4DPi-32/35 Rev2.0 Workaround

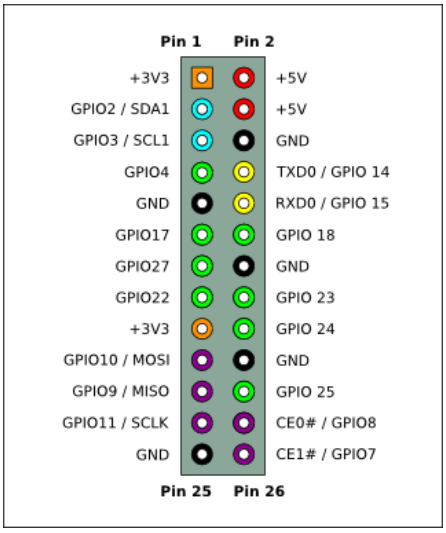
Introduction

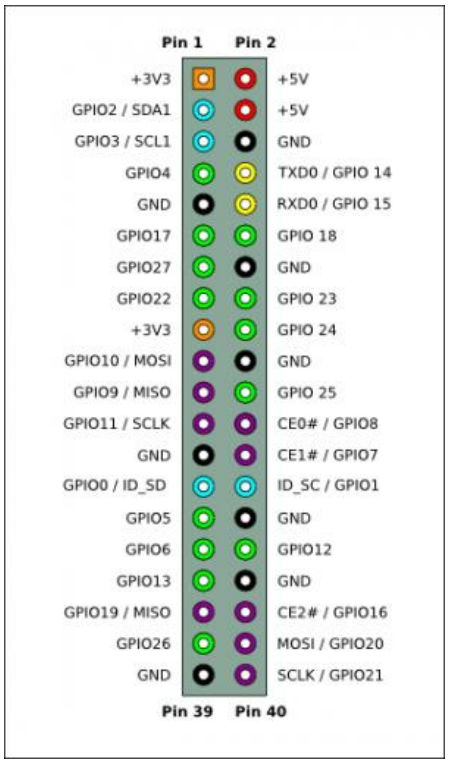
This document outlines a work around for using the **4DPi-32-II** (Rev2.X) and **4DPi-35-II** (Rev2.X) with the older Raspberry Pi A and B versions with a 26-pin Header.

Background

The latest versions of the Raspberry Pi include a 40-pin Pin-header. In the older versions a 26-pin header was used with an RCA Connector and Audio jack positioned next to the Pin-header. In the latest versions of the 4DPI-32/35, the 26-pin female header has been replaced with a 40-pin female header to better accommodate the latest versions of the Raspberry Pi. For this reason, it is no longer possible to physically connect the 4DPi-32 and 4DPi-35 directly onto the older versions of Raspberry Pi.

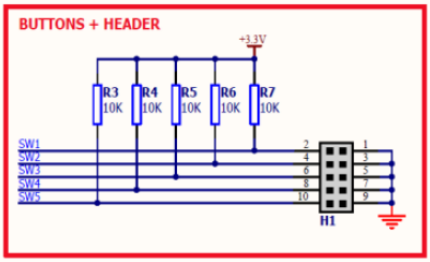
Raspberry Pi Pin header comparison RPi A / B (left) and A+, B+ and PI2 (right)

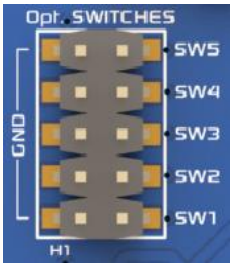




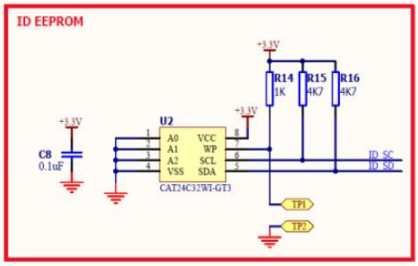
What is changing:

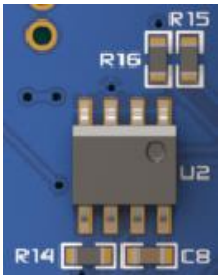
- The 4DPi-32 and the 4DPi-35 rev 2.0 are compatible with Raspberry Pi A+, B+ and PI2.
- Revision 2.0 hardware is not hardware compatible with older A or B models due to changed Pin header size (26 pin to 40 pin)
- The breakout header (P2), is no longer included in Revision 2.0 Hardware
- A Header (H1) for user buttons has been included:



