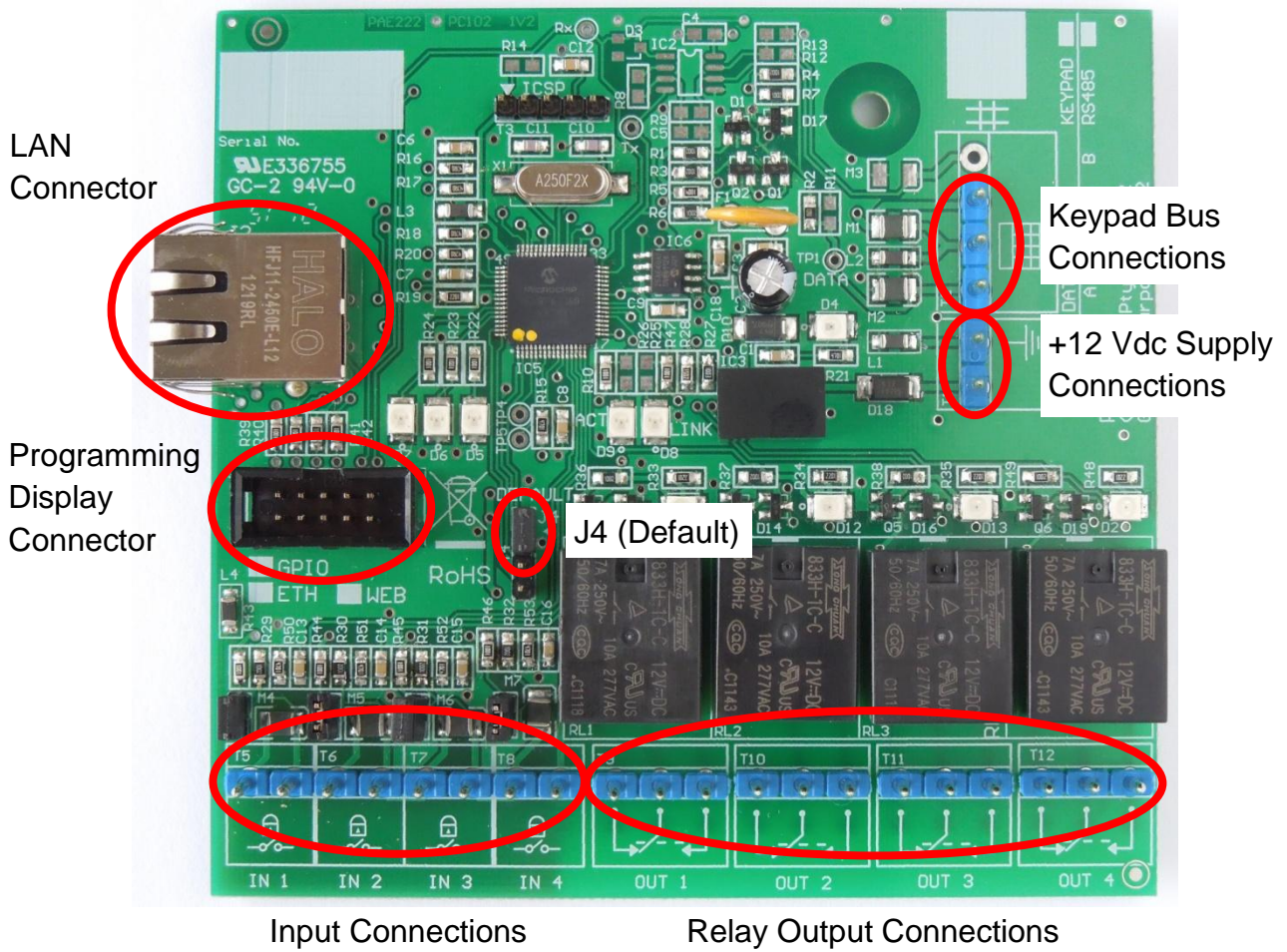
- Pressing the  button in the **ACTIVE ZONES** section will create a new Active Zone entry
- Select the newly created Zone and then update all of the Zone information
 - Enter a suitable **NAME** for the Zone
 - Select the **ENERGISER TYPE** from the list.
 - Enter the **NETWORK NAME** into the box. This is ETH-XXXXXX, where XXXXXX is the Serial Number on the PAE224. Eg PAE224 with Sn. 156876 = ETH-156876
 - Enter the Group ID of the Energiser into the **KEYPAD BUS ID** box
 - Enter the **ZONE (CHANNEL)** number. This will always be 1 except for a Z-28

