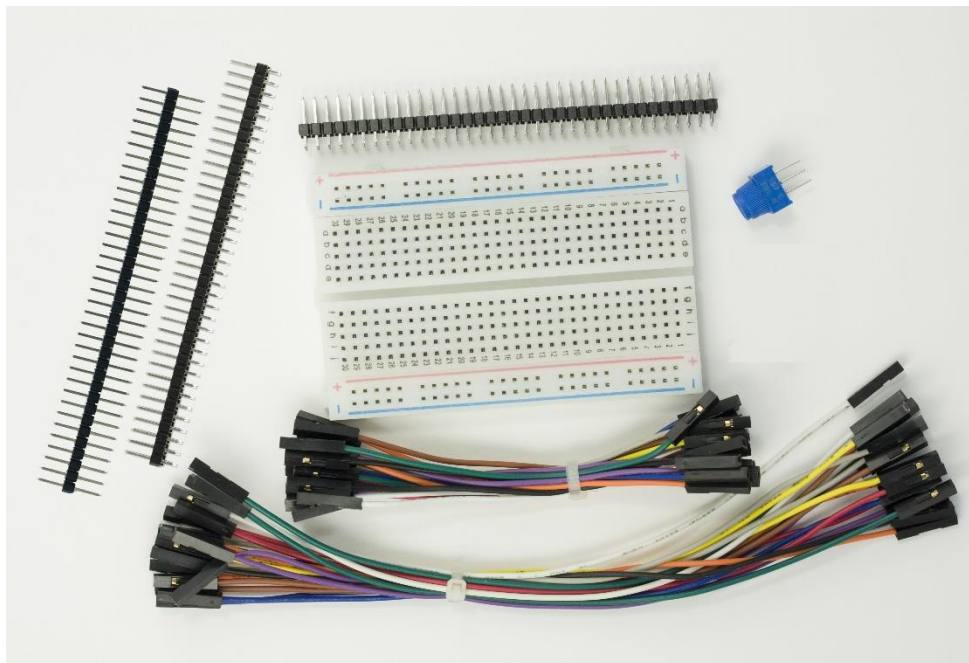![Crystalfontz logo] **Crystalfontz**

DEVELOPMENT KIT DATASHEET

Datasheet Release Date 2021-04-09
for
DEVKIT001

Revision A0

Crystalfontz America, Inc.

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CONTENTS

1. General Information

Datasheet Revision History
Datasheet Release: **2021-04-09** Datasheet for the DEVKIT001 development kit.

Product Change Notifications
Check for or subscribe to Part Change Notices for this display module on our website.

Variations
Slight variations between lots are normal and equivalent parts may be substituted without warning.

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2. Kit Description

This development kit aids in prototyping or setting up graphic or character displays that require external contrast control. This kit includes the required accessories to adjust the contrast voltage using an external potentiometer.

A microcontroller and display are not included in this kit.

3. Contents

- 3" jumper wires
- 6" jumper wires
- Dual row, 72 position, 0.1" header
- Single row, 36 position, 0.1" header
- Small breadboard
- 10k potentiometer
- Single row, 36 position, 0.1" socket header

4. Connections Instructions

To begin, refer to the LCD datasheet to find V_{LCD}. If the specific LCD's V_{LCD} is unavailable, set V_O to +1v such that V_{LCD} = +4v as an initial setting. Using the potentiometer VR, adjust V_O for optimal display appearance.

Crystalfontz recommends allowing field adjustment of V_O for all designs. The optimal value of V_O changes with temperature, variations in V_{DD}, and viewing angle. V_O will also vary module-to-module and batch-to-batch due to normal manufacturing variations. If exposing adjustments to V_O is not possible, Crystalfontz recommends enabling adjustment of V_O as part of a product's final test. Although a potentiometer is shown as a typical connection, and used in this development kit, in a final design V_O can be driven by a microcontroller, using either a DAC or a filtered PWM. Displays that require V_O to be negative may require a level shifting circuit.

