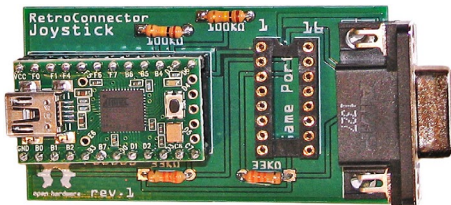


RetroConnector

Joystick Shield for Apple II



Thank you for purchasing this RetroConnector by Option8.
Please refer to this site for updates and documentation:

<https://github.com/option8/RetroConnector/tree/master/Joystick-Shield>

If you have questions, please contact us via:

<http://retroconnector.com/contact>

Overview

The RetroConnector Joystick Shield connects an Apple II compatible joystick with either a DIP16 (logic board “game port”) or DB9 connector (back panel “joystick port”) to a modern computer via USB. The board is a “shield” for the [PJRC Teensy 2.0](#), which is included. The upper board has a Mini-B USB port and a reset button.

Compatible Joysticks

Compatible joysticks have been tested in the Virtual][and AppleWin Apple emulators and MAME. Every analog joystick behaves slightly different, which makes calibration important. Using the joystick’s built-in trim controls along with the RetroConnector Joystick Shield’s calibration should enable most Apple II joysticks and paddles. If you have successfully, or unsuccessfully, used a joystick not on this list, please contact me and I will update the list.

Compatible

- Apple Joystick IIe
- Archer
- CH Products
- TG Products

Plug and Play

Plug your Apple II joystick into the RetroConnector Joystick Shield, in either the 16-pin or 9-pin plug. If your joystick has a 16-pin plug, be sure the indicator on the cable for pin #1 (usually a red or blue line on the cable itself) lines up with pin #1 on the 16-pin port on the RetroConnector Joystick Shield. Plug one end of a mini-USB cable into the RetroConnector and the other into a free USB port on your computer.

Calibration

Move the joystick up, down, left and right as far as it will go. Do this a few times. The RetroConnector Joystick Shield will automatically calibrate what it sends to the computer.

To see calibrated values and test buttons, use Window's built-in "Game Controllers" control panel. On a Mac, the 99¢ app "[Joystick Show](#)" works well.

Calibration for Apple II Emulators

To test buttons and joystick calibration, paste this at the BASIC prompt in an Apple II emulator:

```
10 print pdl(0) " " pdl(1) " " peek(-16287) " " peek(-16286)
20 goto 10
```

The last two values are button 1 and 2. Buttons should be *above* 127 when pressed, and *below* 127 when released.

This BASIC program from [Dagen Brock](#) is a visual indicator that draws a square on the screen, and shows the X/Y values as they change:

```
5 DP = .10: REM Deadzone Percentage
10 XLEFT = 0:YUP = 0:XRIGHT = 279:YBOT = 159: REM Screen Bounds
15 REM Set target box coordinates
20 HALF = XRIGHT / 2:D1 = INT (HALF - (HALF * DP)):D2 = INT (HALF + (HALF * DP))
25 HALF = YBOT / 2:D3 = INT (HALF - (HALF * DP)):D4 = INT (HALF + (HALF * DP))
30 HGR : HCOLOR= 3
35 REM Draw edge box
40 X1 = XLEFT:Y1 = YUP:X2 = XRIGHT:Y2 = YBOT: GOSUB 2000:X1 = X1 + 1:X2 = X2 - 1:Y1
= Y1 + 1:Y2 = Y2 - 1: GOSUB 2000
50 P0 = PDL (0):P1 = PDL (1): GOSUB 3000
55 PRINT P0,P1
60 GOTO 50
2000 HPLOT X1,Y1 TO X1,Y2: HPLOT X1,Y2 TO X2,Y2: HPLOT X2,Y2 TO X2,Y1: HPLOT
X2,Y1 TO X1,Y1
2002 RETURN
3000 X = INT (P0 * 274 / 255 + 2):Y = INT (P1 * 154 / 255 + 2)
3010 X1 = X:X2 = X + 1:Y1 = Y:Y2 = Y1 + 1: GOSUB 2000
3020 GOSUB 4000: HCOLOR= 0: GOSUB 2000: HCOLOR= 3
3050 RETURN
4000 HPLOT D1,D3 TO D1,D4: HPLOT D1,D4 TO D2,D4: HPLOT D2,D4 TO D2,D3: HPLOT D2,D3
TO D1,D3
4010 RETURN : REM End Draw Target Box
```

Special Thanks To

[Brian Wisner](#) for editing and enhancing this manual.