Shieldstudio 4-digit shield

User Manual

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Thankyou

Thank you for purchasing your shieldstudio 4-digit shield. At Shieldstudio we value your input as a customer of our products. At any time feel free to contact us at info@shieldstudio.com with ideas and/or questions about your product.

Compatibility

The 4-digit shield is compatible with the following Arduino boards:

Duemilanove, Diecimila and other Duemilanove and Diecimila compatible boards e.g. Freeduino.

Set-up

Your 4-digit shield comes configured and ready to use. The board address is already set to the default 0x50 which in most cases should work just fine. If a different I2C address is needed it can be changed through the jumpers JP2 and JP1. Please refer to the table below for jumper settings.

JP2				JP1				Device Address
4	3	2	1	4	3	2	1	
			x				x	0x50 (default)
			x			x		0x51
			x		x			0x52
			x	x				0x53
		x					x	0x54
		x				x		0x55
		x			x			0x56
		x		x				0x57
	x						x	0x58
	x					x		0x59
	x				x			0x5A
	x			x				0X5B
x							x	0X5C
x						x		0X5D
x					x			0X5E
x				x				0X5F

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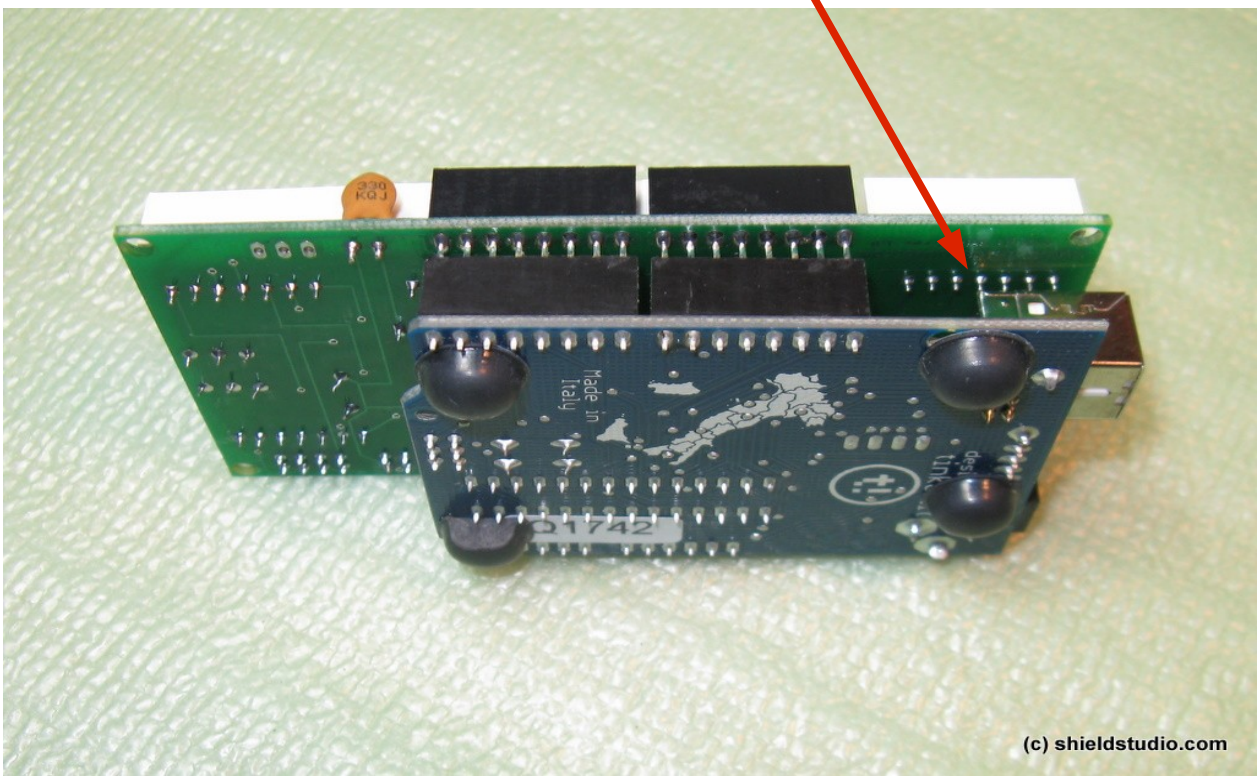
Connecting your shield to Arduino

Connecting this shield is done by piggybacking on an Arduino board. No external power is required for the 4-digit shield to operate – besides the Arduino of course.