### 4.1. Connection for Modules with a Negative Voltage Generator

For modules that include a negative voltage generator, connect the potentiometer is VR (variable resistor) between VDD and VEE with the output connected to VO to control the contrast.
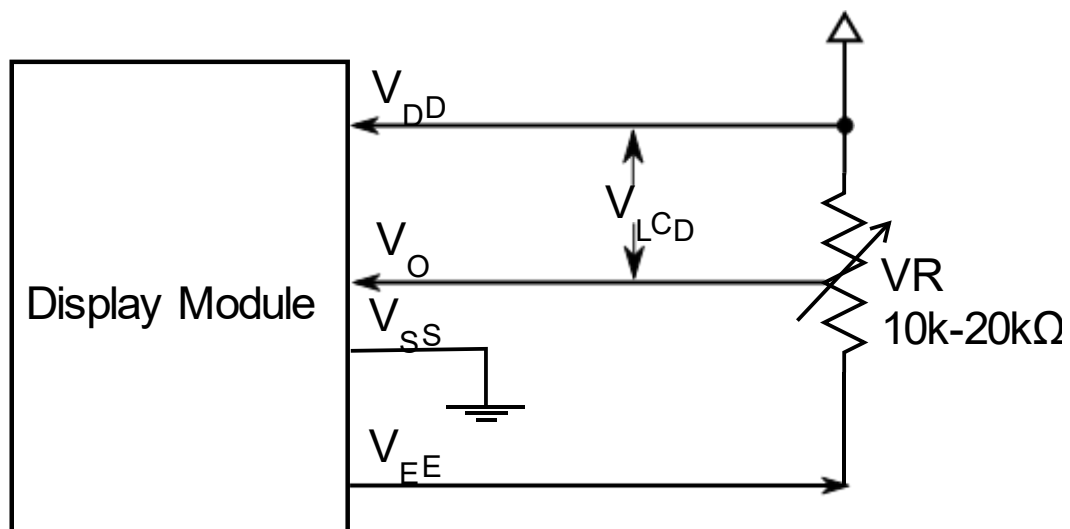
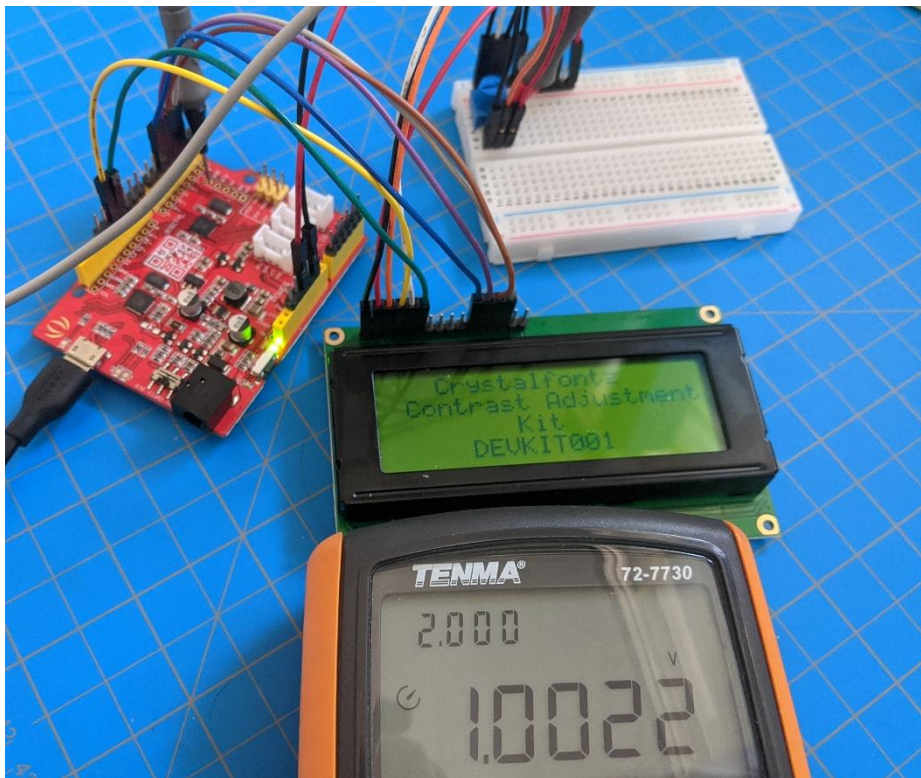## 4.2. Connections for Modules without a Negative Voltage Generator

