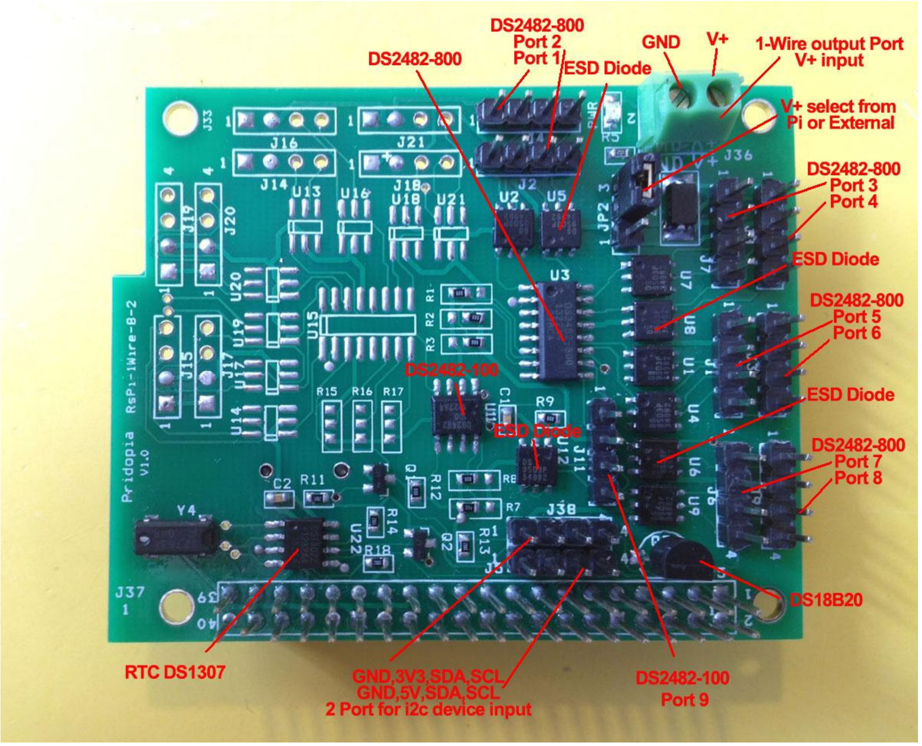
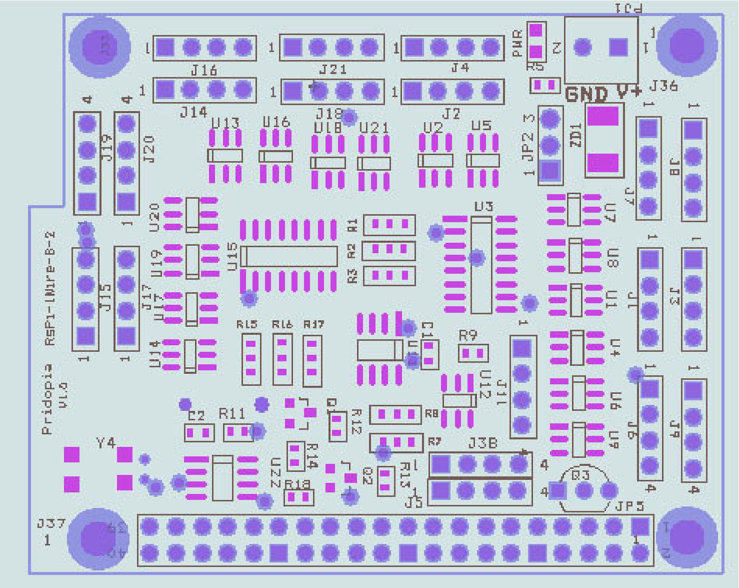
Rs-Pi DS2482-800 1-Wire 9 Bus Board User Manual





The 1-Wire port is based around a DS2482-800 &DS2482-100 I2C to 1-Wire bridge device. The DS2482-800 provides bi-directional protocol conversion between the I2C port on the Raspberry Pi and any attached 1-Wire® slave devices. An ESD Protection Diode is used to protect the Board and Raspberry Pi from electrostatic spikes on the 1-Wire port. Connections to the 1-Wire port can be made through pin on the PCB.