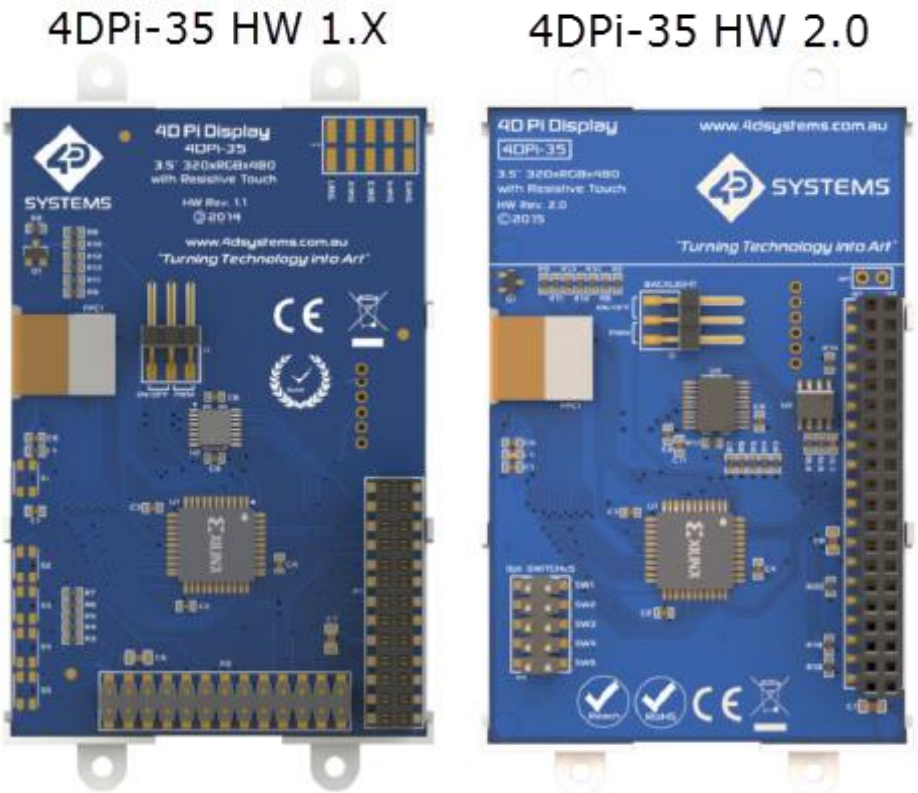


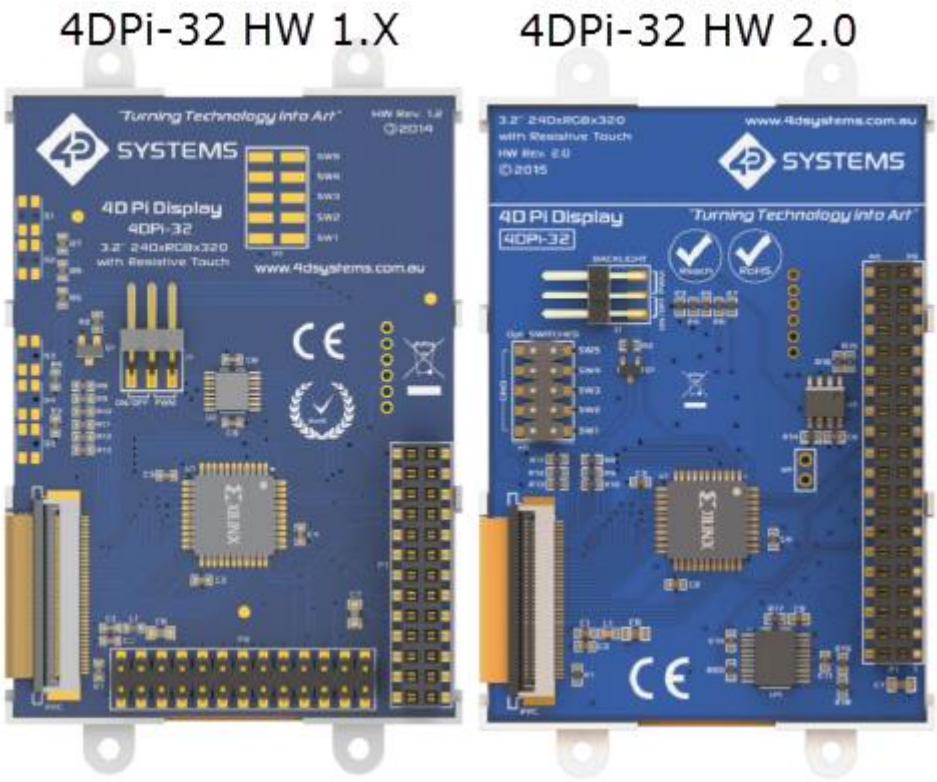
- An ID EEPROM has been integrated





4DPi-32/35 Hardware revision 1.x versus Hardware revision 2.0 in pictures.





Using the 4DPi.32/35 Displays on an older A or B Raspberry Pi - Workaround.

Hardware Requirements:

- 1 x 26 pin ribbon cable with 2 * 13 Pin Socket connectors (female to female) with a pitch of 2,54mm **AND**
- 1 x 26 pin header with a pitch of 2,54mm and a pin length of 6mm on both sides
- **OR** – a 2.54mm 40 Way 2 Row Straight PCB Socket cut to size - 26 pins.

Software requirements

1. Follow the Software Download / Installation Instructions found in the product datasheet under chapter 4.2
2. Setup Raspberry Pi to manually load the DT overlay. Usually the Raspberry Pi loads a DT overlay that matches the HW attached. This is now recognized via the onboard EEPROM which will be read via the ID_SC and ID_SD pins. The RPI A or B versions do not have those pins. Instead it can be read from file system.
    a. Open your config.txt with nano: **# nano /boot/config.txt**