Both Zones of a Z-28 need to be Added to the Active Zones box. The only difference between the settings for these is the Zone (Channel), 1 for Zone 1, 2 for Zone 2.

When the Energiser and PAE224 are connected to the LAN, the Zone will become active on the Map page. Until this occurs, the Zone will display Coms Fail.

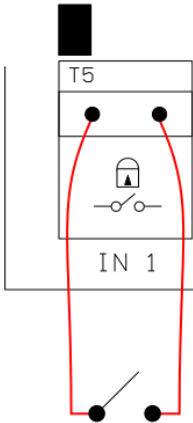
DESCRIPTION

Circuit Board Layout

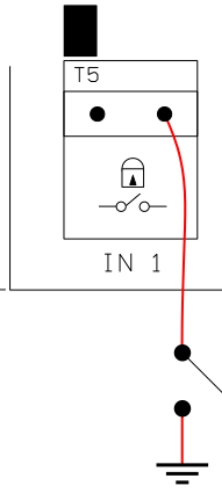


Input Wiring Examples

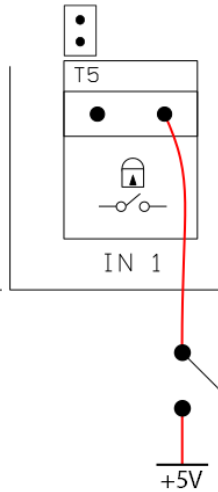
Dry Contacts



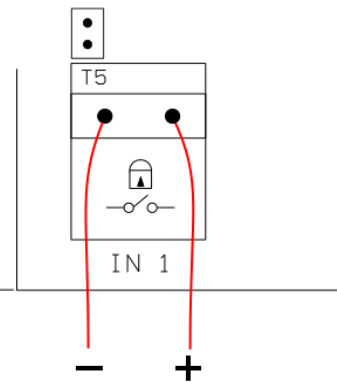
