How to make a single point measurement

This material shows how to perform a single point measurement through an example of the forward voltage test of diode. Figure 1 illustrates the connection and condition supposed in the example of measuring diode using the B2901/02/11/12A.
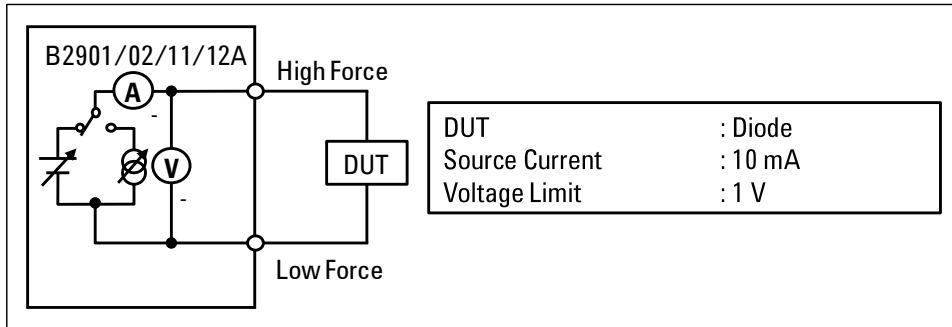

Figure 1. Connection and condition supposed in the example

Figure 2 shows the timing chart for the single point measurement with the front panel operation. In this case, the specified source value is sourced immediately after turning on [On/Off]. Then, when you press [Trigger], the instrument will make a single point measurement. If it is necessary, you can specify any measurement trigger delay time which is the wait time after pressing [Trigger] and before making a measurement. The measurement time consists of Measurement Speed and some overhead time. Measurement Speed is the parameter specified by the user. Overhead time includes the time to change the measurement range, etc.
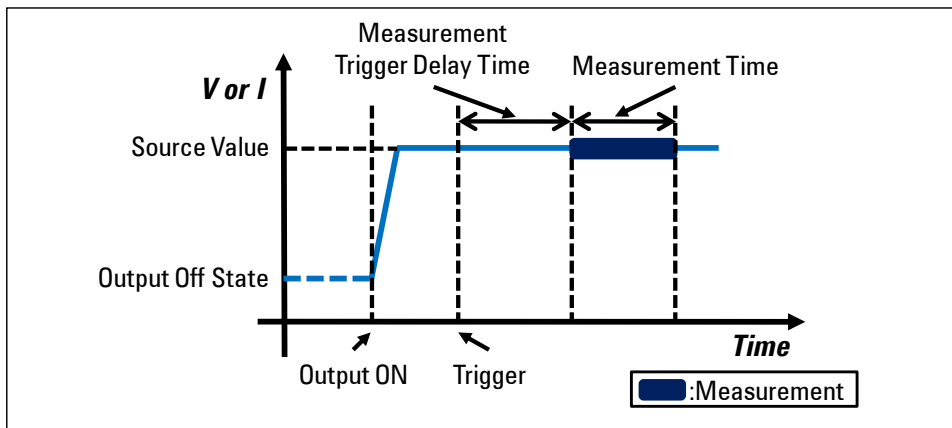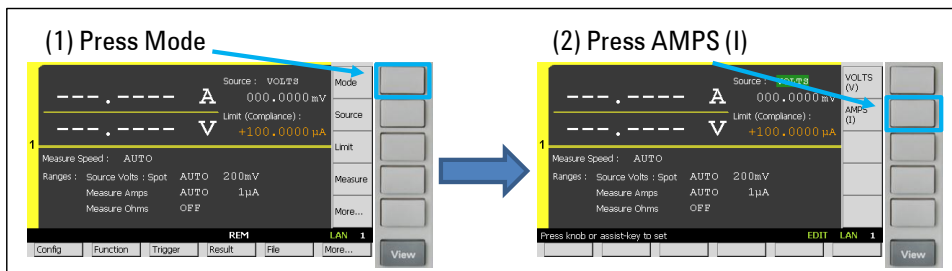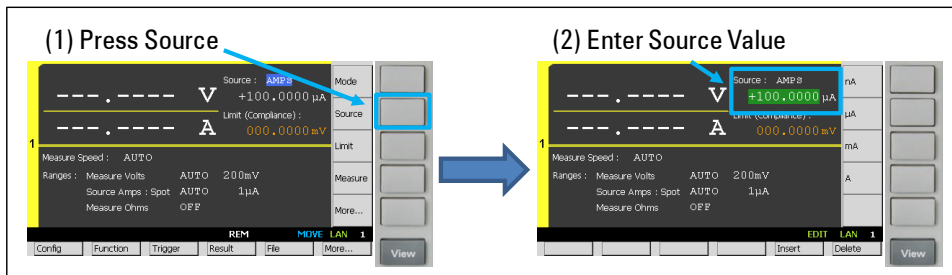

