

# PiFace Control & Display

A Plug and Play Device to control Raspberry Pi

Exclusively From



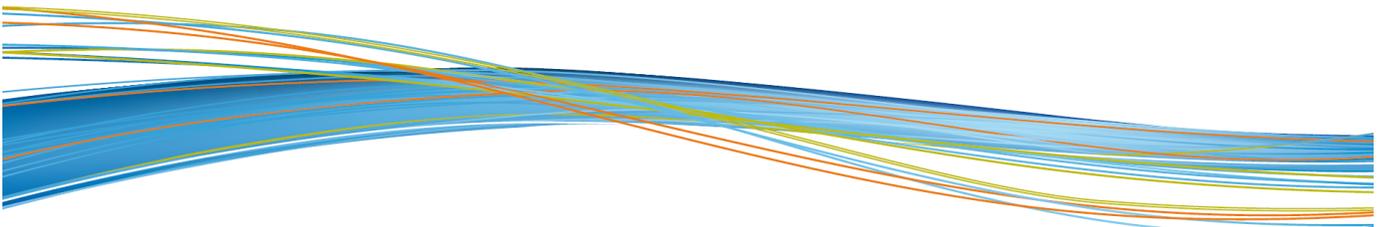
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## Quick Start Guide

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## 1. Overview

PiFace™ Control & Display is a plug and play device that allows you to use and control your Raspberry Pi without a keyboard, mouse and monitor. It saves space and power by removing the need for a monitor whilst still providing a simple, yet capable interactive user interface. PiFace™ Control & Display is ideal for applications such as internet radio, streaming media, XBMC and many more.

PiFace CAD allows you to unshackle your RaspberryPi from the constraints of the monitor and facilitates interaction with its onboard buttons and IR remote transceiver. To use PiFace Control and Display, you will need to follow the simple steps contained in this guide.

## 2. Fitting the PiFace Control & Display

PiFace Control and Display sits on top of the Raspberry Pi and connects using the expansion connector (GPIO).

- First make sure your RaspberryPi's power is disconnected.
- Take care to ensure all the RaspberryPi expansion pins are lined up with the holes on the PiFace Control and Display socket.
- Check the alignment for left, right and back and never force the boards together if they don't slide smoothly.



*Figure 1: Raspberry Pi & PiFace Control & Display Setup*

### 3. Configuring your Raspberry Pi

To use PiFace Control & Display you need to enable your Raspberry Pi's SPI port, do this by opening a Terminal window and entering the following command:

```
sudo raspi-config
```

Use your keyboard's arrow keys to select "Option 8 Advanced Options" to view the list of advanced configuration options. Choose the A5 SPI option, set this to <Yes> then select <OK> then <Finish>.

### 4. Installing PiFace Control and Display Software

#### 4.1 PiFace Control and Display Software

Install the latest Control and Display software by typing the following command in a Terminal:

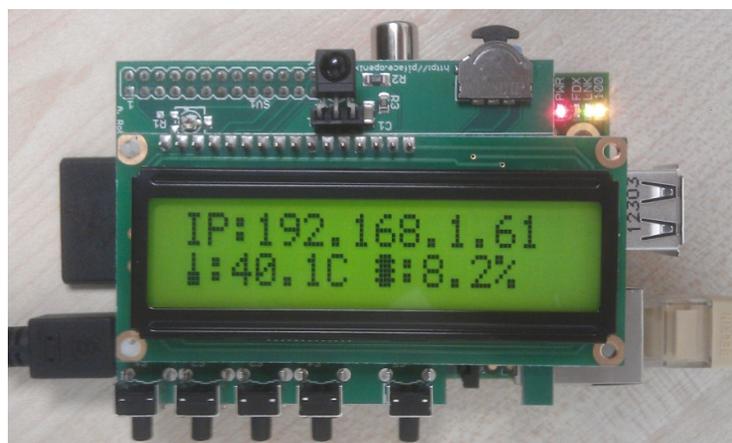
```
sudo apt-get install python3-pifacecad
```

Test everything has installed by running the *sysinfo.py* program:

```
python3 /usr/share/doc/python3-pifacecad/examples/sysinfo.py
```

\*replace "python3" with "python" if you are not using Python3.

Details about your Raspberry Pi's temperature, memory and I.P. address should appear on the LCD screen.



