

Operation Guide

DLM5034HD, DLM5038HD, DLM5054HD, DLM5058HD High Definition Oscilloscope Operation Guide

This operation guide explains the basic operations of this instrument. In this guide, operations are described in steps from “Preparation” to “Displaying Waveforms,” “Measuring Waveforms,” and “Saving Screen Captures.” For handling precautions and warnings of this instrument, read the Getting Started Guide (IM DLM5058HD-03EN) thoroughly, and use the instrument properly.



YOKOGAWA

IM DLM5058HD-04EN 1st Edition

Workflow

Displaying the Waveform

Use auto setup to display the input signal (the instrument's probe compensation signal).



Changing the Waveform Display Conditions

Change the vertical axis, horizontal axis, and edge trigger settings.



Measuring the Waveform

Use vertical cursors to measure the time and voltage of the displayed waveform.



Saving the Waveform Screen Image

Save the displayed screen image as data.

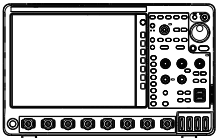
Using the Instrument according to the Workflow

What to Prepare

- The instrument. This guide explains the DLM5058HD as an example.
- Power cord that complies with the standard specified by the country or region that the instrument will be used in
- Included passive probe (701937)¹
- Manual²

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|---|---|
| Operation Guide IM DLM5058HD-04EN | This document. Explains the basic operations of this instrument in steps. |
| Getting Started Guide IM DLM5058HD-03EN | Explains the handling precautions and warnings of this instrument, how to connect the power supply, how to turn the power switch on and off, how to connect probes, how to correct the probe phases, and other common operations. Before using the instrument, be sure to read the handling precautions and warnings. |
| Features Guide & User's Manual IM DLM5058HD-00EN | Features Guide (IM DLM5058HD-01EN) and User's Manual (IM DLM5058HD-02EN). Explain the features of this instrument and how to configure them. |

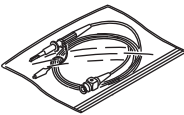
- Adjustment screwdriver (used in the phase correction of probes)³



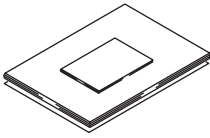
DLM5058HD



Power cord



Passive probe¹



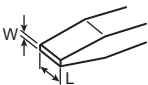
Manual²



Adjustment screwdriver³

- Miniature passive probe 701949 is included with options /E2 and /E3.
- Can be downloaded from our website. The Getting Started Guide is included with the product.
- Use a non-metallic adjustment driver that matches the dimensions of the probe phase adjustment hole.

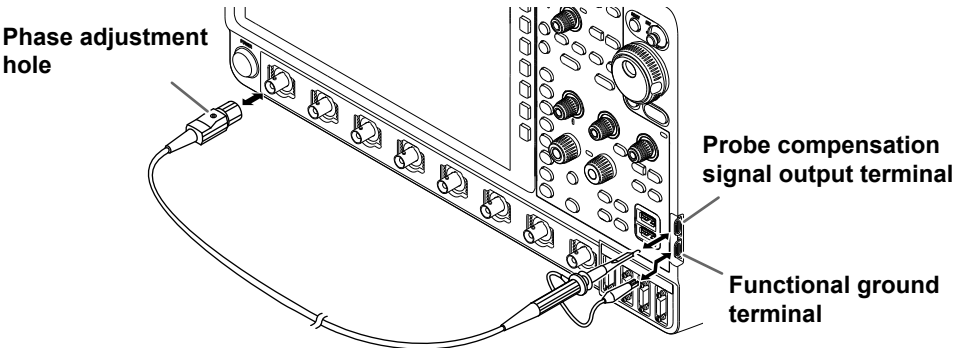
Driver bit dimensions (reference)



Tip shape: – (minus)
Tip thickness (W): 0.4 mm to 0.5 mm
Tip width (W): 1.3 mm to 2.5 mm

Measurement Preparation

- Turn on the power switch.
See section 2.3, “Connecting the Power Supply and Turning the Power Switch On and Off,” in the Getting Started Guide (IM DLM5058HD-03EN).
- Connect a probe to the instrument's input terminal (CH1).
See section 2.4, “Connecting Probes,” in the Getting Started Guide.
- Correct the probe phase.
See section 2.5, “Correcting a Probe Phase,” in the Getting Started Guide.