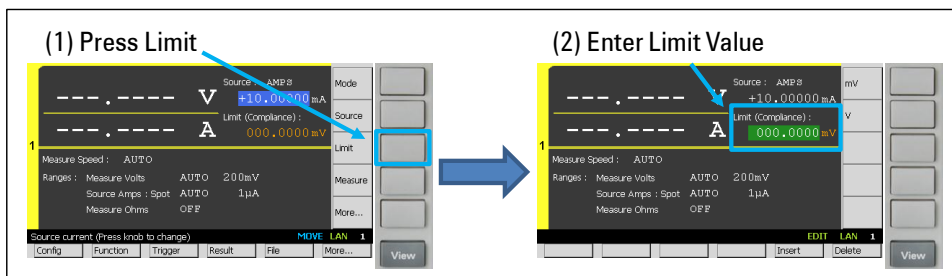
Figure 2. Timing chart for the single point measurement

Step 1.   Press [Mode] to edit the source function, and then select [AMPS (I)] to set the source function to the current source.

**Step 2.** Press [Source] to edit the source value, and then enter 10 mA to set the source value to 10 mA.

(1) Press Source   (2) Enter Source Value

Step 3. Press [Limit] to edit the limit value, and then enter 1 V to set the limit value to 1 V.

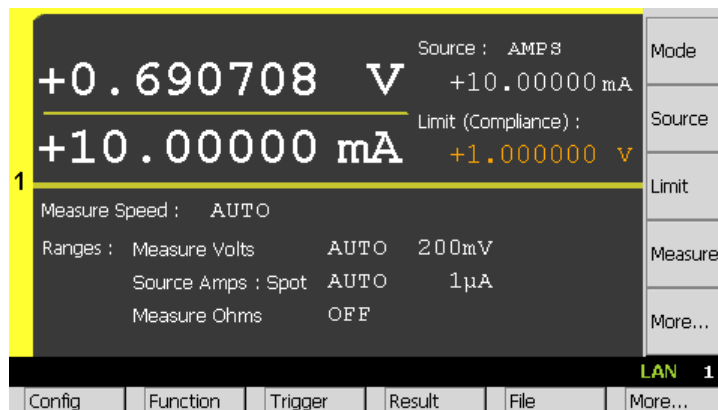(1) Press Limit   (2) Enter Limit Value

Step 4. Press [Measure] to configure the measurement parameter, and then select [VOLTS (V)] to set the measurement parameter to the voltage.

(1) Press Measure   (2) Press VOLTS (V)
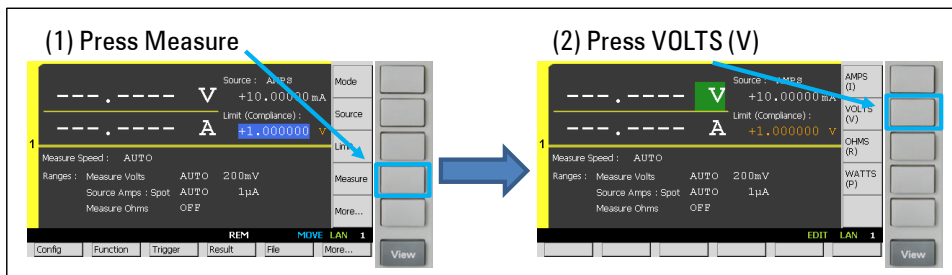
**Step 5.** Press [On/Off] to source the current.