Caution : When using Arduino boards with the large USB connector make sure that the underside of the 4-digit shield is not shorted by any arduino pins or connectors as shown below using Diecimila boards



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Lets kick the tires.

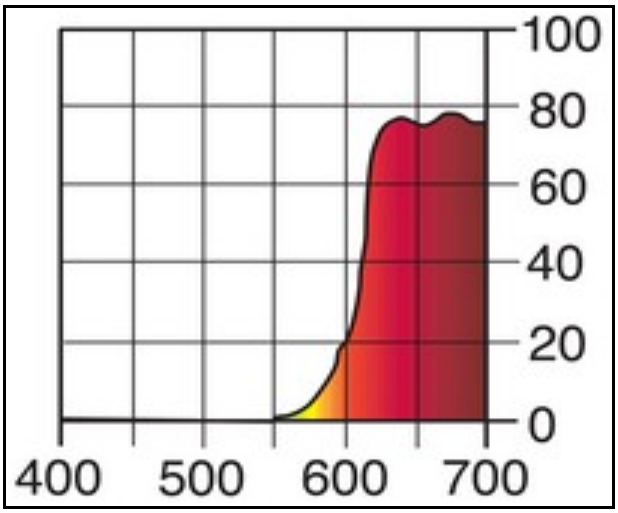
Can't wait to see how this board performs?
The following Arduino sketch can be downloaded from shieldstudio.com to display a test message.

```
/ DisplayDemo
//
// This is a simple example of how to drive the ShieldStudio.com 4-digit
// Shield  More information and a  library with much more
// functionality is available from shieldstudio.com - click downloads
//
// This sketch is also available for download
//
// Changes:
// 2010 July 27  - Created demo sketch
//
// Author: ShieldStudio (info@shieldstudio.com)

#include <Wire.h>                       //Include I2C library.

#define deviceaddress 0x50          //this is the default address for an out
of box 4-digit Shield

int ledPin = 13;

//define the digits
int dig3 = 0x23;
int dig2 = 0x22;
int dig1 = 0x21;
int dig0 = 0x20;
int startdigit = 0;

void setup(){
  Serial.begin(9600); // Debugging only
  Serial.println("Display Shield V1.0");

  pinMode(ledPin, OUTPUT);

  Wire.begin();              // join i2c bus (address optional for  master)
  Wire.beginTransmission(deviceaddress);  // transmit to device
  Wire.send(0x04);                    // select configuration register
MAX6953 Table 6
  Wire.send(0x01);                    // disable shutdown;
  Wire.endTransmission();

  //MAX6953 Table 23
  Wire.beginTransmission(deviceaddress); // transmit to device
  Wire.send(0x01);                    // Set intensity for Digit 0 and 2
  Wire.send(0x33);                    //all segments 10 ma
  Wire.endTransmission();

  //MAX6953 Table 24
  Wire.beginTransmission(deviceaddress); // transmit to device
  Wire.send(0x02);                    //Set intensity for Digit 1 and 3
  Wire.send(0x33);                    //all segments 10 ma
  Wire.endTransmission();

  //Turn on all LEDs in test mode.
  //MAX6953 Table 22
  Serial.println("Starting Display Test");
  Wire.beginTransmission(deviceaddress);
  Wire.send(0x07);
  Wire.send(0x01);
  Wire.endTransmission();
  delay(1000);

  //disable test mode
  //MAX6953 Table 22
  Wire.beginTransmission(deviceaddress);
  Wire.send(0x07);              // sends one byte
  Wire.send(0x00);
  Wire.endTransmission();
}

//write one character to a digit.
void writeChar(byte value,byte disp){
    Wire.beginTransmission(0x50);
    Wire.send(disp);              // sends one byte
    if (value == '\0') Wire.send(' ');
    else Wire.send(value);
    Wire.endTransmission();
}

void loop(){
  writeChar('S',dig3);
  writeChar('h',dig2);
  writeChar('i',dig1);
  writeChar('e',dig0);

  delay(400);
  writeChar('l',dig3);
  writeChar('d',dig2);
  writeChar('S',dig1);
  writeChar('t',dig0);

  delay(400);
  writeChar('u',dig3);
  writeChar('d',dig2);
  writeChar('i',dig1);
  writeChar('o',dig0);

  delay(400);
  writeChar('.',dig3);
  writeChar('c',dig2);
  writeChar('o',dig1);
  writeChar('m',dig0);
    delay(500);
}
```

Display filter

We've included a red display filter for covering the display when mounting your 4-digit shield. Using the included lighting filter will enhance the visibility of the LED diplays used in the 4-digit shield.