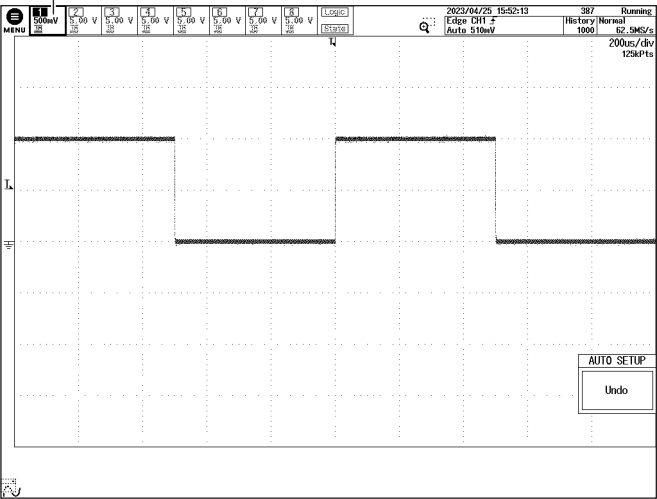
Displaying the Waveform

Here, use the instrument's probe compensation signal (frequency: approx. 1 kHz, amplitude: approx. 1 V, square wave signal) for the input signal.

- Press **AUTO** to execute auto setup.



Voltage scale: 500 mV/div



When you execute auto setup, the voltage scale (V/div), time scale (Time/div), trigger level, and the like are automatically set to values suitable for the input signal.

- * The auto setup feature may not work properly for signals that include a DC component or high-frequency components.

To measure the voltage with high accuracy, adjust the vertical scale so that the input signal is measured with the largest possible amplitude.

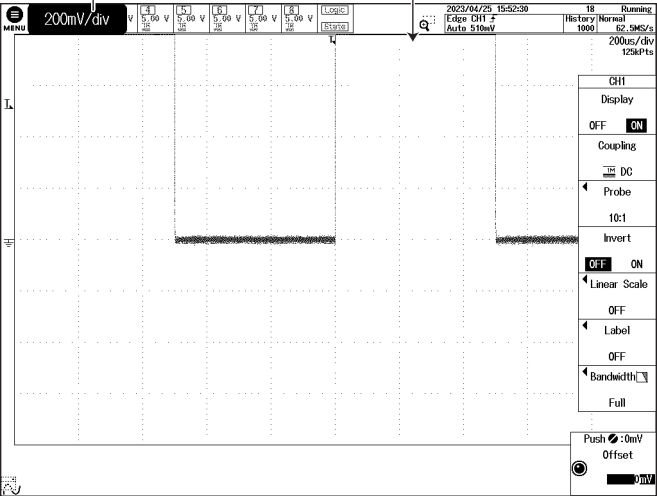
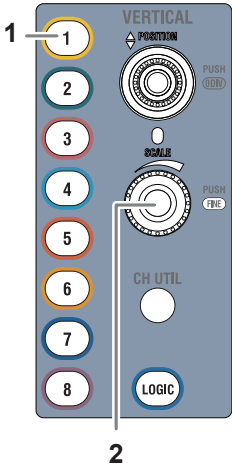
Changing the Vertical Axis Settings

Change the vertical scale (voltage sensitivity) from 500 mV/div to 200 mV/div to increase the waveform amplitude. Setting the voltage sensitivity means setting the voltage per grid division (V/div).

- Press **CH** (1).
- Use the **SCALE** knob to change the voltage sensitivity to 200 mV/div.

