

DSO138mini - Add a Volt-meter

Applicable firmware: 113-13810-116 or later

Starting from firmware version 113-13810-116, an independent DC volt-meter feature was added to DSO138mini. This volt-meter can measure a positive DC voltage and display the readout at the top-right corner of the screen. It can be used for monitoring battery or other purposes. To use this feature some modifications to the oscilloscope are required. This design note explains how to make these modifications. An example of modification was also provided.

Modifications

To implement the volt-meter make the following changes:

- 1) Remove the resistor R50 on the mainboard (Fig. 1).
- 2) Add a voltage divider as shown in Fig. 2. The experiment area on the analog board is a good place to accommodate the voltage divider.
- 3) Connect the point B in the schematic to the PA7 pin on the mainboard. Connect the point A to the point where voltage is to be measured. Connect the ground in Fig. 2 to the digital ground of the oscilloscope.

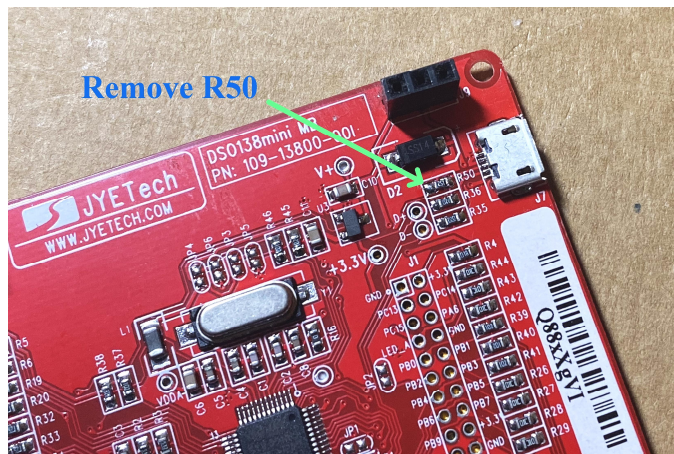


Fig. 1

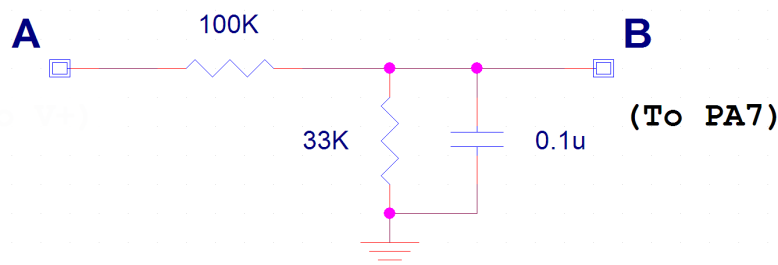
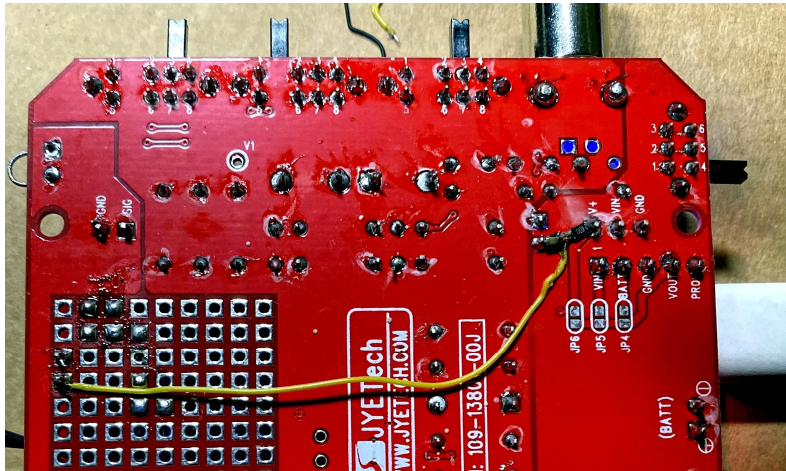
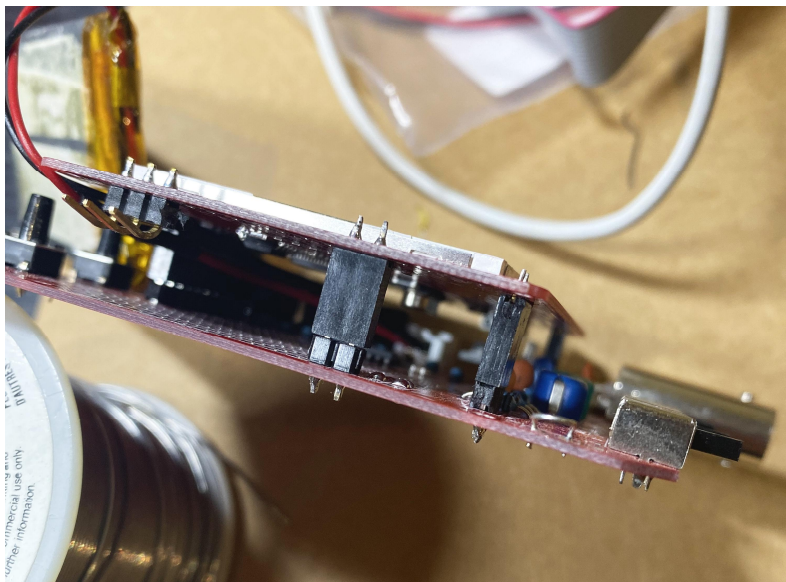


