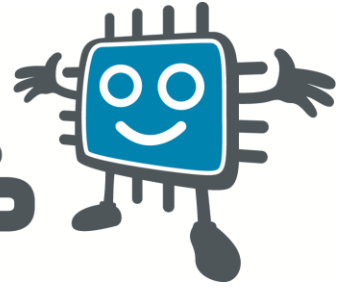


embedded adventures



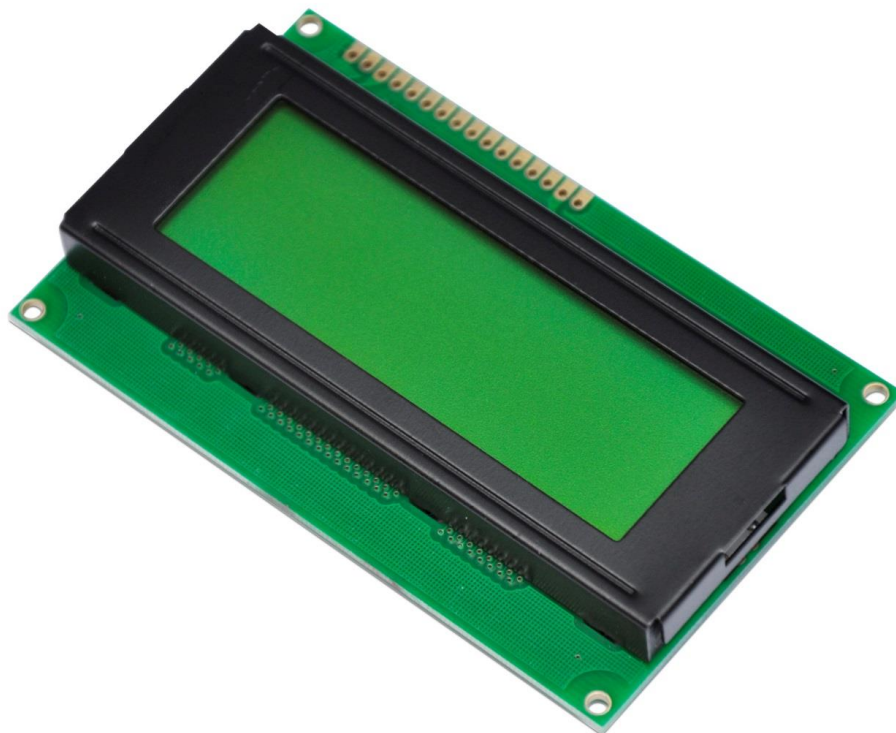
Device: LCD-2004

This document Version: 1

Matches module hardware Version: 1

Date: 10 September 2013

Description: 20 character x 4 line LCD display with Parallel interface



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Introduction

The LCD-2004 is a 20 character by 4 line liquid crystal display, with parallel interface.

Features

With optional backlight, the display can be viewed in darkness and has a fully adjustable contrast.

It's perfect for making displaying more information about what is happening with your project.

It is available in 5V and 3.3V versions.

Construction

It's all pre-built! Just add female or male header pins, or solder directly to the board, and away you go.

Connections

The LCD-2004 has one connection port.

VSS	Ground connection
VDD	Positive supply (3.3V or 5V depending on model)
VO	Contrast adjustment (0V – VDD)
RS	Register select
R/W	Read / write
E	Enable
D0-D7	Data 0 – 7 (minimum 4 bits required)
BLA	Back light anode (VSS)
BLK	Back light cathode (ground)

Looking at the front of the display, the VSS pin is to the left (pin 1, closest to the edge of the display), and BLK pin to the right.

Technical details

Power

The LCD-2004 can be powered with 3.3V (LCD-2004-3.3V) or 5V (LCD-2004-5V). The display itself consumes around 2mA. The backlight can consume up to 80mA and can be controlled using PWM to adjust the brightness.

Contrast

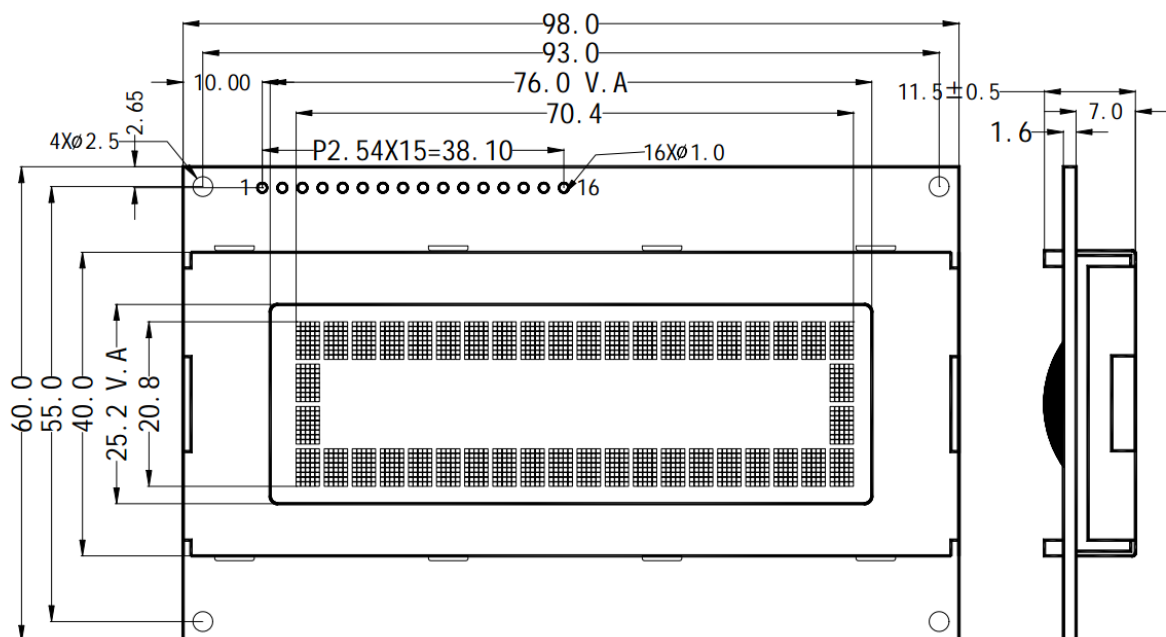
The contrast setting requires a voltage between 0V and VDD, which can be achieved by using a 10K potentiometer. Simply connect one end of the potentiometer to VSS and the wiper to VO. Then as you turn the potentiometer, you will supply different voltages to the VO pin, which will adjust the contrast. Usually you will only need to set this once.

Alternatively, you can supply a voltage using your microcontroller's digital to analogue converter, or use PWM and a filter to achieve the same result (both of which will give you programmable contrast adjustment).

Display commands

This device uses the HD44780 LCD controller, which is in practically every LCD known to humankind. There are bucket loads of website covering the commands of this controller IC.

Dimensions



All dimensions in mm.

Versions

Doc Version	HW Version	Date	Comments
1	1	10 Sep 2013	Initial Version for board v1