Pull down to Ground



Pull up to +5 or +12

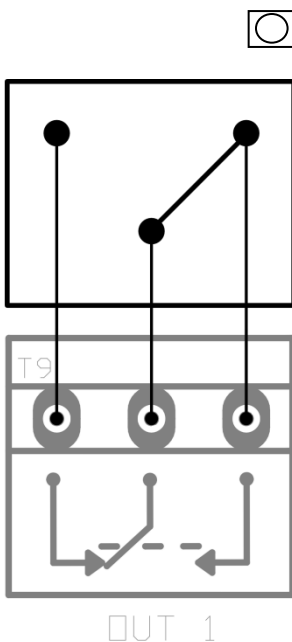


0 – 10V analog signal

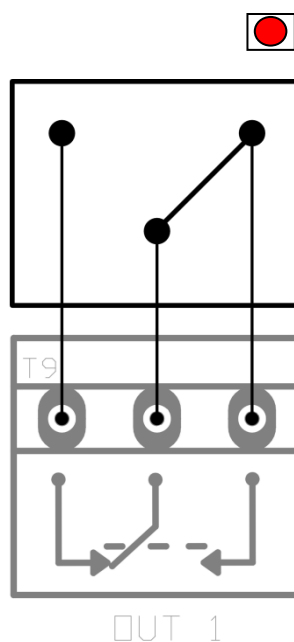


Output States

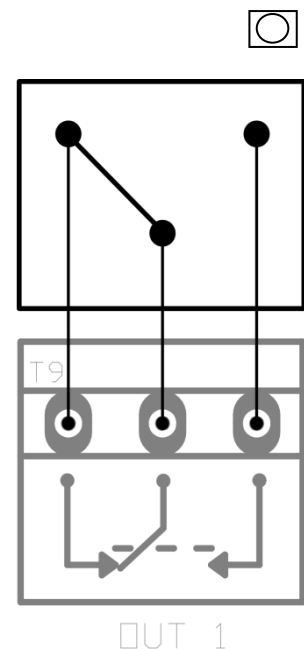
PAE224 without power



Relay Function in Alarm /
Coms Fail to Energiser /
Perimeter Patrol Disconnected

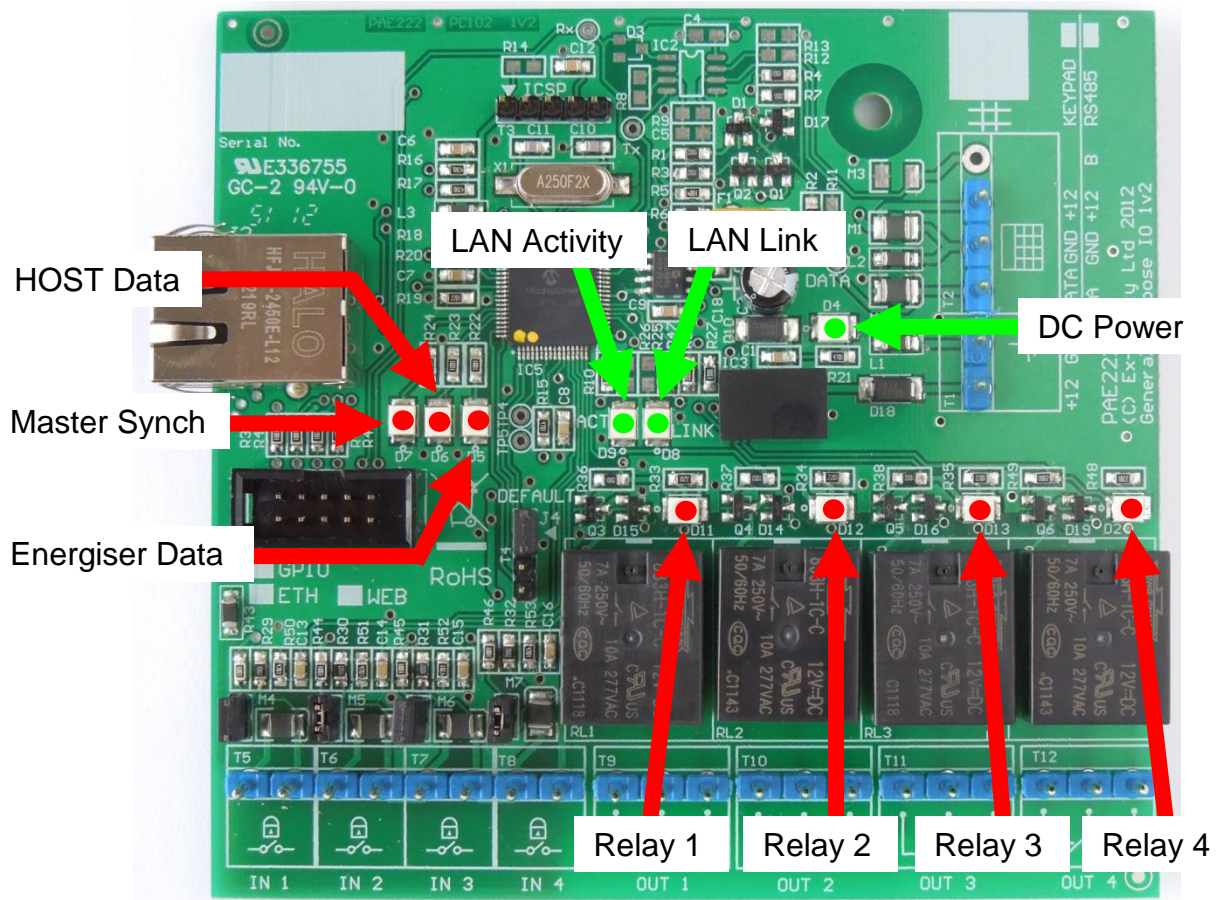


Relay Function not in Alarm



When an Output is configured as **HOST CONTROLLED**, the Output State will vary depending on how Perimeter Patrol is configured for this output.