    b. Add the following in a new line: **dtoverlay=32-hat** or **dtoverlay=35-hat** (there should be a DT overlay named XX-hat.dtb in /boot/overlays)
    c. Save the changes made to /boot/config.txt.
    d. Shutdown the Raspberry Pi safely, and remove the power.

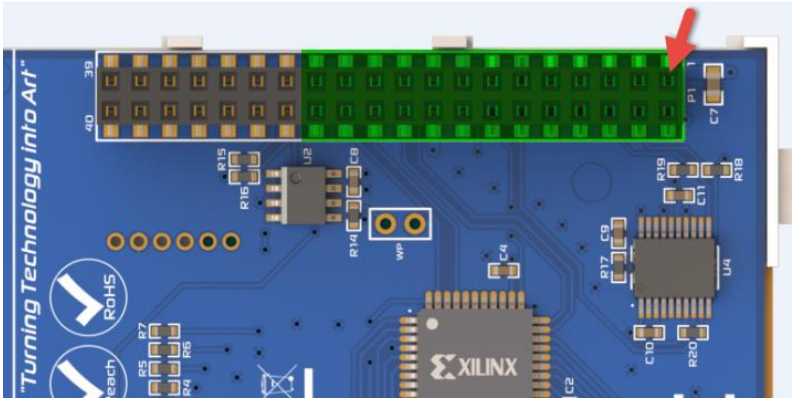
Hardware Connections

Ribbon Cable and Pin Header

1. Connect the Ribbon cable to the 26 Pin header of your raspberry pi
2. Insert the Male Header to the other side of the ribbon Cable
3. Insert the Connector to the first 26 pins of the 4DPi-3X “P1” Pin header and make sure RPi pin 1 lines up with pin 1 of the 4DPi. The pin numbers can be found on the silkscreen.

40 Way PCB Socket

1. Cut the PCB socket to size -> remove the first seven pin pairs from the socket.
2. Insert the resized PCB socket with 26 pins into your 4DPI-32/35 Module. Observe the pinout on the silkscreen.
3. Insert the Raspberry Pi pins into the PCB socket. Observe the pinout on the silkscreen.



If you have any questions regarding this workaround, please contact 4D Systems Technical support at support@4dsystems.com.au.