1-Wire 2482-100 1 channel WITH 1 ESD protection diode

1 Wire 2482-800 8 channel with 8 ESD protection diode

with DS18B20 Temperature Sensor

*. U11 DS2482-100 I2C to 1-Wire bridge device

J11 1-wire Port pin 1 - pin4

(5V,GND, OW (1-Wire Data, ESD Protected). RT (1-Wire Return/Ground ,ESC protected)

* U1,U2,U4,U5,U6,U7,U8,U9, U12, DS9503P ESD protection diode

*. U3 DS2482-800 I2C to 1-Wire bridge device

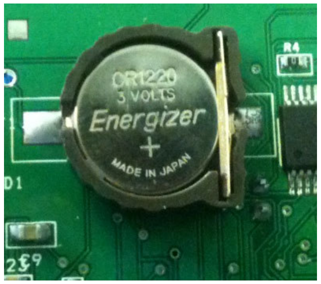
J2,J4,J7,J8,J1,J3,J6,J9 2 1-wire Port pin 1 - pin4

(5V,GND, OW (1-Wire Data, ESD Protected). RT (1-Wire Return/Ground ,ESC protected)

*. J36 2P Terminal block 5V input to 5V 1-Wire output to pin 1 or choose from P1 pin2 select from JP2

* J5 I2c input port Pin1 to pin4 (GND,5V,SDA,SCL) through Logic Level converter

* U22 DS1307 RTC need CR1220 3V backup battery



First Install battery for RTC , " + " mark on top

RTC DS1307 - 68 in i2cdetect –y 0 or i2cdetect –y 1 for Rs-Pi V2 you will see 68 in the

then, load up the RTC module by running

sudo modprobe rtc-ds1307

Then, as root (type in **sudo bash**) run

echo ds1307 0x68 > /sys/class/i2c-adapter/i2c-0/new_device (if you have a rev 1 Pi)
echo ds1307 0x68 > /sys/class/i2c-adapter/i2c-1/new_device (if you have a rev 2 Pi)

hwclock –r   read time

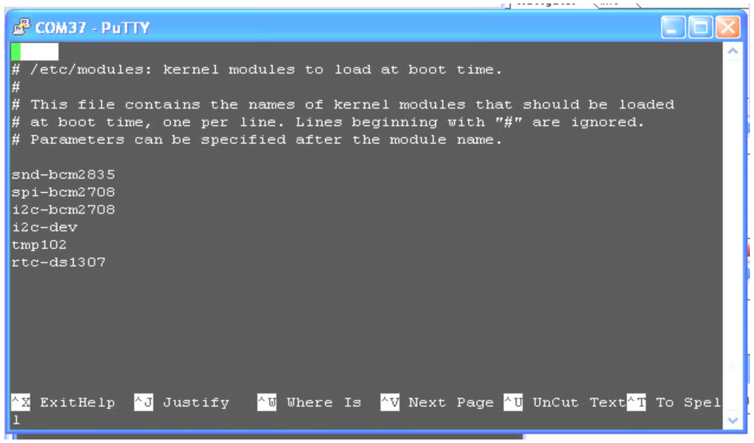
hwclock –w   write time in RTC

hwclock –s   write time in System

hwclock --set --date="2013-08-21 08:00:12" --utc

write in custom Time in RTC

you'll want to add the RTC kernel module & temp tmp102 to the /etc/modules list, so its loaded when the machine boots. Run **sudo nano /etc/modules** and add **rtc-ds1307**   at the end of the file

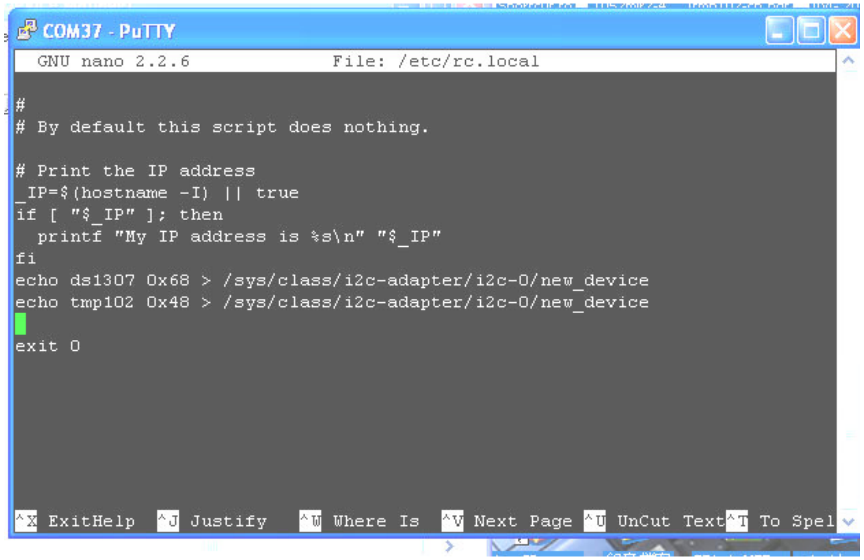


```
# /etc/modules: kernel modules to load at boot time.
#
# This file contains the names of kernel modules that should be loaded
# at boot time, one per line. Lines beginning with "#" are ignored.
# Parameters can be specified after the module name.

snd-bcm2835
spi-bcm2708
i2c-bcm2708
i2c-dev
tmp102
rtc-ds1307
```