LED Indications



- DC Power – the Green LED (D4) will be ON when the GPIO board has power
- Master Synch – the Red LED (D7) will BLINK approximately once every second to indicate Energiser Synchronisation
- Energiser Data – the Red LED (D5) will BLINK rapidly (one blink per Energiser/Monitor connected) when the GPIO board is receiving data from an Energiser or Monitor
- HOST Data – the Red LED (D5) will BLINK when the GPIO board is receiving data from Perimeter Patrol
- Relay 1, 2, 3, 4 – the Red LED (D11, D12, D13, and D14) will be ON when the Output Relay is in the Alarm state
- LAN Link – the Green LED D8 will be ON when the GPIO board is connected to a Local Area Network (LAN)
- LAN Activity – the Green LED D9 will blink when information is sent between the GPIO and Perimeter Patrol

INSTALLATION PROGRAMMING OPTIONS

The GPIO board has non-volatile memory that holds programming options (**SETUP PARAMETERS**). These are factory pre-set but can be field programmed using a keypad.

Entering Programming Mode

To enter programming mode, enter the 6 digit **INSTALLER PIN** followed by ***0**# keys (Star, Zero, Hash). The keypad will beep twice to indicate that the command was accepted. If the **PIN** was incorrect the keypad will beep 3 times. The LCD on the PAE091 programming display will now show the first programming option and its current setting (value).

Pressing the **#** key will cycle through all the options on the LCD.

Note: Not all numbers are used.

The default **INSTALLER PIN** is **012345**

To Exit Programming Mode

To exit programming mode press ***#** (Star, Hash). If left unattended the GPIO will **TIME OUT** and **AUTO EXIT** Programming mode after 1 minute.

Changing the Installer PIN

The installer PIN may only be changed while in programming mode.

To enter a new installer pin, press **00** (Zero, Zero) followed by the new **6 DIGIT PIN**, then the **#** key.

If you cannot remember your **INSTALLER** or **USER PIN**, return the GPIO memory to default. To do this, remove power (+12dc), remove jumper J4 and reconnect the power for about 10 seconds. Do not forget to re-fit J4.

This will return all options to the factory set defaults.

Changing an Option

Most of the options have possible values in the range of 0 to 9.

To change any options, first check the option number (see table below) and then the table of values for that option. Then press the option number followed by the required value.

Example 1 (a one digit value):

To change the **SIREN ON TIME** (Option 08) to 1 Minute (Value 2) press **082#**, the keypad will beep twice to indicate that the command was successful. The LCD will immediately show the updated value.

Example 2 (a two digit value):

To change the **GROUP ID** (Option 26) to 5 (Value 5) press **2605#**, the keypad will beep twice to indicate that the command was successful. The LCD will immediately show the updated value.

