Adafruit 3.5" 320x480 Color TFT Touchscreen Breakout

Color! Lights! Touch! 8-Bit! SPI! MicroSD Card! 320x480 pixels!

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Contributors

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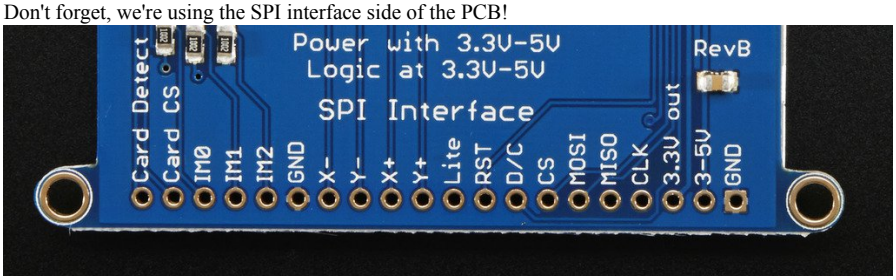
ADAFRUIT PRODUCTS LCDS & DISPLAYS

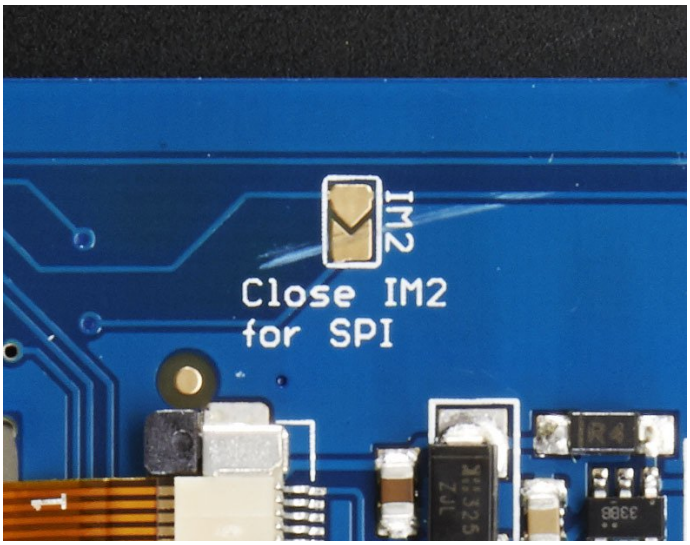
SPI Wiring & Test

by lady ada
Don't forget, we're using the SPI interface side of the PCB!

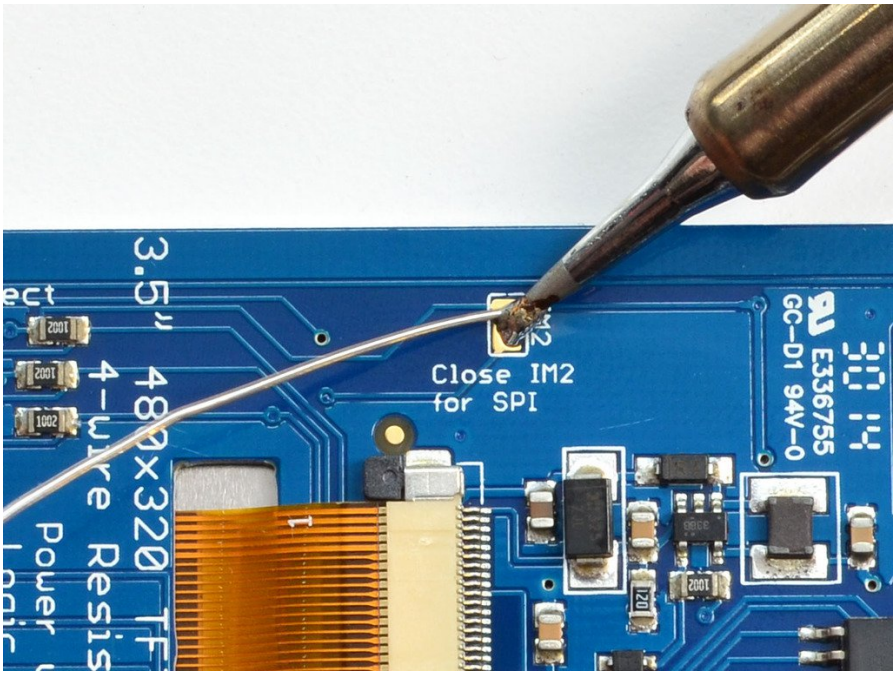


SPI Mode Jumpers

Before you start, we'll need to tell the display to put us in SPI mode so it will know which pins to listen to. To do that, we have to connect the **IM2** pin to 3.3V. The easiest way to do that is to solder closed the **IM2** jumper on the back of the PCB. Turn over the PCB and find the solder jumper:



