



5.0 Inch HDMI Touch Screen  
for the Raspberry Pi  
BeagleBone Black, Banana pi/pro  
**User Guide**

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## 1. Overview

As an update version Eleduino 5 inch HDMI input touch screen , we add some new feature. The power and touch signal provided by micro usb port , and can support Beaglebone Black and Banana pi/pro now, it provides much better touch response, larger viewing angle, faster response time, and steady performance and low power consumption.

## 2. Guide Overview

This guide was designed to assist you with setting up the Eleduino 5 inch touch screen HDMI Touchscreen Display and configure the hardware.

## 3. Features

- 5.0inch TFT screen display, 800x480 Resolution
- **Resistive** touch screen
- HDMI input
- USB touch and power supply
- Supports Raspberry Pi, BB Black, Banana Pi / Banana Pro
- Not only for mini-PCs, it can work as a computer monitor just like any other general HDMI screen (touch function is unavailable in this case)
- Lcd driver IC: ILI9486L
- Refresh rate: 60HZ

## 4. Support Operating System

The Eleduino 5Inch HDMI Touchscreen was designed to work with the following

distributions. Each of these distributions will require the installation of some special software packages and the modification of system files. We do maintain a number of pre-built operating system images which are included in a later section of this guide.

Platform	Debian	ubuntu
Raspberry pi 2	Yes	yes
Raspberry pi B/B+	yes	NO
Banana pi	yes	yes
Banana pro	yes	yes
Beaglebone black	Angstrom	

## 5.Package Contents :

Your Eleduino 5 Inch HDMI Touchscreen was shipped with the following accessories:

- Eleduino 5 Inch HDMI Touchscreen
- Display Stand Kit
- Micro USB Cable
- Acrylic shell (need to assembly by yourself)
- standard HDMI cable

The Display Stand was designed to accommodate the Eleduino “Rainbow Case” / “Multi-color Case”for BPI 2/B+ and Acrylic Case for BB Black and Banana pi/Banana pro

which is available for purchase on our Eleduino online website.

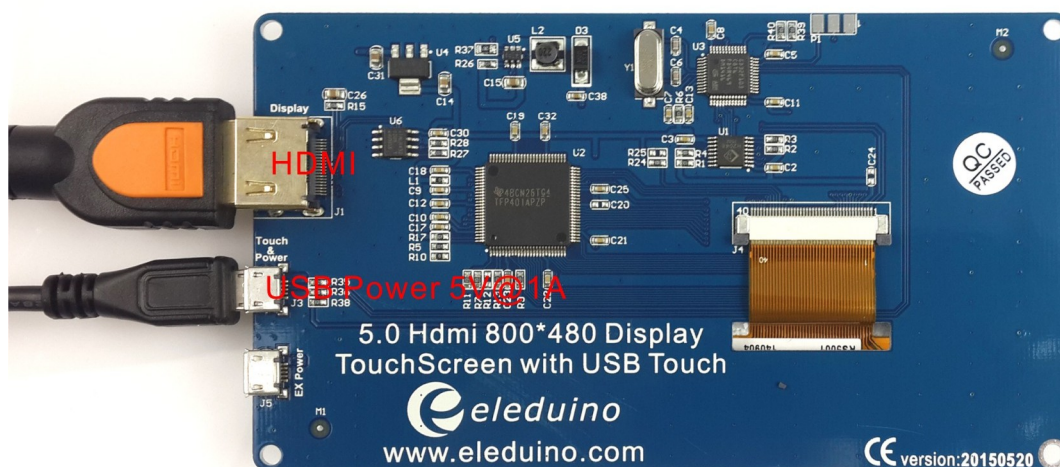
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## 7. Lcd Module Main Parameter

