USER'S GUIDE FOR DS1102E OSCILLOSCOPE

This user's guide of RIGOL DS1102E Oscilloscope includes basic instructions needed to jumpstart using it in Communications Laboratory. The basic instructions are presented step by step for the most frequently used properties of the oscilloscope.

1) Introducing the Front Panel
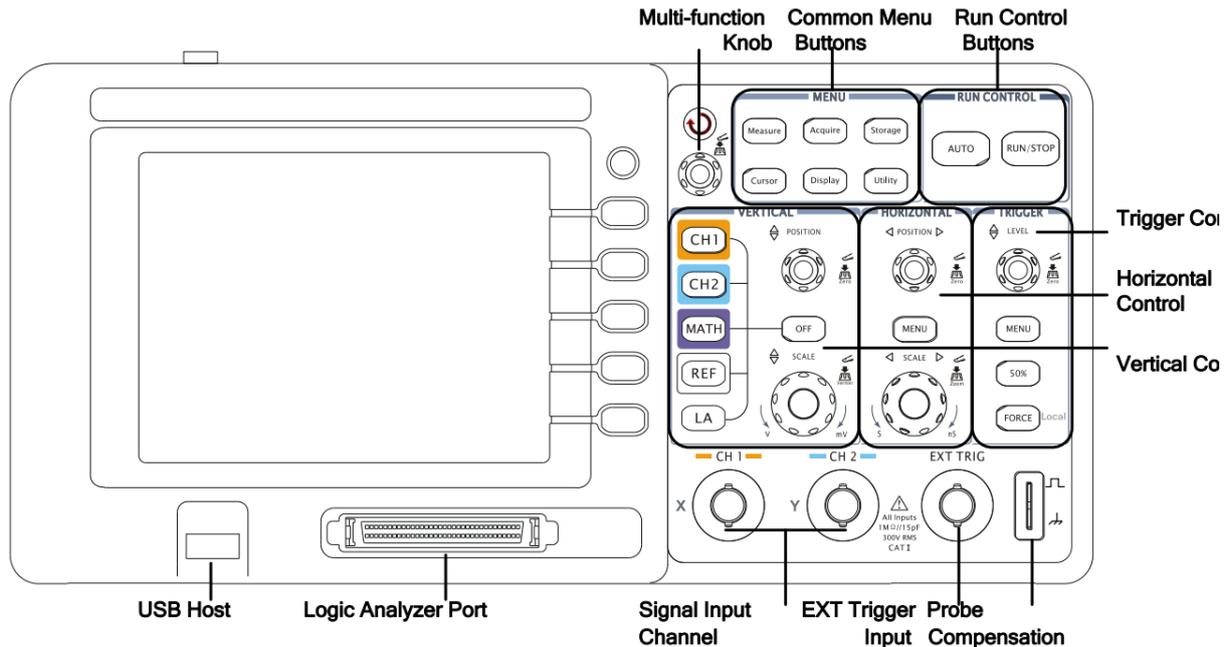
Figure 1. Front Panel of the Oscilloscope

The most frequently used controls of the oscilloscope are shown in Fig. 1.

Multi-function Knob: It is used to

- make selection between choices when a menu appears on the right side of the oscilloscope display.Selection is done by rotating the knob and pushing it afterwards.
- adjust cursor position on the screen when the cursor function is selected.

Common Menu Buttons: This section is formed of six buttons. "Measure", "Storage" and "Cursor" buttons are among the most frequently used buttons in Communications Laboratory. Here is the basic information about the most frequently used buttons ;

- Measure: It is used to make measurements automatically. The amplitude or the frequency of a signal can be calculated by using this button.
- Cursor: It is used to make measurements manually. The amplitude or the frequency of a signal can also be calculated by using this button.
- Storage: It is used to store and recall screenshots of the oscilloscope display.

Run Control Buttons: This section is formed of two buttons. "Auto" is used to display the signals by making automatic calculations for the most efficient display adjustments and "Run/Stop" is used to make run or stop (hold) waveform display.

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http://eu.rigol.com/download/Oversea/DS/User_guide/DS1000E(D)_UserGuide_EN.pdf

Vertical Control: This section includes several buttons and knobs. Here is the basic information about the buttons including in vertical control section ;

- CH1 and CH2: These buttons are used to activate the display of each channel.
- MATH: This button is used for math functions like "Add", "Subtract", "Multiply" and "FFT". The FFT function is especially important for the experiments in Communication Laboratory.
- Position: This knob is used to adjust the location of the signal on the display screen vertically.
- Scale: This knob is used to scale the signal on the display screen vertically.

Horizontal Control: This section includes two knobs and a button. Here is the basic information about the knobs located in horizontal control section ;

- Position: This knob is used to adjust the location of the signal on the display screen horizontally.
- Scale: This knob is used to scale the signal on the display screen horizontally.