The waveform is expanded vertically causing a portion of the waveform to go off the screen.

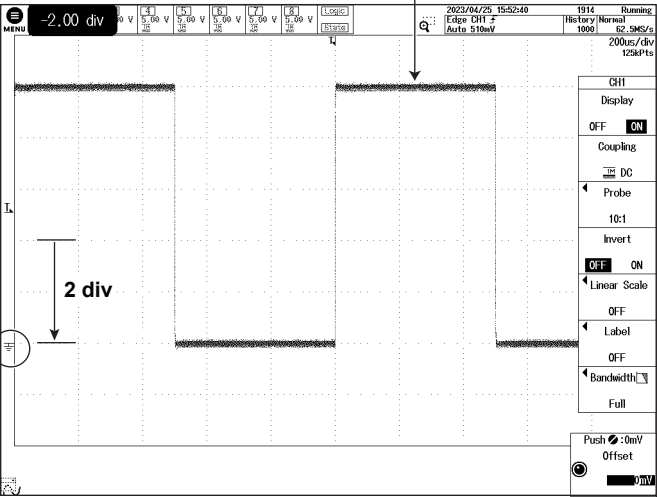
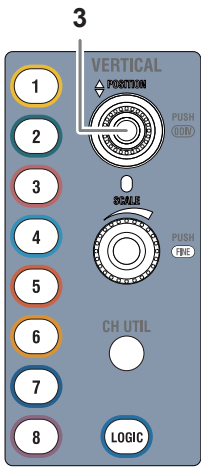
Voltage sensitivity: 200 mV/div



Measurements may not be performed correctly in this condition. Lower the vertical position to that the entire waveform can be seen.

- Use the **POSITION** knob to move the vertical position down by 2 divisions.

Lowering the vertical position causes the entire waveform to be seen.



Vertical position (—)
The ground level (⏏) also moves along with the waveform.