Item Specification		Unit
Outline Dimension	118.5 x 77.55 x 3.4 (Typ.)	mm
Display area	108.0(H) x 64.8(V)	mm
Number of Pixel	800 RGB (H) x 480(V)	pixels
Pixel pitch	0.135(H) x 0.135(V)	mm
Pixel arrangement	RGB Vertical stripe	
Display mode	Normally white	
Surface treatment	Antiglare, Hard-Coating (3H)	
Weight 66	(Typ.)	g
Back-light	LED Side-light type	
Power Consumption	Logic System	0.7 (Max.) W
	B/L System	0.98 (Max.) W

## 8. The Produce Picture



## 9. Configuring your Raspberry Pi :

### 9.1 PRE-COMPILED LINUX DISTRIBUTIONS

Eleduino provides several Linux Distributions that are pre-configured to use the Eleduino 5 Inch HDMI Touch Screen , Please refer to the instructions on the Raspberry Pi website for instructions on flashing the images to a MicroSD card.

All the images you can download there :

<https://www.dropbox.com/sh/ewhxbki7qjii8y/AABicTBIJgW4MHv8YrYJB-NYa?dl=0>

If you use one of the distributions above, please move onto the next chapter for instructions on connecting your Eleduino to your Raspberry Pi

### 9.2 .1 EXISTING DISTRIBUTIONS

If you choose to use a distribution from the Raspberry Pi Website in place of our pre-compiled distributions, you will need to make several changes to your Raspberry Pi in order to allow the display to work and configure the touch screen.

It is strongly recommended that you use a pre-built image as the instructions below are for advanced users only. You may need to experiment with the configuration items below due to changes in distributions. It is also strongly recommended that you backup important files and enable a SSH server on the Raspberry Pi prior to proceeding. You will be asked to edit several configuration files as part of this guide, it is important that you use a Text Editor that respects Unix style line endings. By following the instructions below, you will at least be able to get the display working on most of the distributions on the Raspberry Pi Website however the touchscreen may not work.

Installing the Base Image

1) Download and install the image of your choice from the Raspberry Pi website and flash it to the MicroSD card by following the instructions included with your download.

2) Boot the image on your Raspberry Pi once to confirm that the image was successfully installed. You may want to also go through the Raspberry Pi configuration to expand the file system at this point and perform system updates. As a best practice, you should enable SSH in the event that you need to perform troubleshooting.

3) Power down your Raspberry Pi and eject the MicroSD card

4) Mount the MicroSD card on your computer using a card reader

5) Locate the “config.txt” file located on the base of the MicroSD card and create a backup of this file called config.txt.backup. Open the config.txt it up on a text editor. a. Make the following changes

```
# uncomment if hdmi display is not detected and composite is being output

hdmi_force_hotplug=1

# uncomment to force a specific HDMI mode (here we are forcing 800x480!)

hdmi_group=2

hdmi_mode=1

hdmi_mode=87

hdmi_cvt 800 480 60 6 0 0 0

# uncomment to force a HDMI mode rather than DVI. This can make audio work in

# DMT (computer monitor) modes

#hdmi_drive=2

# uncomment to increase signal to HDMI, if you have interference, blanking, or

# no display

#config_hdmi_boost=4

# uncomment for composite PAL

#sdtv_mode=2


#uncomment to overclock the arm. 700 MHz is the default.

#arm_freq=800

# for more options see http://elinux.org/RPi\_config.txt

start_x=1

gpu_mem=128
```

- 6) Save the file and unmount the MicroSD card.
- 7) Insert the MicroSD card back into your Raspberry Pi

## Connecting Your Eleduino 5 Inch HDMI Touchscreen to Your Raspberry Pi

### RASPBERRY PI CONNECTION

The following steps will guide you through the process of connecting your Raspberry Pi to the Eleduino 5 Inch HDMI screen.

- 1) Connect the power cable to the Raspberry Pi
- 2) Connect an HDMI cable to the HDMI port on the Raspberry Pi
- 3) Connect the included USB cable into an open USB port on the Raspberry Pi

Please refer to the picture below.