Trigger Control: This section includes three buttons and a knob ;

- Level: This knob is used to set the trigger level. Pressing the knob resets the level to zero.
- Menu: This button activates the trigger controls menu.

2) Basic Operations

Displaying a Signal Automatically

1) Connect one of the channels of the oscilloscope to the signal.
2) Press "AUTO" and oscilloscope does the best-fit adjustments and displays the input signal.

Making Simple Measurements

Measuring Peak-to-Peak Amplitude

1) Connect CH1 of the oscilloscope to the signal.
2) Press "AUTO" and oscilloscope displays the input signal.
3) Press "Measure" button and a menu shown in Fig. 2 appears on the right side of the screen.
4) Make sure that "Source" is "CH1" on the right side of the screen.
   If it is not, change the source by pressing the button next to it.
5) Press "Voltage" button (the soft button aligned to "Voltage") and a sub-menu appears.
6) Use "Multi-function knob" (see Fig. 1) to select "Vpp" on that sub-menu.

Figure 2. Measure Menu

Measuring Frequency

1) Connect CH1 of the oscilloscope to the signal.

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2) Press "AUTO" and oscilloscope display the input signal best-fit.
3) Press "Measure" button and a menu shown in Fig. 2 appears on the right side of the screen.
4) Make sure that "Source" is "CH1" on the right side of the screen.
   If it is not, change the source by pressing the button next to it.
5) Press "Time" button (the soft button aligned to "Time") and a sub-menu appears.
6) Use "Multi-function knob" (see Fig. 1) to select "Freq" on that sub-menu.

Measuring All Properties of a Signal

1) Connect CH1 of the oscilloscope to the signal.
2) Press "AUTO" and oscilloscope display the input signal best-fit.
3) Press "Measure" button and a menu shown in Fig. 2 appears on the right side of the screen.
4) Make sure that "Source" is "CH1" on the right side of the screen.
   If it is not, change the source by pressing the button next to it.
5) Press "Display All" button (the soft button aligned to "Display All") and a frame appears as shown in Fig 3. You can close the "Display All" feature by following the same procedure above.
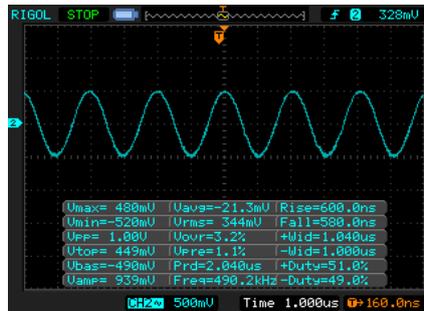

Figure 3. Display All Screen

Using FFT Feature

1) Connect CH1 of the oscilloscope to the signal.
2) Press "AUTO" and oscilloscope display the input signal best-fit.
3) Press "Math" button and a menu shown in Fig. 4 appears on the right side of the screen.
4) Press "Operate" button (the soft button aligned to "Operate") to select "FFT".
5) Make sure that "Source" is "CH1" on the right side of the screen.
   If it is not, change the source by pressing the button next to it.

Figure 4. Math Menu

Using Storage Feature

1) Connect a USB Flash Drive to the USB Host of the oscilloscope.
2) Press "Storage" button and a menu shown in Fig. 5 appears on the right side of the screen.

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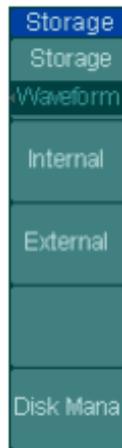
Figure 5. Storage Menu

3) Press the soft "Storage" button (the soft button aligned to "Storage") to select "Bit map" instead of "Waveform".

4) Press "External" button (the soft button aligned to "External") and a new menu shown in Fig. 6 appears on the screen.
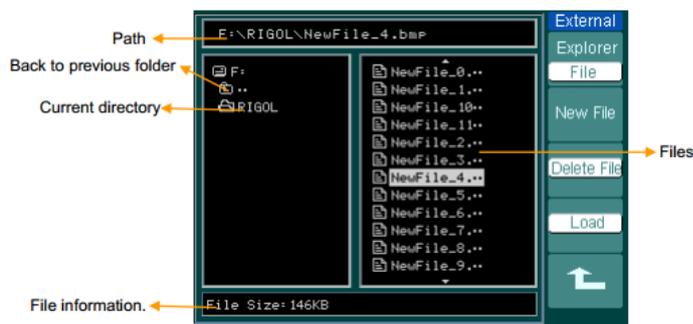

Figure 6. External Menu

5) Press "New File" button (the soft button aligned to "New File") and a new menu shown in Fig. 7 appears on the screen. Use Multi-function knob (see Fig. 1) to name the file and press "Ok" to save the file to the USB Flash Drive as a bit map file. Saving to external usb may take some time.

Figure 7. New File Menu

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