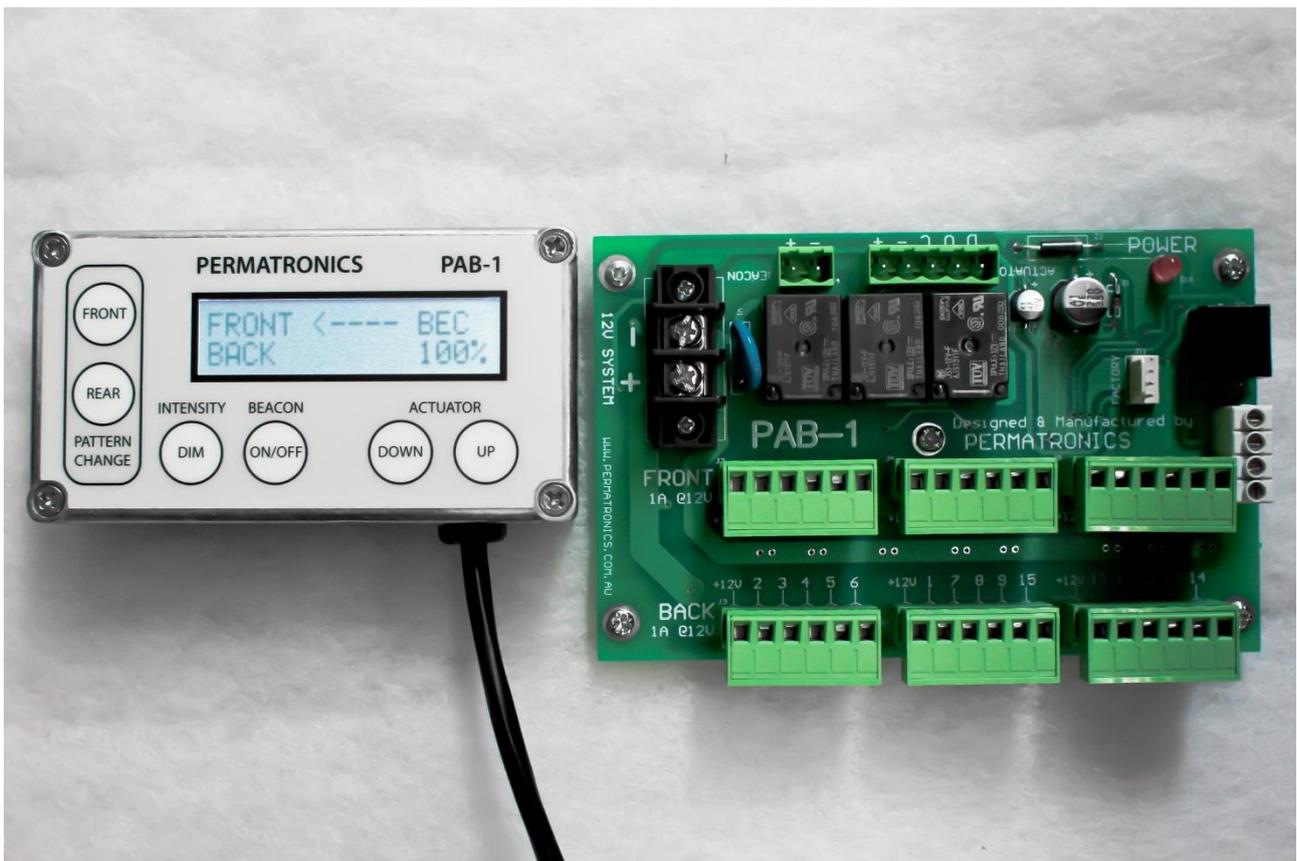


Permatronics

Arrow Board

PAB-3



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Unit Description

The Permatronics Arrow Board Controller PAB-3 and Remote has been designed to control either single or double A,B or C Arrow boards.

It is a 12V system with reverse connection protection and current limiting thermal overloads.

The PAB-1 Remote can be configured to control either a single or double arrow board independently while also controlling a beacon output and up/down actuator control.

All lamp connections to the PAB-3 main controller board are via the 5.08mm Green Dinkle pluggable terminal blocks making installation and removal both easy and quick.

The PAB-3 system boasts the following features.

- Easy to Read Backlit LCD display showing selected arrow groups light intensity and Beacon status.
- Low voltage safety shutdown with Hazard illumination.
- Communications loss shutdown with Hazard illumination.

Unit Operation

- Connect all lamps to PAB-3.
- Connect remote to PAB-3 via 4-wire communication port. (Check connections before applying PWR)
- Connect actuators / Beacons as required.
- Apply power to unit.

