


I2C LCD

Required knowledge I2C basics, LCD basics

	I2C : I2C, 2 wire
	LCD : Hitachi LCD 44780, YwRobot Arduino Icm1602 iic v1, PCF8574

Components:

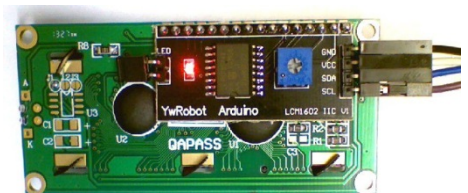
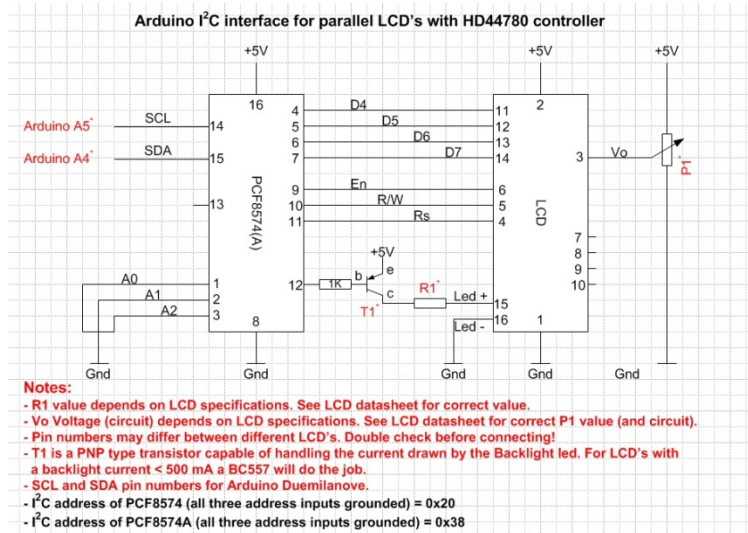
I2C LCD type: "YwRobot Arduino Icm1602 iic v1"	2€ - Aliexpress, ...
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LCD's with a Hitach 44780 controller are without any doubt the mostly used monochrome dot-matrix LCD available. They are used for over 30 years now and stay popular. The disadvantage is that these LCD's are controlled by at least 6 datalines.

By placing a I2C PCF8574 IO expander between the uC and the LCD, we can now use the popular I2C or 2-wire protocol to drive this LCD.

FC6 and Arduino IDE have prepared libraries to drive these I2C LCD's without the need of extensive knowledge of the LCD or the I2C protocol. Have a look at the demoprograms and get convinced that this is not difficult.

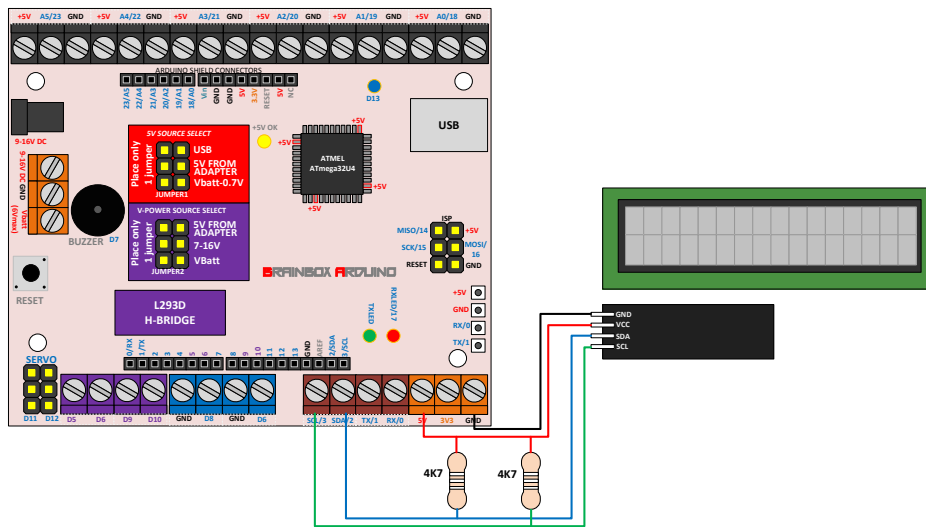
We use the 2x16 character version but 4x40 versions are also available



Left: (Schematic LCD & I2C IO expander) – Right: picture front and back of I2C LCD

PULL-UP resistors of 1K8-4K7 to +5V are necessary on both SCL and SDA lines to make I2C communication possible. Arduino IDE however activates the weak internal pullups that are present in AVR microcontrollers. These internal pullups can replace the external pullups but do not guarantee that heavy loads on the I2C bus will work at all times.

Connection to the Brainbox ARduino:



PROGRAMMING I2C LCD IN ARDUINO IDE

!! Refer to the demo program

In order to use this I2C_LCD you will need to install an extra library under Arduino IDE.

- 1- download the "LiquidCrystal_I2C" library from <https://bitbucket.org/fmalpartida/new-liquidcrystal/downloads>
- 2- unzipping is not necessary
- 3- in Arduino IDE: Sketch >> include library >> add .ZIP library – select the library zip file
- 4- This lib is now installed under 'mydocs' -> Arduino : this is also the place where it can be removed.

PROGRAMMING I2C LCD IN FLOWCODE 6

!! Refer to the demo program

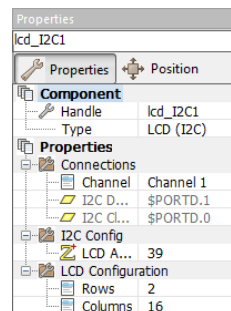
Flowcode 6 has a LCD_I2C component that fits out LCD perfectly. Use the 'Search' function to find it as it is not in the standard lists.

..... **LCD (I2C)**

I2C LCD properties:

Properties for this I2C LCD:

- Channel 1
- LCD Address: 39
- Rows: 2
- Columns: 16



!! at 20/02/2016 FC6 still uses 10msec delays between every I2C message what implies that communication with this LCD is slowed down severely. This is communicated to Matrix.