Programming Options

Option	Function	Description
08	SIREN ON TIME	Time that the siren (and keypad beeper) will stay ON after an alarm
09	SIREN OFF TIME	The amount of time the siren will be OFF for after the SIREN ON TIME has expired
10	SIREN CYCLES	The number of times the siren will sound for the SIREN ON TIME.
11	INPUT 1 TYPE	Allows the Input to function as a Normally Open, Normally Closed, Momentary or Pulse Extend switch
12	INPUT 2 TYPE	Allows the Input to function as a Normally Open, Normally Closed, Momentary or Pulse Extend switch
13	INPUT 3 TYPE	Allows the Input to function as a Normally Open, Normally Closed, Momentary or Pulse Extend switch
14	INPUT 4 TYPE	Allows the Input to function as a Normally Open, Normally Closed, Momentary or Pulse Extend switch
16	BINARY OPTIONS	Miscellaneous options
18	BINARY OPTIONS 2	Miscellaneous options
20	AUTO REARM TIME	Sets the time which must elapse after an alarm has timed out (completed the SIREN CYCLES) before the GPIO board will automatically re-arm ready for the next alarm event
21	RELAY 1	Used to assign an alarm function to relay 1
22	RELAY 2	Used to assign an alarm function to relay 2
23	RELAY 3	Used to assign an alarm function to relay 3
24	RELAY 4	Used to assign an alarm function to relay 4
26	GROUP ID	Allows the device to be set as a Master or slave in a synchronised group.
31	RELAY 1 EXPANSION ID	Assign an Energiser ID to the relay 1 function
32	RELAY 2 EXPANSION ID	Assign an Energiser ID to the relay 2 function
33	RELAY 3 EXPANSION ID	Assign an Energiser ID to the relay 3 function
34	RELAY 4 EXPANSION ID	Assign an Energiser ID to the relay 4 function
36	RELAY 1 ZM20 SECTOR	Set relay 1 to trigger when this ZM20 Sector alarms
37	RELAY 2 ZM20 SECTOR	Set relay 2 to trigger when this ZM20 Sector alarms
38	RELAY 3 ZM20 SECTOR	Set relay 3 to trigger when this ZM20 Sector alarms
39	RELAY 4 ZM20 SECTOR	Set relay 4 to trigger when this ZM20 Sector alarms

Siren On Time (08x#)

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 Siren Off Time. 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.

Note: the **SIREN ON TIME** will be cut short if the battery falls below the low battery level.

Value	On Time
0	10 Seconds
1	30 Seconds
2	1 Minute
3	2 Minutes
4	3 Minutes
5	4 Minutes
6	5 Minutes
7	6 Minutes
8	7 Minutes
9	8 Minutes

Siren On Time

Siren Off Time (09x#)

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.

Value	Off Time
0	10 Seconds
1	1 Minute
2	2 Minute
3	5 Minutes
4	10 Minutes
5	20 Minutes
6	30 Minutes
7	40 Minutes
8	50 Minutes
9	60 Minutes

Siren Off Time

Siren Cycles (10x#)

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.

Value	Cycles
0	1
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

Siren Cycles

NOTE: Up-to 4 outputs can be configured as Siren Outputs. Each of these outputs operates independently however they utilise the same initial values as configured in options 8, 9 and 10. There is no support for Sirens with different **SIREN ON TIME** and **SIREN OFF TIME** times.

Input Type (11x# - 14x#)

All Inputs can be configured to any of the available **INPUT TYPES** (user assignable).

INPUT 1 is (11x#), **INPUT 2** is (12x#), **INPUT 3** is (13x#), **INPUT 4** is (14x#).

All Inputs Default to **NORMALLY OPEN**.

Setting the **INPUT TYPE** to **MOMENTARY** will allow the input to see a momentary switch. This requires an **ON** time of greater than 100ms but less than 2 seconds. The input value sent to the Perimeter Patrol will toggle every momentary action.

Setting the **INPUT TYPE** to **PULSE EXTEND** will extend the input signal by 5 seconds. For Example: if a device connected to this input sends a pulse signal that is 0.5 seconds long, Perimeter Patrol will see this as a signal of 5.5 seconds.

Setting the **INPUT TYPE** to **ANALOG** will enable the measurement of a 0 – 10V signal on this input. The accuracy of this measurement is 0.1V.

Binary Options 2 (18x#)

Each option in this table can be turned on by adding the corresponding value.

For option +1 set 18 to 01, for + 1 and +2 set to 03.

+4: Sets the keypad bus baud rate to 4800 (default is 2400), all units in a group, PC and Keypad must be set to the same baud rate. The change will not take effect until after a reset.