Unit remote will illuminate and after initial startup screen will default to the ALL OFF status with both front and back boards off and beacon output off. Depending on the requested software the units default light intensity will either be set to 100% or AUTO.

Selecting an Arrow group.

Press and hold either the “FRONT” or “REAR” pattern change button depending on which board you wish to change. (In the case of a single board only the “FRONT” button will be available.)

After an unlock period of 2-3 seconds the remote will give 2 short beeps to indicate the pattern change made. Press the same button again and now each time it is pressed the display will show a new selected pattern type. Once the desired pattern is selected, release buttons and wait a further 3 seconds after which time the unit will give 3 short beeps and start flashing the selected arrow group.

The following patterns are available for selection.

OFF	All lights OFF
-----	Hazard Bar flashes.
* * *	Alternating corner lights flash. (Default fault arrow.)
<-----	Left Arrow flashes.
<-----	Right Arrow flashes.
<--->	Double Arrow flashes.

*** In the event of a pattern change, the arrow board will continue flashing its last selected pattern until it receives new pattern information.*

Low voltage or Communications error on the Arrow board.

In the event of a low voltage event, the arrow board will automatically change the arrow group to alternating hazard lights and will alert the user of the fault via the remote display and an audible beep. The unit will remain locked in this mode until the low voltage error is fixed. Once the board voltage is back above the low voltage threshold the user can reset the fault code by pressing and holding the **FRONT PATTERN CHANGE** button for 5 seconds. At this point the user must re-select the desired patterns.

In the unlikely event of a communication error between the main controller and the remote, the main controller will again flash the alternating hazard lights and if possible alert the user by of the fault via the remote display. In this event, the user should remove power to the arrow board. Check all connections and re-power board and try again.

Turning Beacon On and Off.

Pressing the beacon button on the remote will alternate the beacon on or off with each press. The Remote will show *-* when the beacon output is turned on.

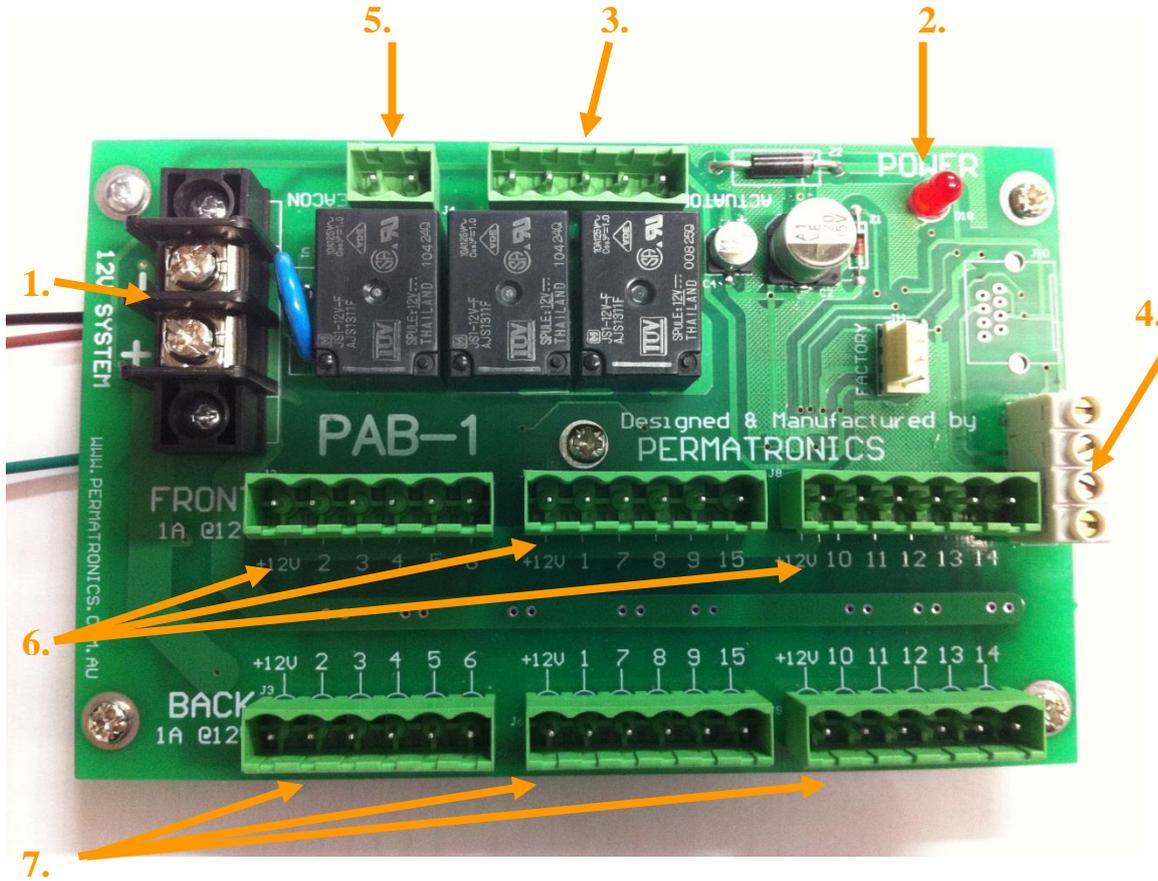
Actuator UP and DOWN

Pressing the UP or DOWN actuator buttons will cause the actuator output to either lift or lower the arrow board when fitted with the appropriate actuator. Depending on the software configuration the actuator will be either timed or momentary action.

