

RS232 Communication Board

Introduction

The Serial Pi from AB Electronics UK is a communication board supporting the RS232 serial protocol.

The RS232 port is connected to the UART port on the Raspberry Pi using a MAX3232 interface. The MAX3232 IC converts the 3.3V UART port to RS232 voltages allowing communication with RS232 compatible devices over a DB9 serial cable or with the use of a null-modem cable the board allows terminal access with linux on the Raspberry Pi using a terminal application. The RS232 port can be accessed through the DB9 port or the solder points on the PCB. For details on configuring the RS232 communication on the Raspberry Pi visit

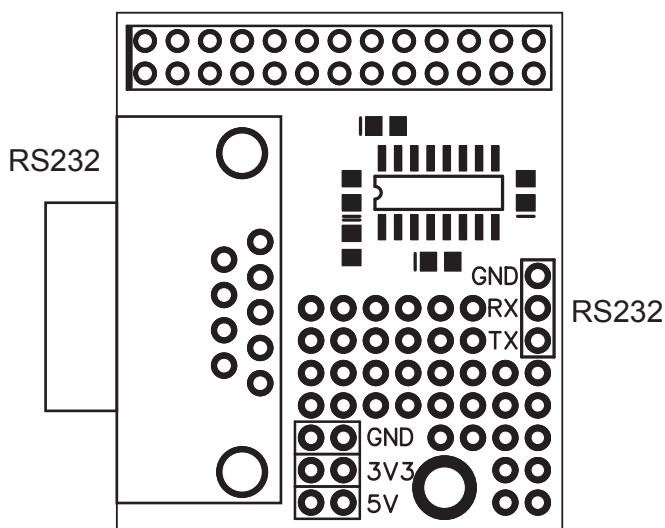
<http://www.abelectronics.co.uk/raspberrypi-serialportusage/info.aspx>

Wiring diagrams for the RS232 port can be found on page 2 of this datasheet.

An array of 2.54mm pitch holes with 3.3V and 5V connections are also provided on the PCB allowing you to build additional circuits on the board.

Board Layout

Raspberry Pi GPIO Port

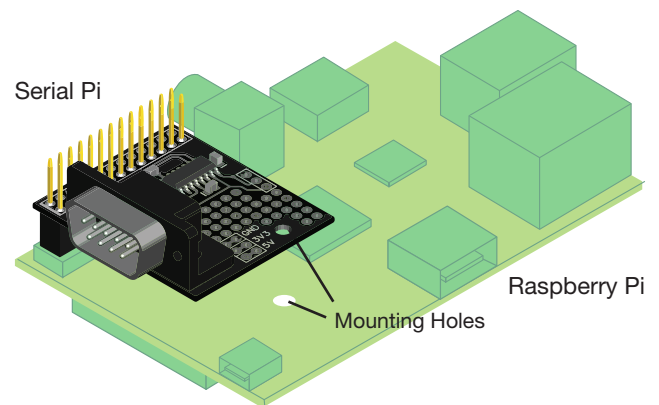


Features

- RS232 Master Port.
- Control the Raspberry Pi over RS232 or connect to external serial accessories.
- Stackable with other Raspberry Pi accessory boards.
- Mounting hole for use with the AB Electronics UK mounting kit (sold separately)

Installation

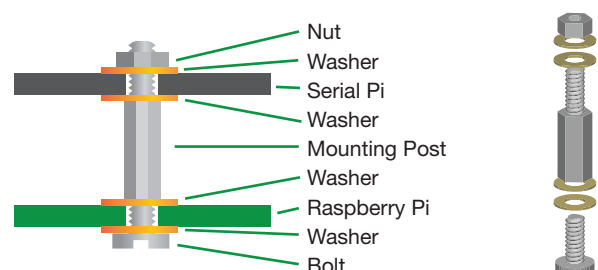
Install the Serial Pi by lining up the 26 way connector with the GPIO pins on the Raspberry Pi and press down until the connector is seated firmly.



Mounting Kit (sold separately)

The Serial Pi comes with a mounting hole suitable for the mounting posts available on the AB Electronics UK store. The mounting post reduces the strain on the Raspberry Pi GPIO port when cables are connected to the RS232 port.

1. Place a washer on the bolt and push it up through the mounting hole on the underside of the Raspberry Pi.
2. Place a washer on the bolt on top of the Raspberry Pi and screw the mounting post down until it is hand tight. (Over tightening can cause serious damage to the Raspberry Pi)
3. Add a washer to the top of the mounting post and push the Serial Pi down onto the GPIO port and mounting post.
4. Place the final washer down onto the mounting post and screw the nut down tight against the Serial Pi.

