LiquidCrystal()

Description

Creates a variable of type LiquidCrystal. The display can be controlled using 4 or 8 data lines. If the former, omit the pin numbers for d0 to d3 and leave those lines unconnected. The RW pin can be tied to ground instead of connected to a pin on the Arduino; if so, omit it from this function's parameters.

Syntax

LiquidCrystal(rs, enable, d4, d5, d6, d7)   
LiquidCrystal(rs, rw, enable, d4, d5, d6, d7)   
LiquidCrystal(rs, enable, d0, d1, d2, d3, d4, d5, d6, d7)   
LiquidCrystal(rs, rw, enable, d0, d1, d2, d3, d4, d5, d6, d7)

Parameters

rs: the number of the Arduino pin that is connected to the RS pin on the LCD

rw: the number of the Arduino pin that is connected to the RW pin on the LCD (*optional*)

enable: the number of the Arduino pin that is connected to the enable pin on the LCD

d0, d1, d2, d3, d4, d5, d6, d7: the numbers of the Arduino pins that are connected to the corresponding data pins on the LCD. d0, d1, d2, and d3 are optional; if omitted, the LCD will be controlled using only the four data lines (d4, d5, d6, d7).

Example

#include <LiquidCrystal.h>  
  
LiquidCrystal lcd(12, 11, 10, 5, 4, 3, 2);  
  
void **setup**()  
{  
  lcd.begin(16,1);  
  lcd.print("hello, world!");  
}  
  
void **loop**() {}

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No.** | **Symbol.** | **Function.** | **No.** | **Symbol.** | **Function.** |
| 1 | VSS | GND, 0V | 10 | DB3 | Data Bus Line |
| 2 | VDD | +5V | 11 | DB4 | Data Bus Line |
| 3 | VEE | For LCD Drive | 12 | DB5 | Data Bus Line |
| 4 | RS | Function Select | 13 | DB6 | Data Bus Line |
| 5 | R/W | Read/Write | 14 | DB7 | Data Bus Line |
| 6 | E | Enable Signal | 15 | LED A | LED Supply |
| 7-9 | DB0-DB2 | Data Bus Line | 16 | LED K | LED Supply |

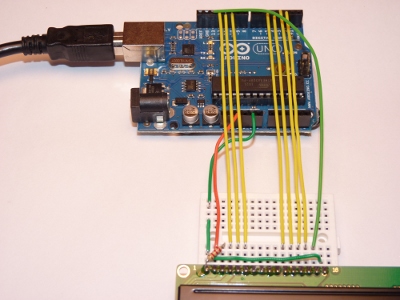
|  |  |
| --- | --- |
| **LCD Pin** | **Connect to** |
| 1 (VSS) | GND Arduino pin\* |
| 2 (VDD) | + 5v Arduino pin |
| 3 (contrast) | Resistor or potentiometer to GND Arduino pin\* |
| 4 RS | Arduino pin 12 |
| 5 R/W | Arduino pin 11 |
| 6 Enable | Arduino pin 10 |
| 7 No connection |  |
| 8 No connection |  |
| 9 No connection |  |
| 10 No connection |  |
| 11 (Data 4) | Arduino pin 5 |
| 12 (Data 5) | Arduino pin 4 |
| 13 (Data 6) | Arduino pin 3 |
| 14 (Data 7) | Arduino pin 2 |
| 15 Backlight + | Resistor to Arduino pin 13\*\* |
| 16 Backlight GND | GND Arduino pin\* |

\*Use a breadboard rail to make multiple connections to the Arduino GND pin

\*For potentiometer connection, use the potentiometer's center pin and either of the other pins to make the connection from LCD pin 3 to Arduino GND

\*\* A current limiting resistor or potentiometer (40 Ohm minimum) should be used to avoid excessive current.

It should look something like this:

[](http://www.hacktronics.com/images/arduino_lcd_connections-lg.jpg)

**Software**

Here is the driver code:

/\* ------------------------------------------------------------------------------- \*/

// character LCD example code  
// www.hacktronics.com  
  
#include <LiquidCrystal.h>  
  
// Connections:  
// rs (LCD pin 4) to Arduino pin 12  
// rw (LCD pin 5) to Arduino pin 11  
// enable (LCD pin 6) to Arduino pin 10  
// LCD pin 15 to Arduino pin 13  
// LCD pins d4, d5, d6, d7 to Arduino pins 5, 4, 3, 2  
LiquidCrystal lcd(12, 11, 10, 5, 4, 3, 2);  
  
int backLight = 13;    // pin 13 will control the backlight  
  
void setup()  
{  
  pinMode(backLight, OUTPUT);  
  digitalWrite(backLight, HIGH); // turn backlight on. Replace 'HIGH' with 'LOW' to turn it off.  
  lcd.begin(16,2);              // columns, rows.  use 16,2 for a 16x2 LCD, etc.  
  lcd.clear();                  // start with a blank screen  
  lcd.setCursor(0,0);           // set cursor to column 0, row 0 (the first row)  
  lcd.print("Hello, World");    // change this text to whatever you like. keep it clean.  
  lcd.setCursor(0,1);           // set cursor to column 0, row 1  
  lcd.print("hacktronics.com");  
    
  // if you have a 4 row LCD, uncomment these lines to write to the bottom rows  
  // and change the lcd.begin() statement above.  
  //lcd.setCursor(0,2);         // set cursor to column 0, row 2  
  //lcd.print("Row 3");  
  //lcd.setCursor(0,3);         // set cursor to column 0, row 3  
  //lcd.print("Row 4");  
}  
  
void loop()  
{  
}

/\* ------------------------------------------------------------------------------- \*/