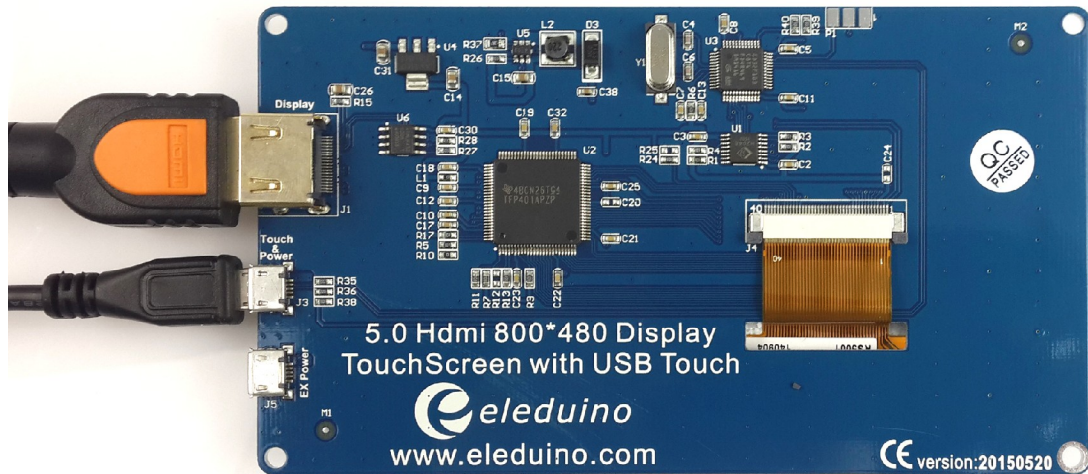


ELEDUINO 5 INCH HDMI CONNECTION Now that your Raspberry Pi is setup, this next section will guide you through connecting it to your Eleduino Display.

- 1) Connect the Micro USB cable into the top Micro USB port on the display screen.
- 2) Connect the HDMI cable to the Display

Please refer to the picture below.





Remarks: the below mirco usb port of the LCD is only used when the LCD is under power shortage

#### POWERING ON YOUR RASPBERRY PI

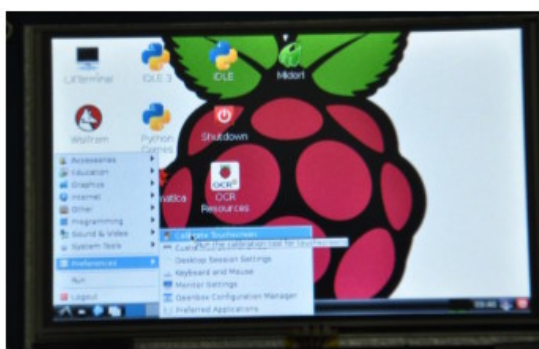
Now that you have setup your Raspberry Pi and successfully connected the Raspberry Pi to the Eleduino 5 Inch HDMI Display, you may power on the unit.

#### Configuring Touch Input

If you wish to use the Touch Panel, you will need to calibrate the panel. If you are not using one of our precompiled system images, you will also need to install several packages manually. You will need to have a keyboard and mouse connected to your raspberry pi for the steps below.

#### CALIBRATING A PRE-COMPILED IMAG

1) From the desktop,, use your mouse to select “Preferences” followed by “Calibrate Touchscreen”



2) Follow the On Screen instructions and select the 4 points with the included stylus



3) Once the calibration has been completed, you will be given a screen containing the calibration data. Follow the onscreen instructions to edit `/etc/X11/xorg.conf.d/99-calibration.conf`

### 9.2.1 SETTING UP A CUSTOM IMAGE

9.2.1.1 Copy the “`RPI2B_B_B+_USB_TOUCH_RES_5.0_RASPBIAN.tar.gz`” into the Raspbian system

9.2.1.2 Extract the image by running the commands below in a terminal

```
sudo tar -zxvf RPI2B_B_B+_USB_TOUCH_RES_5.0_RASPBIAN.tar.gz
cd RPI2B_B_B+_USB_TOUCH_RES_5.0_RASPBIAN
sudo ./USB_TOUCH_RES_5.0_RASPBIAN
```

9.2.1.3 Once the setup has been completed, the Raspberry Pi will automatically reboot.

### 9.3 use with the Ubuntu system

Program the image file `RPI_2B_B_B+_5.0_res_usb_touch_ubunutu_lxde_20150405.img` to the board. This image file supports Raspberry Pi 2B.