Before using the filter cut it to size with a pair of scissors.



Spectral chart for the included filter.

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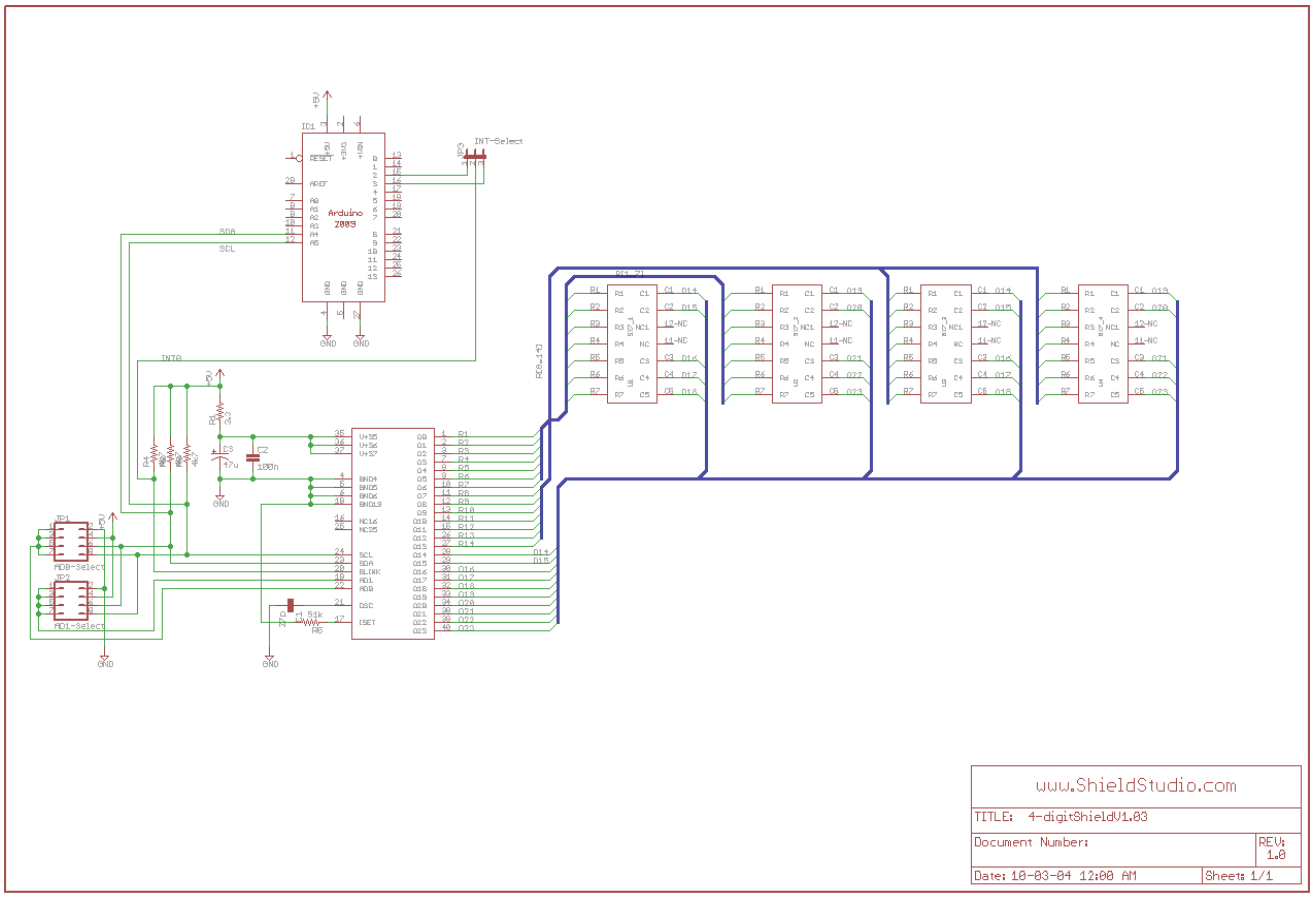
Schematic



More information

Our website contains much more information for using your shield. We also have a library that makes things a lot simpler and also includes some example code.
To download go to the downloads section on http://shieldstudio.com