Dimming the lights for night work.

Pressing the “DIM” button alters the intensity of the arrow lamps. If fitted with a light sensor on the main board the displays “AUTO” mode will automatically dim the lights to suit outside light conditions. Without the light sensor the user can still manually dim the lights by pressing the DIM button on the remote. Each press will cycle through the intensity settings. The user can select between 100%, 50%, 25% or AUTO (when light sensor is fitted.) The selected intensity is shown on the remote display bottom right corner.

PAB-3 Main controller Connections



1. +12V Power input

Main power feed into the PAB system, this feed provides power to the PCB, all lights, Beacon, Actuator and remote display.

This needs to be a sufficient supply and should be appropriately switched and fused.

2. Power indicator

This indicator illuminates when power is applied to Main control card.

3. Actuator Connector

Provides power and control signals to the actuator.

4. Communication connection to Remote

4 pin plug which provides power and control signals to and from the main controller to the remote.

5. Beacon Connector

Switched 12V output to the beacon controlled by the arrow board remote.

6. Front Board Outputs

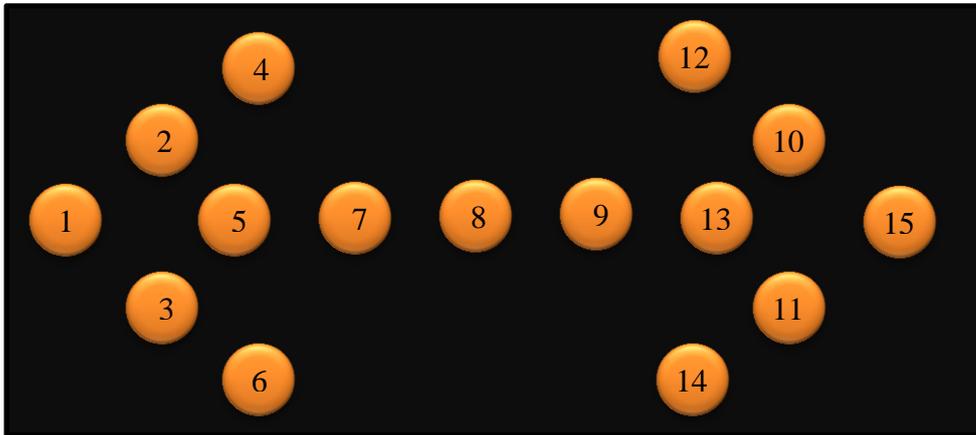
Outputs to the front board lights. The output connectors each have 1x Common positive and 5x Switched negative outputs per connector.