With your soldering iron, melt solder to close the jumper indicated **IM2**



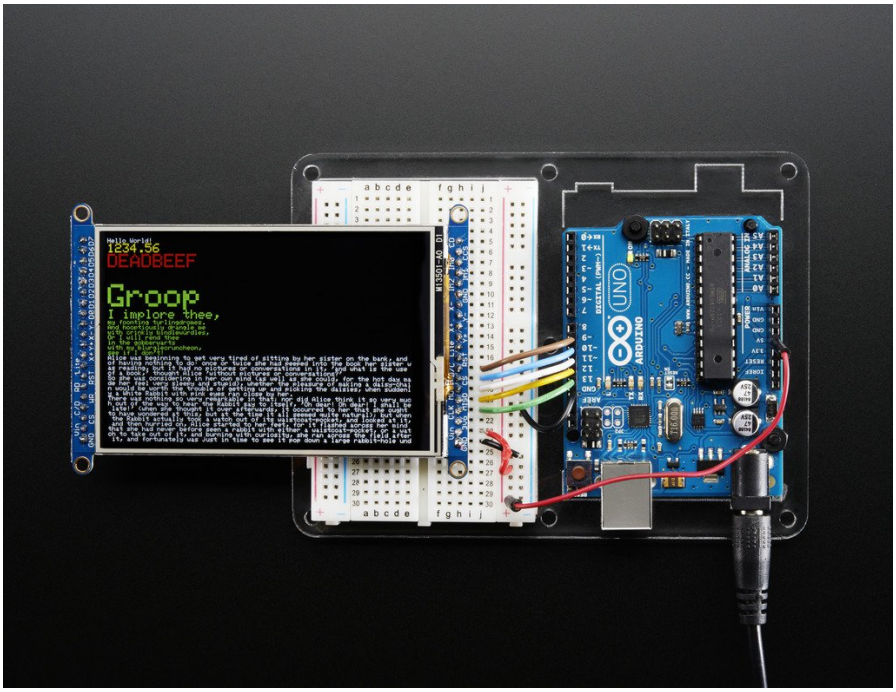
If you really don't want to solder, you can also wire the breakout pin to the **3vo** pin, just make sure you don't tie it to 5V by accident! For that reason, we suggest going with the solder-jumper route.

Wiring

Wiring up the display in SPI mode is much easier than 8-bit mode since there's way fewer wires. Start by connecting the power pins

- **3-5V Vin** connects to the Arduino **5V** pin
- **GND** connects to Arduino ground
- **CLK** connects to SPI clock. On Arduino Uno/Duemilanove/328-based, thats **Digital 13**. On Mega's, its **Digital 52** and on Leonardo/Due its **ICSP-3** (See SPI Connections for more details)
- **MISO** connects to SPI MISO. On Arduino Uno/Duemilanove/328-based, thats **Digital 12**. On Mega's, its **Digital 50** and on Leonardo/Due its **ICSP-1** (See SPI Connections for more details)
- **MOSI** connects to SPI MOSI. On Arduino Uno/Duemilanove/328-based, thats **Digital 11**. On Mega's, its **Digital 51** and on Leonardo/Due its **ICSP-4** (See SPI Connections for more details)
- **CS** connects to our SPI Chip Select pin. We'll be using **Digital 10** but you can later change this to any pin
- **D/C** connects to our SPI data/command select pin. We'll be using **Digital 9** but you can later change this pin too.

That's it! You do not need to connect the **RST** or other pins for now.



Install Adafruit HX8357 TFT Library

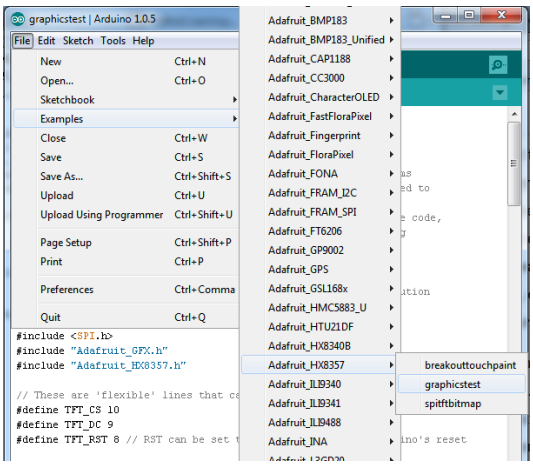
We have example code ready to go for use with these TFTs. It's written for Arduino, which should be portable to any microcontroller by adapting the C++ source.