For modules that do not include a negative voltage generator, connect VR between V_{DD} and V_{SS} (Ground).
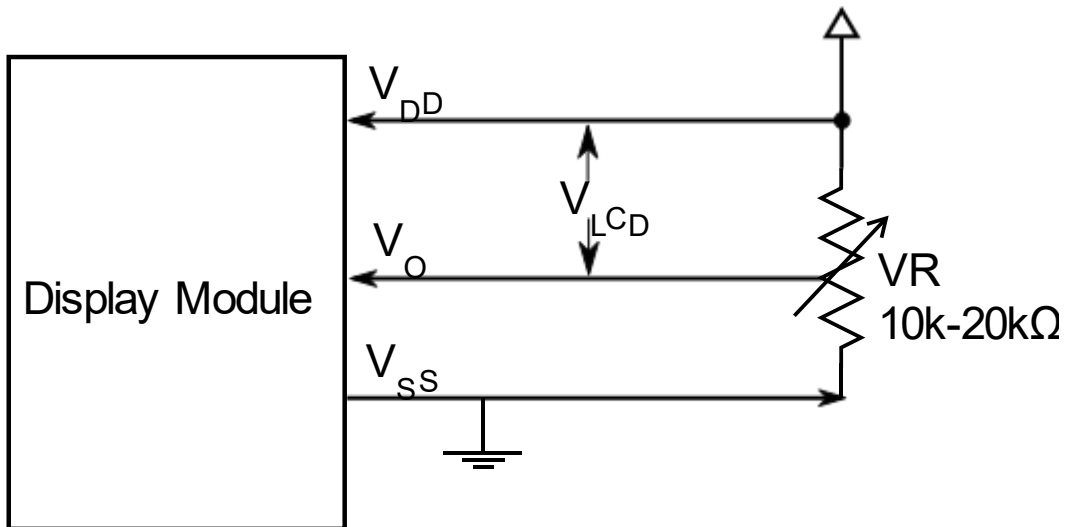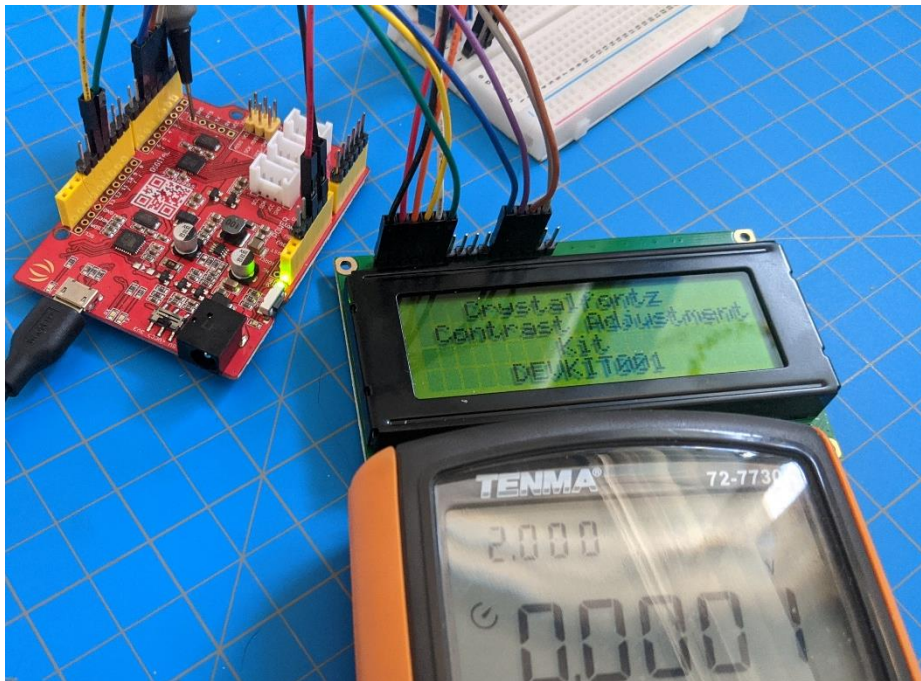

5. Examples

In the following images, V_O is measured on the multimeter

5.1. Contrast too low

5.2. Contrast too high

5.3. Good Contrast