+8: Sets the keypad bus baud rate to 9600 (default is 2400)

Value (x)	Input type
0	NO Normally open
1	NC Normally Closed
2	Momentary
3	NO Pulse Extend
4	NC Pulse Extend
5	Analog

Input Type

Value	Function
0	None
+1	Reserved
+2	Reserved
+4	4800 baud
+8	9600 baud
+16	
+32	

Table 1 - Binary Options 2

Auto Re-Arm time (20x#)

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 (such as a low fence voltage) 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. Timing diagrams displaying how the siren reacts to different event combinations are available in section 7.5 of this manual

A setting of 9 will disable auto re-arm.

If this time is set to less than the **SIREN OFF TIME**, the Energiser may re-arm in the “Off” time and the number of **SIREN CYCLES** will be reduced.

Value	Re-Arm Time
0	0 Seconds (Immediate)
1	30 Seconds
2	1 Minutes
3	2 Minutes
4	3 Minutes
5	4 Minutes
6	5 Minutes
7	6 Minutes
8	7 Minutes
9	Disabled – Do not auto rearm

Auto Re-Arm Time

Relay Functions (21xx# - 23xx#)

The three relays can be set to any of the available functions listed.

RELAY 1 is (21xx#)

RELAY 2 is (22xx#)

RELAY 3 is (23xx#)

RELAY 4 is (24xx#) **(PCB version 1v2)**

Defaults

- **RELAY 1** – HOST Controlled (2120#)
- **RELAY 2** – HOST Controlled (2220#)
- **RELAY 3** – HOST Controlled (2320#)
- **RELAY 4** – HOST Controlled (2420#)

NOTE: Each Relay function except for HOST Controlled is connected to a specific energiser, not the GPIO board. Refer to Options 31 – 33.

See the following table for function description.

* These relay functions require the **BINARY OPTIONS (16#)** of the Energiser Monitored to be changed. The **DO NOT SEND ALARM MEMORY** feature must be enabled. This will also affect Perimeter Patrol for this Energiser.

Value (x)	Mode
00*	Fence 1
01*	Fence 1 or Disarmed
02	Armed 1
03*	Fence 2
04*	Fence 2 or Disarmed
05	Armed 2
06*	Fence Bi-Polar
07	General
08*	Siren
09	Strobe
10	AC Fail
11	Low / Bad Battery
12	Tamper
13	N/A
14	Gate 1 or 2
15	N/A
16	Armed (1 or 2)
17	Group Armed
18	Group General
19	ZM20 Sector
20	HOST Controlled
21	HOST Controlled, non-failsafe
22	ZM20 Sector Siren

Relay Functions

Function	Logic for alarm state (opposite of normal state)
Fence x	Zone x of the Energiser is Armed (Pulsing) AND the Energiser is indicating that this Zone is in Alarm.
Fence x alarm or Disarmed	Zone x of the Energiser is Disarmed OR the Energiser is indicating that this Zone is in Alarm.
Fence Bi-polar	The Energiser is Armed (Pulsing) AND the Energiser is indicating that Either the Positive Fence Voltage OR Negative Fence Voltage is in Alarm.
Armed x	Zone x of the Energiser is Armed (Pulsing)
General	AC Fail OR Tamper OR Low Battery OR Gate Alarm OR Internal Error. Latched for internal errors only.
Siren	Fence Alarm 1 OR Fence Alarm 2 OR Gate Or Tamper, will time out after the Siren Time Out time. This function is latched.
Strobe	As per Siren but does not time out, will remain On until both Zones are Disarmed. The Clear Alarm Memory command will turn the Strobe Off if the Alarm has cleared.
AC Fail	The Monitored Energiser is indicating an Alarm on AC Fail
Battery	The Monitored Energiser is indicating an Alarm on low or bad battery
Tamper	The Monitored Energiser is indicating an Alarm due to the Enclosure cover being opened AND J3 is not fitted
Group wide x	Group relay functions are based on the status of the entire group of energisers. Group Armed for example is set only if all energisers in the group are armed.
ZM20 Sector	This Relay is triggered based on an alarm in the specified ZM20 Sector (Options 36 - 39)
HOST Controlled	This Relay is only controlled by Perimeter Patrol. If Perimeter Patrol is disconnected for 30 seconds, this Output will revert to the Alarm state.
HOST Controlled non-failsafe	This Relay is only controlled by the HOST device such as Perimeter Patrol. The Output will remain on the "Last Known Good" state sent from Perimeter Patrol. It will not revert to the Alarm State on PP disconnect
ZM20 Sector Siren	This output will operate as a Siren Function when the specific ZM20 Sector Number is in Alarm. The timings for the Siren are configured in options 8, 9, 10.

