- **INSTALLATION** The picture below shows wiring of the maximum number of pots, ie 4pots. It also shows an example 4 switches. Note that not all four pot positions need to be used for pots. You can connect buttons instead to any input. The direction of the pot control depends on the wiring of the two outer connections on the pot. If the pot works "backwards",then swap these over. Note Mame can also be configured to reverse analog control directions.
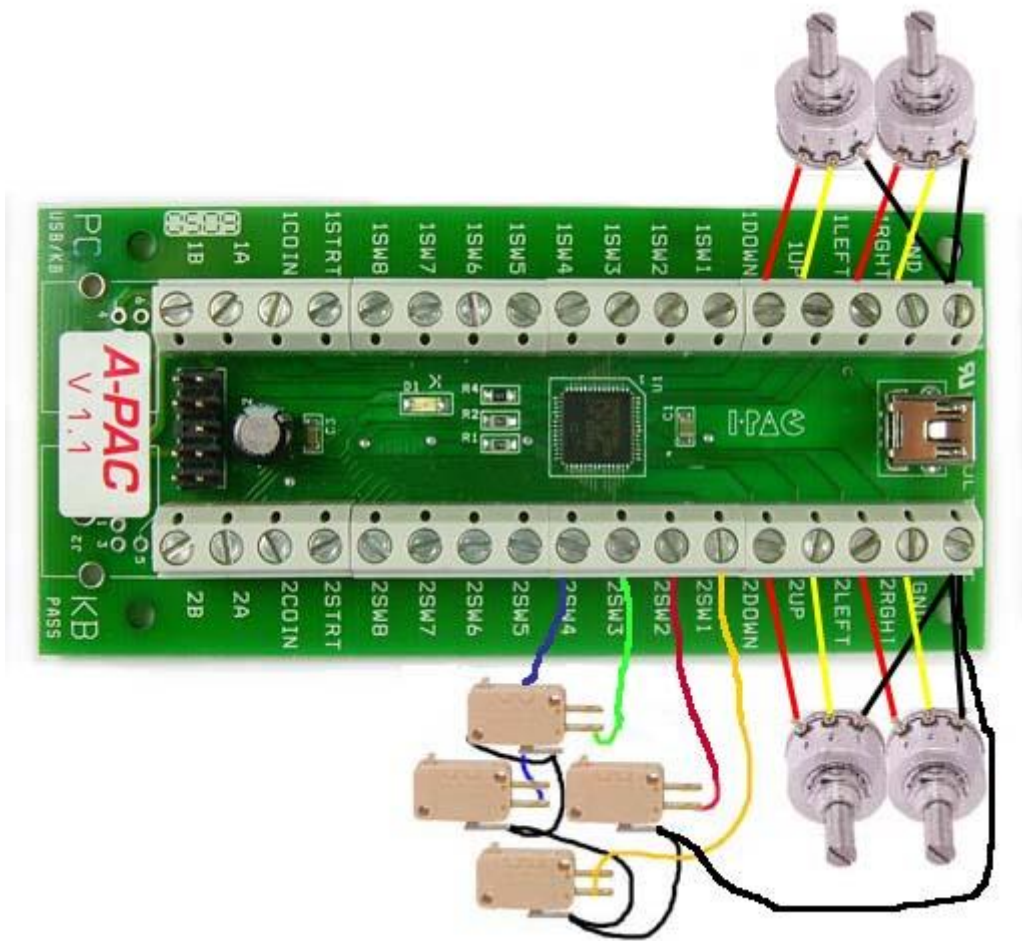

The "Start1" input changes the selected buttons to the shifted set, buttons 13-28 in Windows.This behaves in exactly the same way as the I-PAC shift button. All the other inputs are ordinary buttons.

- **ALTERNATIVE CONFIGURATION WITH A STANDARD DIGITAL JOYSTICK**

If you are not using analog controls, but using a regular micro-switch joystick, simply connect the 4 joystick switches to UP, DOWN, LEFT and RIGHT in the same way as the I-PAC boards.