Step 6. Press [Trigger] to perform a measurement. Now you can see the measurement result on the GUI of the B2901/02/11/12A as bellow.
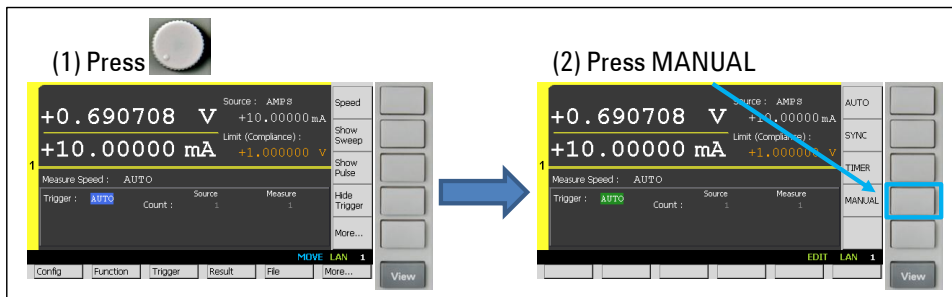
If you'd like to specify the measurement trigger delay time, take the following steps.

Step 7.   Press [More...] to change the keys shown in Assist keys, and then press [Show Trigger] to show Trigger Sub-Panel.

(1) Press More....

(2) Press Show Trigger
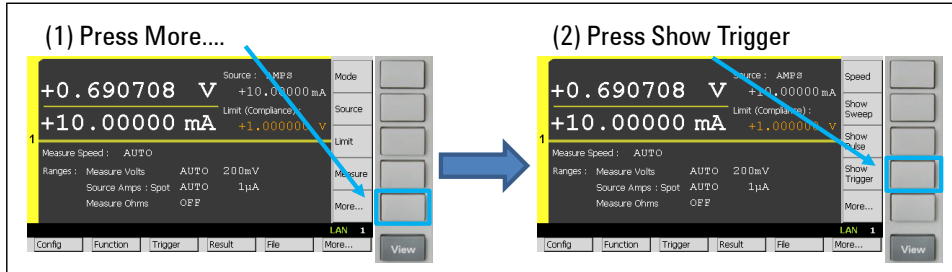
Step 8.   Press [knob] to edit the trigger type, and then select [MANUAL] to set the trigger type to MANUAL.

(1) Press [knob]

(2) Press MANUAL

Step 9.   Rotate [knob] to select the measurement trigger delay time and press [knob] to edit it. Then enter 200 ms to set the measurement trigger delay time to 200 ms.

(1) Rotate and press [knob] to select Measurement Trigger Delay Time

(2) Enter Measurement Trigger Delay Time
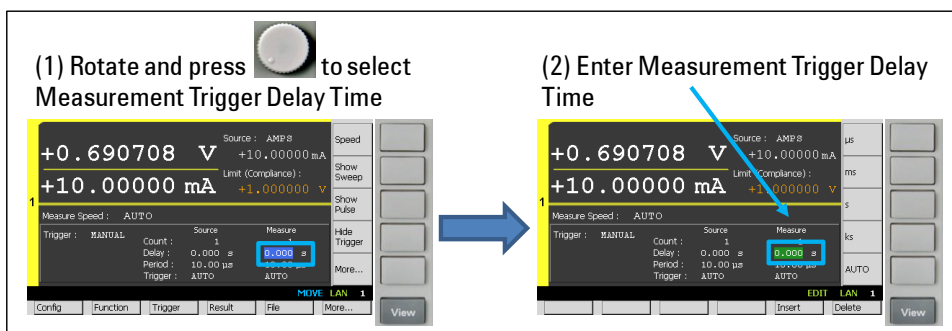
## *Optional set up for more flexible measurement*

In the default setting, the instrument selects the appropriate measurement speed and range automatically to get the fine accuracy. However, you can also specify these parameters on the GUI of the B2901/02/11/12A to meet a variety of the requirement to the measurement conditions.

For example, let's try to change the measurement speed to NORMAL to make a measurement more carefully. If you select NORMAL, the aperture time is set to 1 PLC. Here, PLC stands for power line cycle and the specified number of power line cycles is used per a measurement.