*Figure 2: Successful Display on PiFace Control & Display LCD*

## 4.2 Troubleshooting

If your LCD has nothing appearing on it or its character spaces are all black, try adjusting the contrast screw with a small star head screwdriver.

## 5. Setting up your IR remote with PiFace Control & Display

Want to control your PiFace Control and Display with your remote? Now you can, simply follow below steps:

### 5.1 Setting up your Infrared

First set up the Raspbian Infrared module to use GPIO pin 23, by typing:

```
sudo modprobe lirc_rpi gpio_in_pin=23
```

You can test that it works with the mode2 program:

- Run "`pidof lirc`" to see if the `lirc` processes are running.  
**Note:** if "`pidof`" is not installed you may need to install by typing `sudo apt-get install pidof`
- if this returns a number, you must kill that process with the following command

```
sudo kill process_number
```

\*replace `process_number` with the number returned by `pidof`

Now run mode2 program

```
mode2 -d /dev/lirc0
```

Note: If this says something like "`No such file or directory`" then `lirc` has not been installed. Follow instructions in section "`Lirc Software`", of Installing PiFace Control and Display Software.

If, after pressing some buttons, you get a series of pulse/space lengths then your Infrared Receiver is working. Press `Ctrl-c` to quit this.

To make sure that the module is loaded each time you boot, add the following lines to `/etc/modules` . Edit the file with the command

```
sudo nano /etc/modules
```

Add these lines to the end of the file:

```
lirc_dev
```

```
lirc_rpi gpio_in_pin=23
```

Save your changes, press *Ctrl-x* then *Y* and enter.

To set up your *pi* to receive IR data from PIFace CAD, first backup the previous Linux Infrared Remote Control configuration with:

```
cp /etc/lirc/hardware.conf ~/.
```

Then edit the configuration using

```
sudo nano /etc/lirc/hardware.conf
```

So it looks like the following:

```
# /etc/lirc/hardware.conf

#

# Arguments which will be used when launching lircd
LIRCD_ARGS="--uinput"

#Don't start lircmd even if there seems to be a good config file
#START_LIRCMD=false

#Don't start irexec, even if a good config file seems to exist.
#START_IREXEC=false

#Try to load appropriate kernel modules
LOAD_MODULES=true

# Run "lircd --driver=help" for a list of supported drivers.
DRIVER="default"

# usually /dev/lirc0 is the correct setting for systems using udev
DEVICE="/dev/lirc0"

MODULES="lirc_rpi"

# Default configuration files for your hardware if any
LIRCD_CONF=""

LIRCMD_CONF=""
```

The highlighted text are the parts that will need changing, though it's worth checking the rest of the text incase you have a different initial configuration.

Save your changes by pressing *Ctrl-x* then *Y*  
Reboot your Pi and then log back in:

```
sudo reboot
```

## 5.2 Setting up your Remote

The `/etc/lirc/lircd.conf` file tells LIRC about your remote control. Since every remote control is different, you need to download or generate a config for each remote.

First backup the original lirc configuration file with:

```
cp /etc/lirc/lircd.conf ~/.
```

This will save a copy of your original `lirc` configuration to your home directory. If you ever want to restore these original settings use the command:

```
sudo cp ~/.lircd.conf /etc/lirc/lircd.conf
```

To setup your remote:

- Try and find your remote control config file online:
  - In midori or another Internet browser, go to the address <http://lirc.sourceforge.net/remotes/>
  - Click on the manufacturer of your remote.
  - Then right click on the model of your remote (not the .jpg file).
  - Click 'Save as...' and save it somewhere. Copy it in the `/etc/lirc/` directory
  - as `lircd.conf` by typing the following  

```
sudo cp downloadedFile /etc/lirc/lircd.conf
```
- Alternatively, generate your own configuration:
  - ```
sudo rm /etc/lirc/lircd.conf
```
  - ```
sudo irrecord -f -d /dev/lirc0 /etc/lirc/lircd.conf
```
  - Carefully follow the onscreen instructions. At some point it will ask you to enter the commands for each button you press.
  - If you make a mistake re-remove the `lircd.conf` file  

```
sudo rm /etc/lirc/lircd.conf
```
  - You can list the available commands (in another terminal) with:  

```
irrecord -list-namespace
```

After you have finished, reboot using:

```
sudo reboot
```

Once you have logged in, test your remote using the command:

```
irw
```

Your commands will appear in the console when you press buttons on your remote. Press *Ctrl-c* to exit this.