The button assignment is shown below, which is a screen capture from Control Panel, Game Devices in Windows.Open Control Panel, Game Devices. You will see two A-PAC Gamepad devices shown.Select each one and check for correct operation. The top one in the list is the player 1 side, the lower one is player 2. This capture below shows the display for ONE SIDE of the board , ie one gamepad device.The button display for the other device is identical.
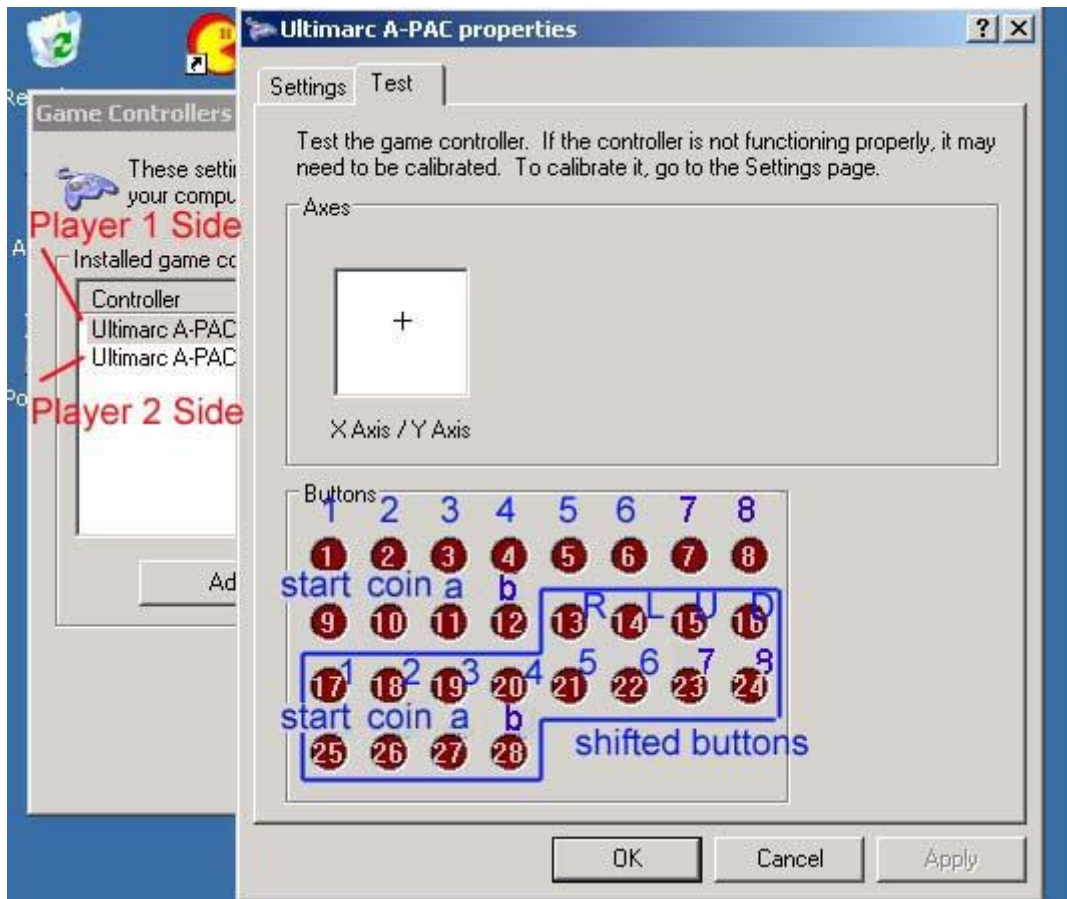
The above controls are duplicated for the Player 2 side of the board

Calibration

If you are using controls which don't cover the entire range of travel of the pot, you will need to calibrate the control. All you need to do is click on "Control

Panel", "Game Controllers", and then highlight the upper or lower entry for "A-PAC Interface", and follow the instructions. This will ensure that a full movement of the control device corresponds to a full movement in the game. "Trick" Calibration.

You might want to calibrate so that analog control produces full movement in the game over a small movement of the control. You can easily do this. During the calibration process, when it asks you to move the control to the limits of movement, if you only move it to, for example 50% of the travel, this will be logged as the full-travel position, so you will get a full game movement over 50% of the actual control motion.

Other Settings

MAME has a setting for "Joystick Dead Zone". This is useful when you are using an analog control in a digital game, as you can tweak the "travel" of the control, ie how far you have to move it before it registers as an emulated switch press.

Using with MAME

To use this device with MAME,all you need to do is enable joystick support in MAME.INI. The play buttons and joysticks are then automatically assigned in MAME because this device is seen as two gamepads which MAME expects. You may need to assign COIN and START buttons. If you start with a digital (switch) joystick and then re-wire to analog stick, there is no need to change any settings.

FAQs

- **I am using a driving control such as a pedal, this has no "left,right". How do I connect it?**

You can simply wire the ends of the pot to"left, right" or to "up, down" and then in the game, assign the control to suit. Normally you select the direction you want to assign, and then move the control (pedal) in that direction to set the control. MAME references analog axes as "+" and "-" to determine the direction. For this purpose, "+" is equivalent to "UP" or "RIGHT" and "-" is equivalent to "DOWN" or"LEFT".

- **Can I use more that 4 axes on one board?**

With this board 4 analog axes is the maximum, but if there is a requirement for more , check out the [U-HID series of boards](#)

- **Can I connect analog and digital controls to the same input?** This will work but we don't recommend it because switch-specific functionality such as de-bounce will not be enabled. Better to use a different input for switches.

- **Why does the PCB have "I-PAC" printed on it?**

This is a universal board which was designed for several variants, and is used for our I-PAC VE product. This keeps costs down .

- **What software can I use?**

You can use any O/S and game which is compatible with a gamepad. device.

- **What types of control can I use?**

For analog you can use any controls which contain potentiometers. These include steering wheels,pedals, analog joysticks, flight yokes etc. You don't need to stick to the markings on the board but can wire to any convenient analog axis and configure the game to match. All 32 inputs will also accept switch controls such as pushbuttons, joysticks.