Step 1.   Press [Speed] to edit the measurement speed, and then select [NORMAL] to configure the measurement speed to NORMAL

(1) Press Speed   (2) Press NORMAL
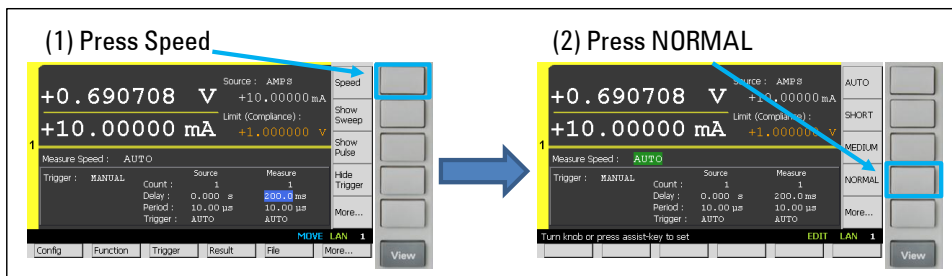
The parameters which configure the measurement range setting can be displayed in Range Sub-panel, although Trigger Sub-Panel is shown at this moment. In the default setting, the B2901/02/11/12A performs the voltage measurement using 200 mV voltage minimum measurement range with AUTO range operation. With AUTO range operation, the B2901/02/11/12A selects the proper range for the measurement with specified minimum measurement range so that you don't need to take care about it. To know how to change the measurement range setting, try to configure to use 2 V voltage minimum measurement range with AUTO range operation.

Step 2.   Press [Hide Trigger] to show range parameters, and then rotate [knob] to select the voltage minimum measurement range.

(1) Press Hide Trigger   (2) Rotate [knob] to select Voltage Minimum Measurement Range

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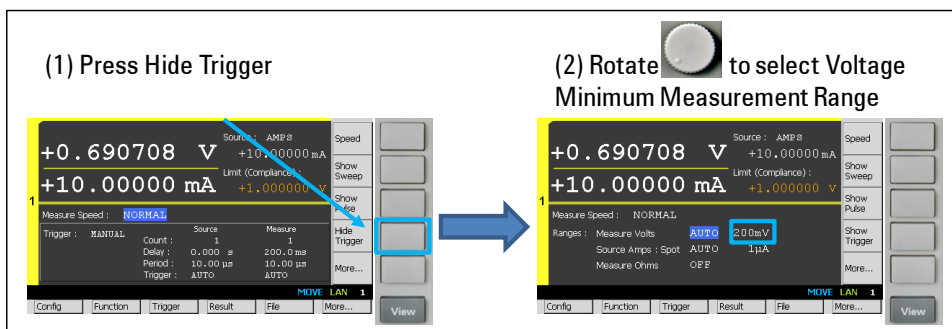
Step 3.   Press [knob] to edit the voltage minimum measurement range, and then select [2 V] to set it to 2 V.

(1) Press [knob]   (2) Press 2V
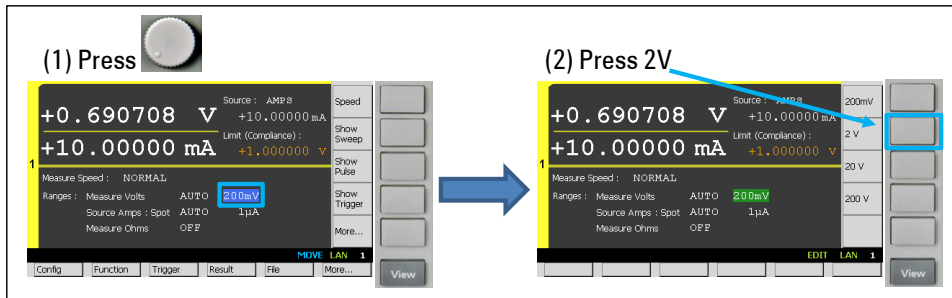
If you'd like to fix the measurement range, you can select FIXED range operation as below.

Step 4.   Rotate [knob] to select the voltage measurement range operation, and then press [knob] to edit it. Then

Select [FIXED] to set the voltage measurement range operation to FIXED.

(1) Rotate and press [knob] to select
Voltage Measurement Range Operation

(2) Press FIXED