User Name: linaro

Password: linaro

For screen touch calibration, the corresponding operations are the same with that of Raspbian.

## 10. Configuring your beaglebone black

### 10.1 use Angstrom image file

If this LCD module is used for display only, you can program the latest Angstrom image file to the board directly without any change. The BeagleBone Black will read the display parameters of the 5 inch HDMI display and set the resolution to 800\*480 automatically. When using this LCD module as a touch screen, you should program the image file `BeagleBone_Black-Angstrom-usb-touch-5.0-RES-20150424.img` provided by the dropbox to the board. Please follow the steps below to program the image file.

1) Copy the file with the expansion name `.img` to your PC;

2) Connect a TF card to your PC, and format your TF card with the SDFormatter.exe

Notices: The capability of TF card in used here should be more than 4GB. In this operation, a TF card reader is also required, which has to be purchased separately.

3) Start the Win32DiskImager.exe, and select the system image file copied into your PC, then, click the button Write to program the system image file.

4) After programming the image file, please insert the TF card to your board, press the key uBOOT and hold it till power up. Then, you will enter the system located at the TF card. And BeagleBone will take about 40 minutes to copy the system in the TF card into the on-board eMMC. When finished, the 4 LED indicators on the board will light up at a same time. After the system rebooted, you can enter the graphical desktop directly.

## 10.2 Connecting Your Eleduino 5 Inch HDMI Touchscreen to Your beaglebone black

1) Connect the LCD to the HDMI on the BeagleBone board with a HDMI to micro HDMI cable;

2) Connect the USB Touch interface on the LCD to the USB interface on the BeagleBone board with USB type-A male to micro-B cable. (BeagleBone has two USB interfaces, one for host and the other for client. In here, you should connect the LCD module to the USB host interface).

## 10.3 Screen touch calibration

1) Remove the calibration file in the system: /etc/pointercal.xinput.

Explanation: Connecting a mouse to the board, you can perform any remove operations in the graphical desktop. For SSH connection, the user name is root, no password.

2) After rebooted, the Pi will enter the calibration interface automatically before start the system. There will be a prompt for four-point calibration shown in the screen:

Calibration Press the point, use a stylus to increase precision. (To abort, press any key or wait)

3) Click the points marked with the red cross pattern one by one to finish the touch calibration;

4) When finished, the system will write the new calibration data into the file /etc/pointercal.xinput.

# 11. Configuring your banana pi/banana pro

11.1 Pre-built corresponding image provided for banana pi/pro in the dropbox link:

<https://www.dropbox.com/sh/ewhxbki7qjii8y/AABicTBIJqW4MHv8YrYJB-NYa?dl=0>

Please refer to the instructions on the [banana pi website](#) for instructions on flashing the images to a MicroSD card.

## 11.2 PRE-COMPILED LINUX DISTRIBUTIONNS

- 1) Connect the USB cable into the Micro USB port on the display screen.
- 2) Connect the HDMI cable to the Display

Power on and start the mainscreen

Password: banana pi

- 3) From the desktop,, use your mouse to select “Preferences” followed by “Calibrate Touchscreen”

- 4) Follow the On Screen instructions and select the 4 points with the included stylus

- 5) Once the calibration has been completed, you will be given a screen containing the

calibration data. Follow the onscreen instructions to edit  
/etc/X11/xorg.conf.d/99-calibration.conf

6) Add the wifi driver for banana pi pro

```
sudo modprobe ap6210
```

## 12. Contact Information

For Technical Support: [service@eleduino.com](mailto:service@eleduino.com)

For Sales Support: [sales@eleduino.com](mailto:sales@eleduino.com)

Website: [www.eleduino.com](http://www.eleduino.com)

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