Then you'll want to create the DS1307 device creation at boot, edit /etc/rc.local by running
sudo nano /etc/rc.local

and add **echo ds1307 0x68 > /sys/class/i2c-adapter/i2c-0/new_device** before **exit 0**

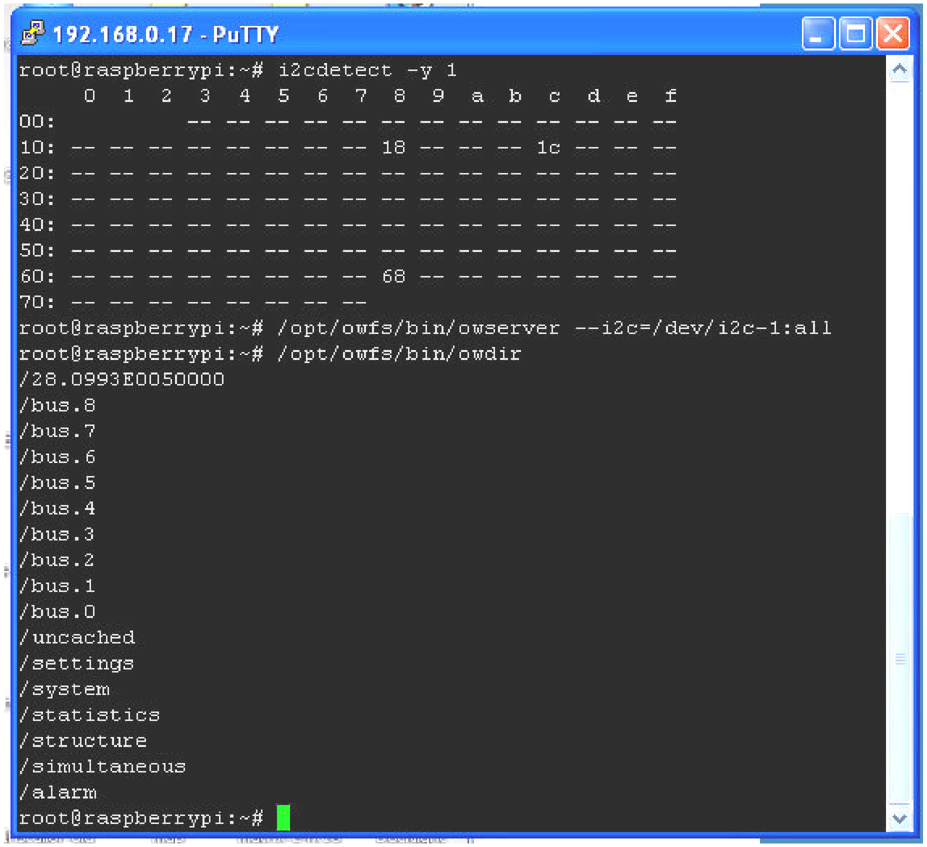


```
  GNU nano 2.2.6              File: /etc/rc.local

#
# By default this script does nothing.

# Print the IP address
_IP=$(hostname -I) || true
if [ "$_IP" ]; then
  printf "My IP address is %s\n" "$_IP"
fi
echo ds1307 0x68 > /sys/class/i2c-adapter/i2c-0/new_device
echo tmp102 0x48 > /sys/class/i2c-adapter/i2c-0/new_device

exit 0
```



```
root@raspberrypi:~# i2cdetect -y 1
     0  1  2  3  4  5  6  7  8  9  a  b  c  d  e  f
00:          -- -- -- -- -- -- -- -- -- -- -- -- --
10: -- -- -- -- -- -- -- -- 18 -- -- -- 1c -- -- --
20: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
30: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
40: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
50: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
60: -- -- -- -- -- -- -- -- 68 -- -- -- -- -- -- --
70: -- -- -- -- -- -- -- --
root@raspberrypi:~# /opt/owfs/bin/owserver --i2c=/dev/i2c-1:all
root@raspberrypi:~# /opt/owfs/bin/owdir
/28.0993E0050000
/bus.8
/bus.7
/bus.6
/bus.5
/bus.4
/bus.3
/bus.2
/bus.1
/bus.0
/uncached
/settings
/system
/statistics
/structure
/simultaneous
/alarm
root@raspberrypi:~#
```