Two libraries need to be downloaded and installed: first is the Adafruit_HX8357 library (this contains the low-level code specific to this device), and second is the Adafruit GFX Library (which handles graphics operations common to many displays we carry). If you have **Adafruit_GFX** already, make sure its the most recent version since we've made updates for better performance

Download the Adafruit HX8357 Library
Download the Adafruit GFX Library

Download both ZIP files, uncompress and rename the folders to **Adafruit_HX8357** (contains **Adafruit_HX8357.cpp** and **.h**) and **Adafruit_GFX** (contains **Adafruit_GFX.cpp** and **.h**) respectively. Then place them inside your Arduino **libraries** folder and restart the Arduino IDE. If this is all unfamiliar, we have a tutorial introducing Arduino library concepts and installation.

Restart the IDE

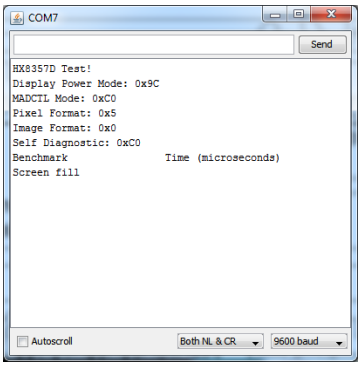


After restarting the Arduino software, you should see a new **example** folder called **Adafruit_HX8357** and inside, an example called **graphicstest**. Upload that sketch to your Arduino. You may need to press the Reset button to reset the arduino and TFT. You should see a collection of graphical tests draw out on the TFT.

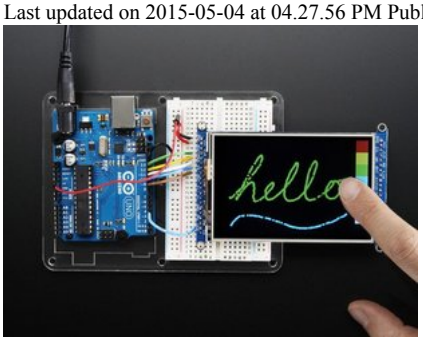
If you're having difficulties, check the serial console.The first thing the sketch does is read the driver configuration from the TFT, you should see the same numbers as below

If you did not connect up the MISO line to the TFT, you wont see the read configuation bytes so please make sure you connect up the MISO line for

easy debugging! Once its all working, you can remove the MISO line



8-BIT WIRING & TEST BITMAPS (SPI MODE)
Last updated on 2015-05-04 at 04.27.56 PM Published on 2014-08-19 at 12.24.09 PM



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TTL Serial Camera

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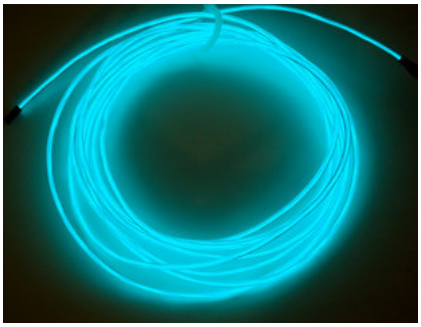
by lady ada

This guide is for our new TTL serial camera module with NTSC video output. These modules are a nice addition to a microcontroller project when you want to take a photo or control a video stream. The modules have a few features built in, such as the ability to change the brightness/saturation/hue of images, auto-contrast and auto-brightness adjustment, and motion detection.

EL Wire

Working with Electroluminescent Wire
by lady ada



EL Wire, also known as Electroluminescent wire, is a stiff wire core coated with phosphor and then covered with a protective PVC sheath. When an AC signal is applied to it, it glows a cool neon color. Find out how to solder, power, and work with EL Wire in your next project.

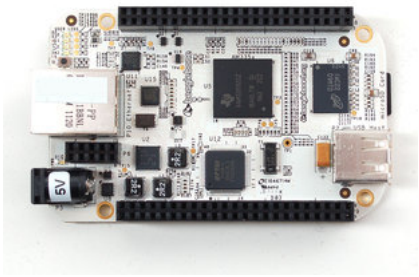
Hacking the Kinect

Reverse engineering the Microsoft Kinect
by lady ada

Here's a step by step guide on how you can reverse engineer a Microsoft Kinect for the Xbox 360.

BeagleBone

Tutorials for the TI embedded Linux board
by lady ada



New from the fine people who have brought us the Beagle Board, we now have a smaller, lighter, but powerful single board linux computer, Beagle Bone! We like this move to a more compact and integrated SBC. For example, there is onboard Ethernet and USB host, as well as a USB client interface (a FTDI chip for shell access). It even comes preloaded with Angstrom Linux on the 4 GB microSD card! Here are some tips and tricks to get your BeagleBone up and running.
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