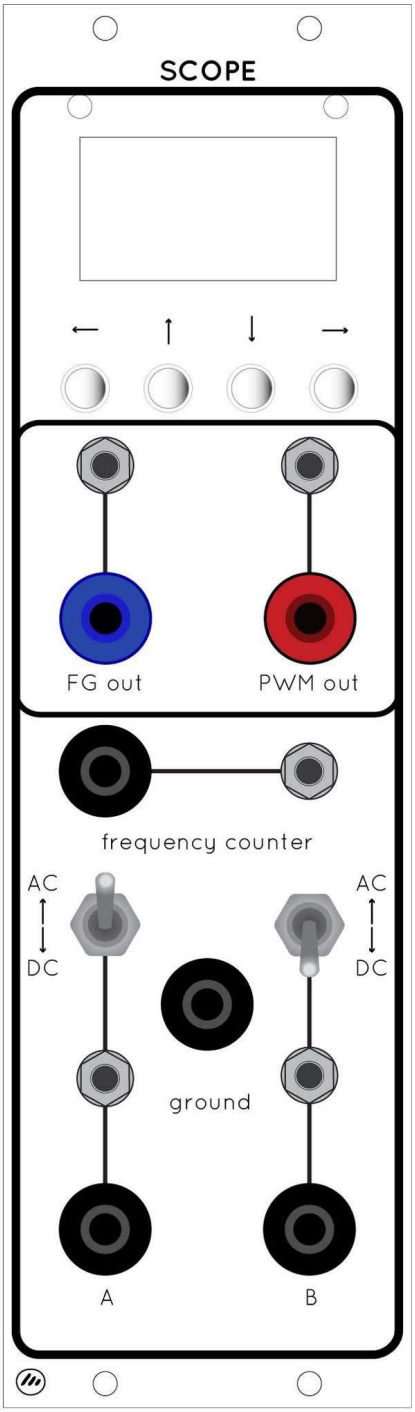
SCOPE MANUAL

2CH Oscilloscope, Pulse generator, Function Generator, and Frequency Counter using Arduino and OLED



How to operate

The menu on the right side of the screen consists of four pages. Use the Up and Down buttons to move between items in the menu. Pressing the Up button at the top item will switch to the previous page. Pressing the Down button at the bottom item will switch to the next page. Pressing the Right or Left button at each item will change the value of that item or switch it On/Off.
Regardless of the page, pressing the Up and Down buttons simultaneously will clear the text display and display the waveform on a full screen. Pressing them simultaneously again will return to the original screen.

Page 1

- The top is the voltage range for CH1, and the second is the voltage range for CH2. Pressing the Right button increases the value, and pressing the Left button decreases it.
- The third is the time axis range. Press the Right button to speed it up, and the Left button to slow it down.
- The fourth indicates whether it is Real Time Sampling or Equivalent Time Sampling; we will skip this position.
- The fifth is the trigger mode, pressing the Right button switches from Auto->Norm->Scan->One->Auto, pressing the Left button switches in the opposite direction.
- The sixth is to set the trigger source and trigger edge. When TG1 is displayed, CH1 is the trigger source. Press the Left button to switch the trigger source. Press the Right button to switch the trigger edge up or down. An up arrow or down arrow is displayed.
- The seventh is the trigger level. Pressing the Right button increases the value, and pressing the Left button decreases it. The trigger level is displayed as a short line on the right edge of the grid in the waveform area. Pressing and holding the button changes it continuously.
- The eighth is the Run/Hold switch. The Right button also switches between the Left and Right buttons.

Page 2

- The upper half is for CH1 settings, and the lower half is for CH2 settings.
- The second button is for hiding or inverting CH1, and the sixth button is for hiding or inverting CH2. The Left button can be used to show or hide, and the Right button can be used to switch between normal and inverted.
- The third is the voltage range for CH1, and the seventh is the voltage range for CH2.
- The 4th is the top and bottom positions of the waveform display for CH1, and the 8th is for CH2. Press the Right button to move it up, and the Left button to move it down. Press and hold the button to change continuously. Pressing the Right and Left buttons simultaneously resets it to the bottom of the standard position.

Page 3

- The top is the voltage range for CH1.
- The second is the time axis range.
- The third button is for switching the FFT mode. Press the Right button to switch to FFT mode. Press the Left button to switch back to waveform mode. FFT mode is only available for CH1.
- The fourth "FREQ" switches the display of the frequency and duty ratio measurement results. Press the Right button to display it, and the Left button to hide it.
- The fifth "VOLT" switches the display of the voltage measurement result. Press the Right button to display it, and the Left button to hide it.
- The sixth "PWM" is the On/Off setting for the Pulse generator. Press the Right button to turn it On, and the Left button to turn it Off.
- The seventh "DUTY" is the duty ratio setting for the Pulse generator. Press the Right button to increase it, and the Left button to decrease it. Press and hold the button to change it continuously and accelerate.
- The 8th "FREQ" is the frequency setting of the Pulse generator. Press the Right button to increase it, and the Left button to decrease it. Press and hold the button to change it continuously and accelerate it.

Page 4

- The top is the voltage range for CH1.
- The second is the time axis range.
- The third "DDS" (Function generator) is the On/Off of the PWM DDS Function Generator. Press the Right button to turn it On, and the Left button to turn it Off.
- The fourth is the waveform switching of the PWM DDS Function Generator. The Right and Left buttons switch in the opposite direction.
- The fifth "FREQ" is the frequency setting of the PWM DDS Function Generator. Press the Right button to increase it, and the Left button to decrease it. Press and hold the button to change it continuously and accelerate it.
- The sixth "FCNT" is the On/Off of the frequency counter. Press the Right button to turn it On, and the Left button to turn it Off. The measured frequency is displayed on the seventh line. It is not displayed on other pages. When it is On, the Pulse generator and PWM DDS Function Generator are stopped.