i2c bus device detect status 18 ->DS2482-100 1C ->DS2482-800   68 RTC DS1307

It appears that OWServer has found 9 1-wire busses,
DS2482-100 is bus.0   DS2482-800 is bus.1 .. bus 8
/28.xxxxxx - Connect & Detect DALLAS 18B20P TEMP Sensor

Installation of the OWFS (One Wire File System)

First you need to install the following packages:

```
sudo apt-get update
sudo apt-get install automake autoconf autotools-dev gcc-4.7 libtool libusb-dev libfuse-dev swig python2.6-dev tcl8.4-dev php5-dev i2c-tools
```

If promoted answer Yes on any questions during the install.

Download the latest version of OWFS to your usr/src directory

```
cd /usr/src
sudo wget  -O owfs-latest.tgz http://sourceforge.net/projects/owfs/files/latest/download
```

Unpack with the following command:

```
sudo tar xzvf owfs-latest.tgz
```

Next you must configure OWFS: (replace X.XXXX with the version number you downloaded)

```
cd owfs-X.XXXX
sudo ./configure
```

If everything is correct, you should get a result like this:

```
Current configuration:
Deployment location: /opt/owfs
Compile-time options:
Caching is enabled
USB is DISABLED
etc.
```

Next you need to compile OWFS which will take approx. 30 minutes with the following command:

```
sudo make
```

Next install OWFS which will take a few minutes

```
sudo make install
```

Once the installation has completed you need to create a mountpoint for the 1wire folder:

```
sudo mkdir /mnt/1wire
```

In order to use the 1wire devices without root privileges you have to change the FUSE settings, edit the fuse configuration file with:

```
sudo nano /etc/fuse.conf
```

Update this line: #user_allow_other and remove the # from the start, then save your changes

You can now start using OWFS to access your i2c devices and any connected sensors:

```
sudo /opt/owfs/bin/owfs --i2c=ALL:ALL --allow_other /mnt/1wire/
```

Using a terminal window navigate to the /mnt/1wire/ directory and use the ls command to list all connected devices.

If you have a temperature sensor connected you should have a folder starting with 28.xxxxxx

cd into this folder and then enter cat temperature to read the temperature of the sensor.

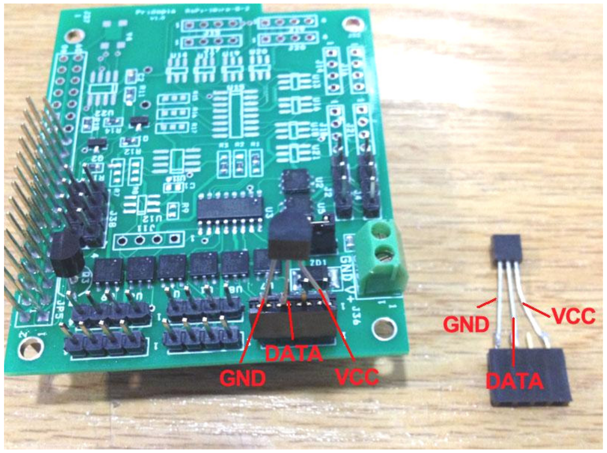
```
cat temperature  --   22.312   &  32.125
```

Download User manual

http://www.pridopia.co.uk/pi-2482-800-1-bp.html

Package Content

1x Rs-Pi DS2482-800 9Bus 1-wire for Pi B+ board
1x Manual



Example for connect DS18B20