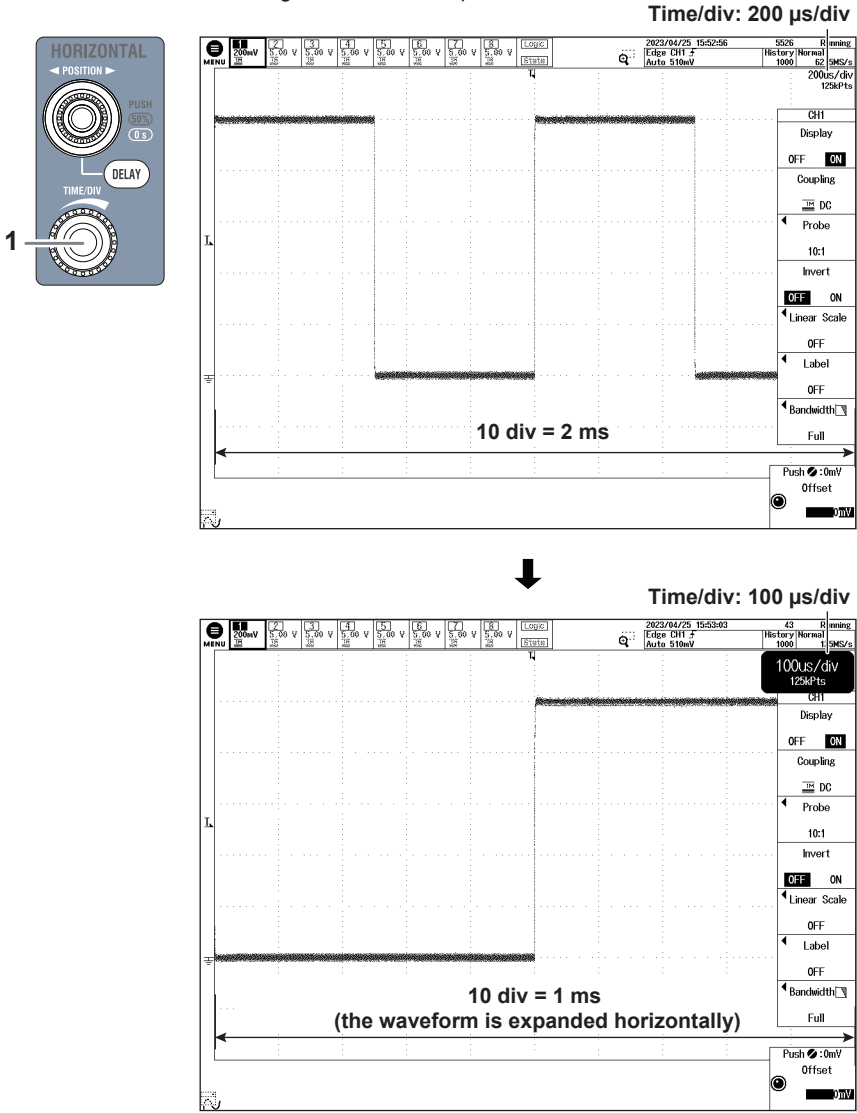


For details on the vertical axis, see chapter 1, “Vertical Axis (Analog Signal),” in the Features Guide (IM DLM5058HD-01EN).

Changing the Horizontal Axis Settings

Change the horizontal (time) scale from 200 μ s/div to 100 μ s/div. Setting the time scale means setting the time per grid division.

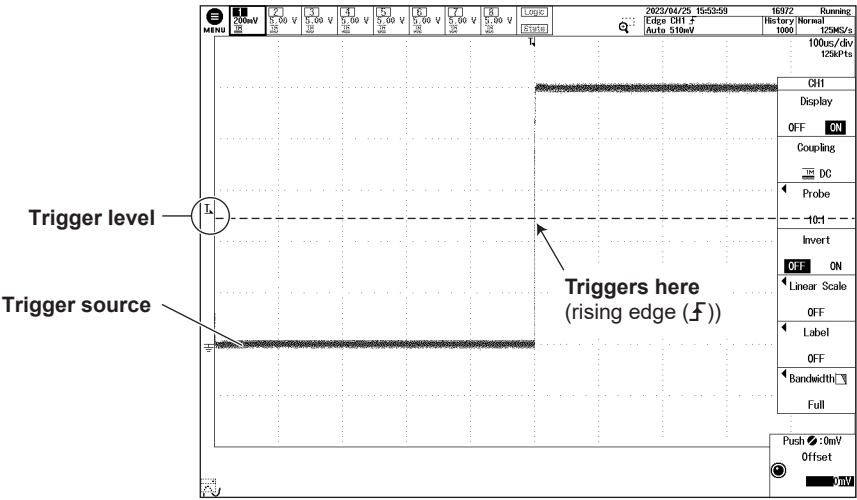
1. Use the **TIME/DIV** knob to change Time/div to 100 μ s/div.



For details on the horizontal axis, see chapter 3, “Horizontal Axis (Time Axis),” in the Features Guide (IM DLM5058HD-01EN).

Changing the Edge Trigger Settings

Edge triggers are simple triggers that are activated when the trigger source passes through a trigger level. A change in the waveform that causes it to pass through a trigger level is called an edge. When you execute auto setup, the edge trigger is automatically set.