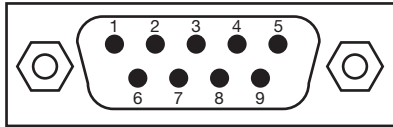


Connecting to the RS232 Port

The RS232 port on the Serial Pi can be accessed through the male DB9 socket or the solder points on the PCB. The DB9 socket is configured as a master socket like you will find on desktop computers allowing you to connect external serial devices with a standard RS232 cable.

The pin-out connections for the RS232 port are shown below:

| Pin | Usage |
|-----|--------------------|
| 1 | N/C |
| 2 | RX (data receive) |
| 3 | TX (data transmit) |
| 4 | N/C |
| 5 | Ground |
| 6 | N/C |
| 7 | N/C |
| 8 | N/C |

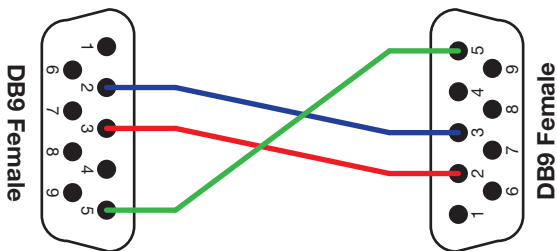


DB9 Female Socket as viewed from the front of the Serial Pi

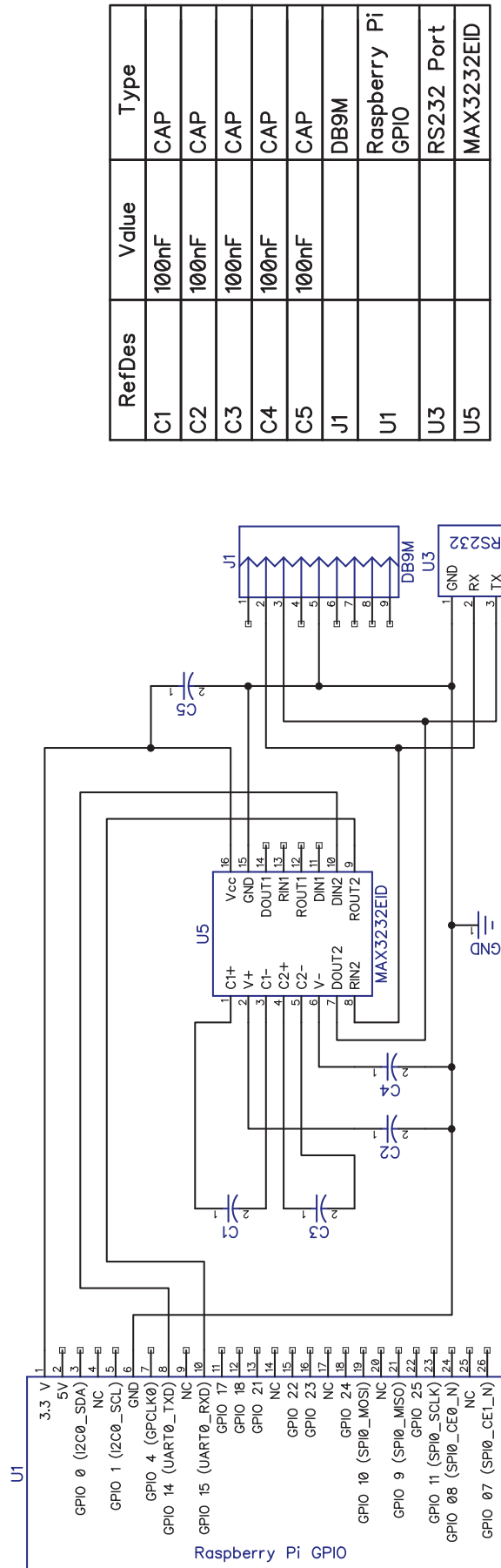
Using the RS232 port for terminal connections

The RS232 port can be used for remote terminal connections on the Raspberry Pi allowing remote access and control without the need for an ethernet connection. In order to connect the Serial Pi to a desktop computer you will need to use a Null-Modem cable. A wiring diagram for making a Null-Modem cable can be found below. For details on configuring the RS232 communication on the Raspberry Pi visit <http://www.abelectronics.co.uk/raspberrypi-serialportusage/info.aspx>

Null-Modem Cable



| Connector 1 | Connector 2 | Function |
|-------------|-------------|----------|
| 2 | 3 | Rx ← Tx |
| 3 | 2 | Tx → RX |
| 5 | 5 | Ground |



| RefDes | Value | Type |
|--------|-------|-------------------|
| C1 | 100nF | CAP |
| C2 | 100nF | CAP |
| C3 | 100nF | CAP |
| C4 | 100nF | CAP |
| C5 | 100nF | CAP |
| J1 | | DB9M |
| U1 | | Raspberry Pi GPIO |
| U3 | | RS232 Port |
| U5 | | MAX3232EID |