7. Back or Rear Board Outputs

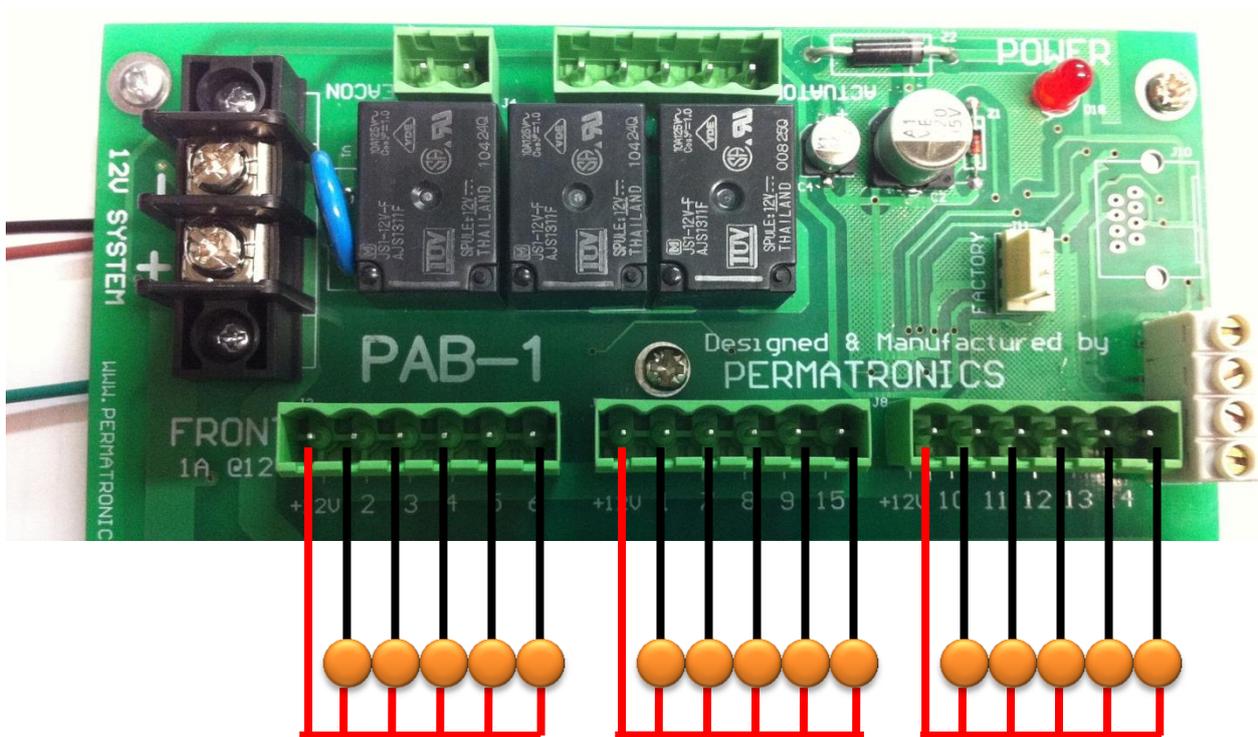
Outputs to the back board lights. The output connectors each have 1x Common positive and 5x Switched negative outputs per connector.

Default Light Setup

Each output connector consists of 1 common +12V feed and 5 switched negative outputs to 5 lights. The PAB-3 circuit board has Numbers corresponding to lamp numbers. The lamp numbers are shown in the below diagram.



Basic Lamp Wiring



****Note Lamp connections same for PAB-1 and PAB-3. Actuator Beacon and Comms connections are different**

Wiring from Main unit to Remote display.

Follow the colour coding specified on each remote / main controller. This will ensure consistency between product variations.

Default Colour coding for PAB-3

PAB-3 Main	PAB-1 Remote	Description
SDA (Green)	SDA (Yellow)	Serial Communication Data Line
SCL (Yellow)	SCL (Green)	Serial Communication Clock Line
+12V (Red)	+12V (Red)	+12V power to Remote from Main controller (100mA)
GND (Black)	GND (Black)	Remote Power Negative or Ground

Default PAB-3 Actuator Connections

Depending on the type of actuator used different connections may be required.

The PAB-3 actuator output contains both Normally open and Normally closed outputs which can be setup to accommodate multiple connections.

See Table Below for connection information.

Pin Number	Description	Dry contact actuator connection	2-wire actuator connection
-	Battery Negative	Actuator Negative	Looped to Pin 1 & 4
+	Power feed to Actuator (May need to be fused)	Actuator +12V	Looped to Pin 3 & 6
1	Actuator Up Normally Closed	Not connected	Looped to Pin 1 & 4
2	Actuator Up Common	Actuator Common & Looped to Pin 5	Actuator +
3	Actuator Up Normally Open	Actuator Up signal	Looped to Pin 3 & 6
4	Actuator Down Normally Closed	Not connected	Looped to Pin 1 & 4
5	Actuator Down Common	Actuator Common & Looped to Pin 2	Actuator -
6	Actuator Down Normally Open	Actuator Down signal	Looped to Pin 3 & 6

** Note if actuator is going the wrong direction for 2 wire system, simply reverse “Actuator +” and “Actuator –”*

*****Ensure that actuator does not draw more than 8A while operating under load, if it does external switching relays may be needed.***

Ensure correct gauge of wire and antique strain relief is used.

PAB-3 Specifications

Operating Voltage	10.8-15.0V DC <i>Sufficient Inline fusing and isolator switch is recommended</i>
Maximum Lamp drive Current	1.0A per light
Nominal flash rate	37 flashes / Minute @ 50% duty cycle
Low voltage Hazard protection	< 10.3V for 5 seconds
Output protection:	500mA PTC resettable fuse on PCB electronics 1.3A current limiting AUTO-FET with Short Circuit / Over voltage and Thermal protection.
Beacon Output	+12V 5A Max. <i>Recommended inline fuse be fitted and external switching relay used when switching larger load currents.</i>
Actuator Output	Normally open and Normally closed contacts rated to 8A Max. <i>Recommended inline fuse be fitted and external switching relay used when switching larger load currents.</i>

Designed and Manufactured by

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