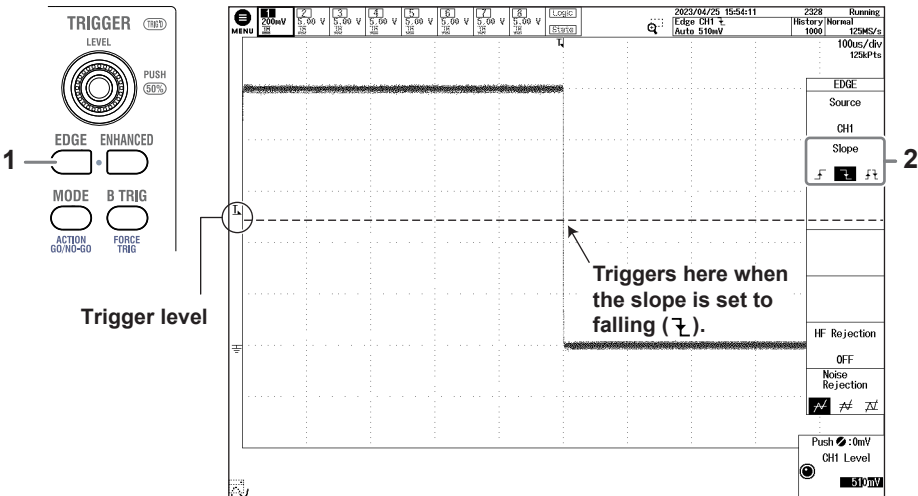


Here, change trigger slope and trigger position settings of the edge trigger.

Changing the Trigger Slope from Rising to Falling

Use the slope to set the direction of the edge. There are two edge directions: rising (movement from a low level to a high level) and falling (movement from a high level to a low level). Setting the slope allows triggers to be activated on the rising edge (F), falling edge (T), or both (FT).

1. Press **EDGE**.

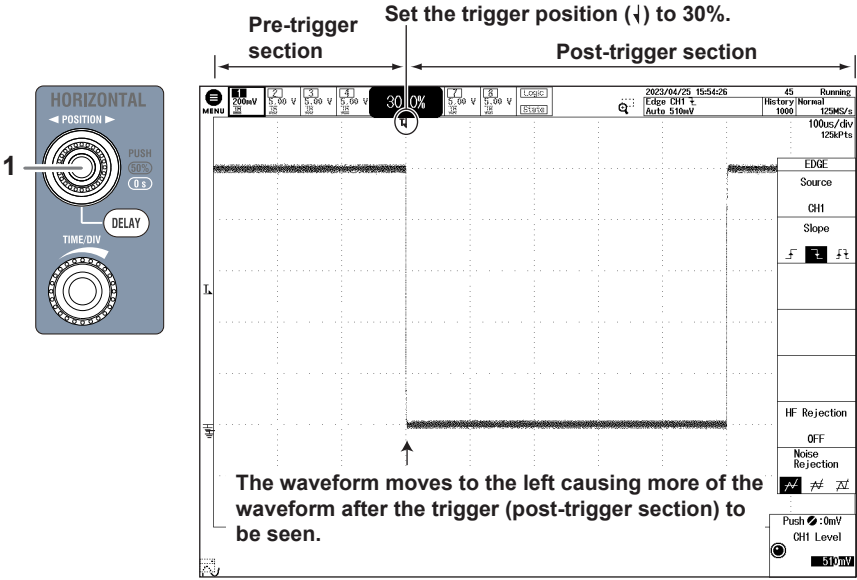


2. Press the **Slope** soft key to select **T** (falling). The instrument will trigger on the falling edges of the trigger source.

Changing the Trigger Position from 50% (screen center) to 30%

When you start waveform acquisition, the instrument triggers according to the specified conditions and displays the waveform captured in the acquisition memory. You can move the trigger position on the screen to change the display ratio of the data previous to the trigger point (pre-trigger section) and the data after the trigger position (post-trigger section).