Group ID (26xx#)

A group must have only 1 master. The other Devices in the group are slaves.

As the Ethernet GPIO board is a Master Device all other devices connected to the Keypad Bus must be configured as Slaves.

Value (x)	Mode
0	No Group
1	Master
2	Slave 1
3	Slave 2
4	Slave 3
5	Slave 4
6	Slave 5
7	Slave 6
⋮	⋮
15	Slave 14

Group ID

Relay Expansion ID (31xx# - 33xx#)

Each Relay can be configured to provide Output Expansion for the same or different Energisers on the Keypad Bus.

For Example: Relay 1 could provide expansion for Energiser 2, while Relays 2 and 3 are providing expansion for Energiser 5.

This is achieved by changing options 31-33 to match the Group ID of the Energiser to be Expanded. For example, setting Option 32 to 5 (3205#) with Option 22 set to 0 will trigger Relay 2 on the GPIO when Energiser (ID 5) goes into Fence Alarm.

RELAY 1 Expansion is **(31xx#)**

RELAY 2 Expansion is **(32xx#)**

RELAY 3 Expansion is **(33xx#)**

RELAY 4 Expansion is **(34xx#)**

Defaults

- **RELAY 1** – 2 (Energiser with Group ID = 2)
- **RELAY 2** – 2 (Energiser with Group ID = 2)
- **RELAY 3** – 2 (Energiser with Group ID = 2)
- **RELAY 4** – 2 (Energiser with Group ID = 2)

NOTE: When set to 0, the relay will trigger if any of the Energisers in the Group triggers the same Relay Function.

Value (x)	Relay will Monitor
00	All Energisers
01	Master
02	Slave 1
03	Slave 2
04	Slave 3
05	Slave 4
06	Slave 5
07	Slave 6
⋮	⋮
15	Slave 14

Relay Monitor ID

ZM20 Sector Number (36xx# - 39xx#)

NOTE: Setting a value in the **ZM20 SECTOR** location will automatically change the corresponding **RELAY FUNCTION** to 19 (ZM20 Sector) for this relay.

RELAY 1 Sector is **(36xx#)**

RELAY 2 Sector is **(37xx#)**

RELAY 3 Sector is **(38xx#)**

RELAY 4 Sector is **(39xx#)**

Defaults

- **RELAY 1** – 0 (No ZM20 Sector selected)
- **RELAY 2** – 0 (No ZM20 Sector selected)
- **RELAY 3** – 0 (No ZM20 Sector selected)
- **RELAY 4** – 0 (No ZM20 Sector selected)

An Example of configuring outputs for monitoring ZM20 Sectors:

A site contains an MB8 connected to a ZM20 fence that contains 10 sectors. The ZM20 is within a Group of other Energisers and the ZM20 is configured to **GROUP ID 3**. A PTZ camera has been configured to monitor sectors 4, 5, 6 based on its wired inputs. The rest of the sectors are visible from the guardhouse.

Programming required in the PAE224:

Relay Info	Monitor ID	Sector Number
Relay 1 configured for Sector 4	3103#	3604#
Relay 2 configured for Sector 5	3203#	3705#
Relay 3 configured for Sector 6	3303#	3806#

NOTE: Monitor ID must be set between 2 – 15 for this function to work. A setting of 0 for Monitor ID will not Monitor all ZM20s