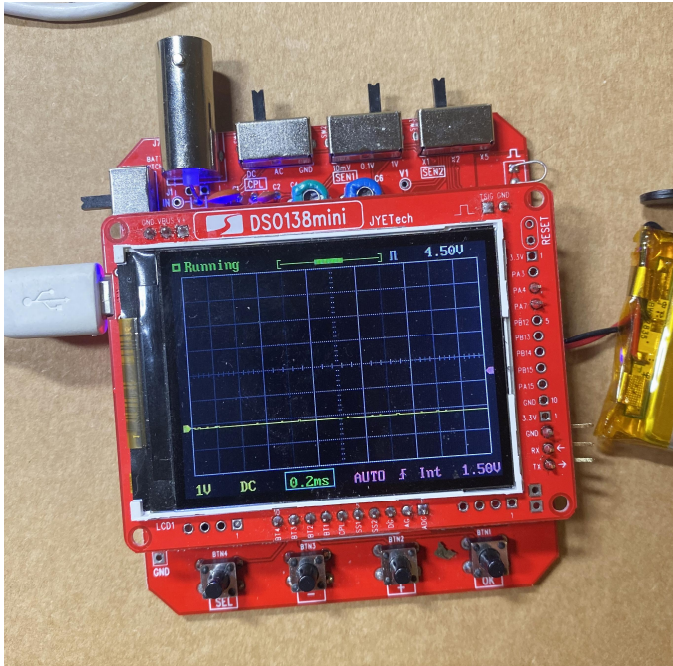
Fig. 2



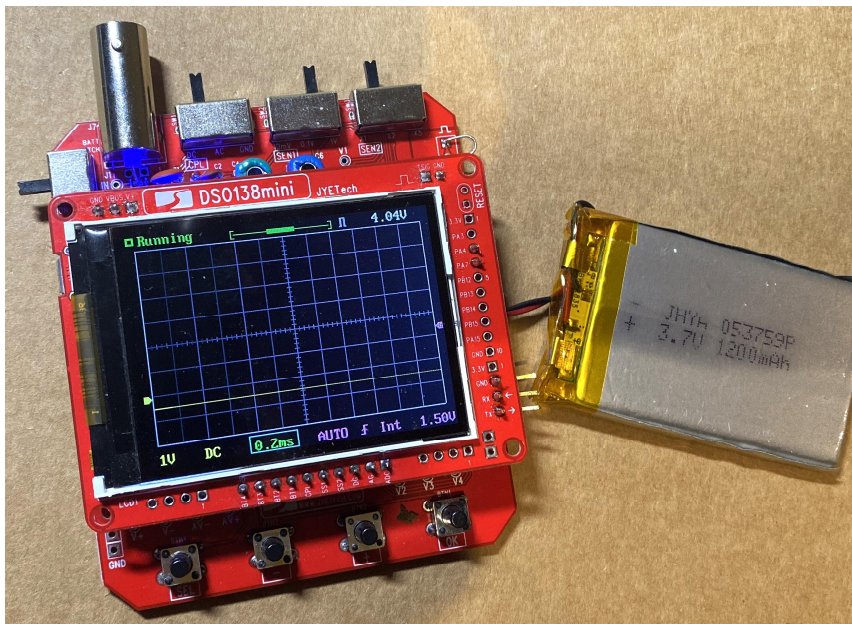
The voltage divider was soldered directly to the pad V+ and a neighboring ground pin using SMD devices. The yellow wire connected the output of the divider to the pinheader.



Attach the main board to the analog board.



Show the voltage at V+ when USB the oscilloscope was powered by USB.



Show the voltage at V+ when the oscilloscope was powered by battery.