1. Use the **POSITION** to move the trigger position to the left by 2 divisions. The trigger position is set to 30%.

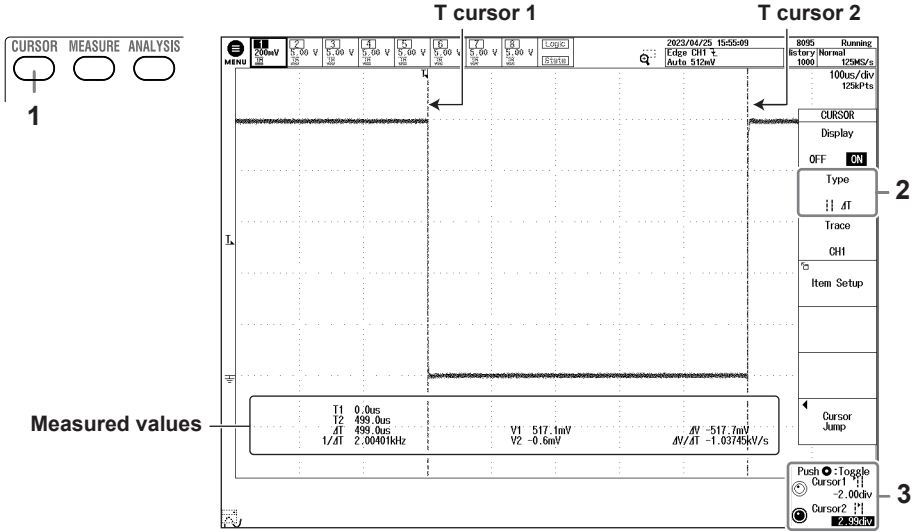


For details on triggers, see chapter 4, “Trigger,” in the Features Guide (IM DLM5058HD-01EN).

Measuring the Waveform

Use vertical cursors (Δ T cursors) to measure the time and voltage of the displayed waveform.

1. Press **CURSOR**.

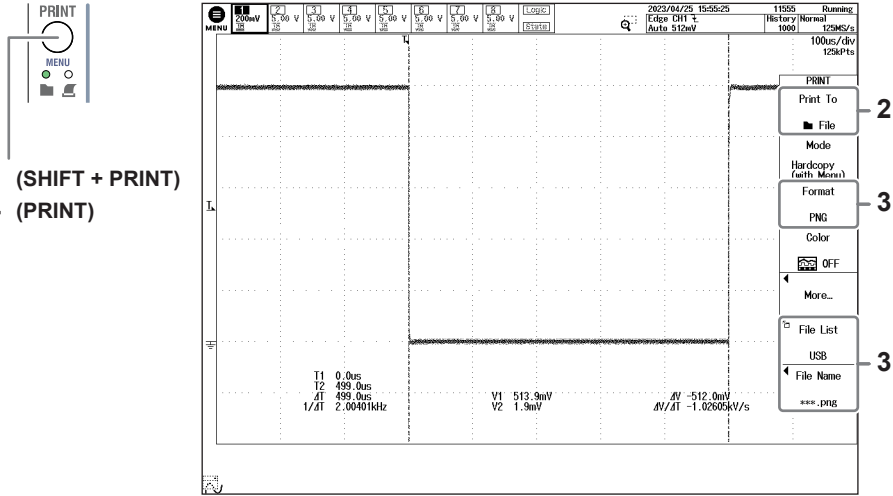


2. Press the **Type** soft key to select **ΔT** (Δ T cursor). Two vertical cursors, the times (T1, T2) and voltages (V1, V2) at the cursor positions, and other measurements are displayed.
3. Turn the jog shuttle to move a cursor. The cursor that the jog shuttle controls switches each time you press **SET**. You can also select both T cursor 1 and T cursor 2.

Saving the Waveform Screen Image

You can save screen captures. The available data formats are PNG, BMP, and JPEG.

1. Press **SHIFT + PRINT**.



2. Press the **Print To** soft key to set the output destination to File.
3. Use the **Format** soft key to set or view the data format, the **File List** soft key to set or view the save destination, and the **File Name** soft key to set or view the file name.
4. Press **PRINT**. A screen capture is saved.



For details on saving screen captures, see chapter 16.5, “Saving Screen Captures to Files,” in the User’s Manual (IM DLM5058HD-02EN).

To use the built-in printer (option), change **Print To** to **BuiltIn**.