

Shizuku USB Multimeter

PC Software UI Manual

V1.00.44

0.1 Version & Update

Due to the complexity of the features, software/firmware/hardware can vary frequently, this manual might not be applicable for the latest software/firmware/hardware release.

0.2 Revision History

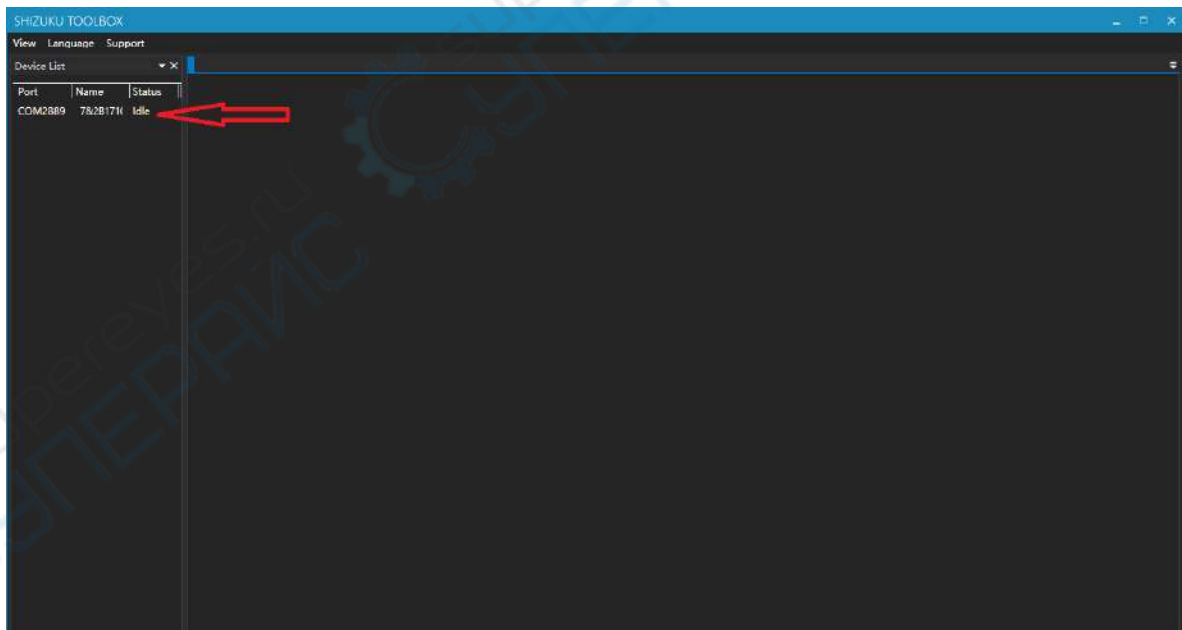
V1.00.44 20200815

1. Added manual for the load module.

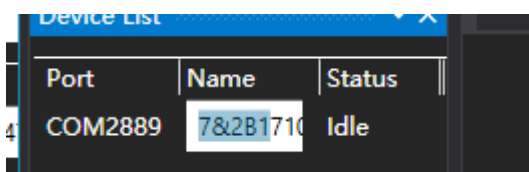
1.0 Connect the meter

Connect the meter and PC with a micro USB cable.

Open PC software, you should be able to see something like the following:

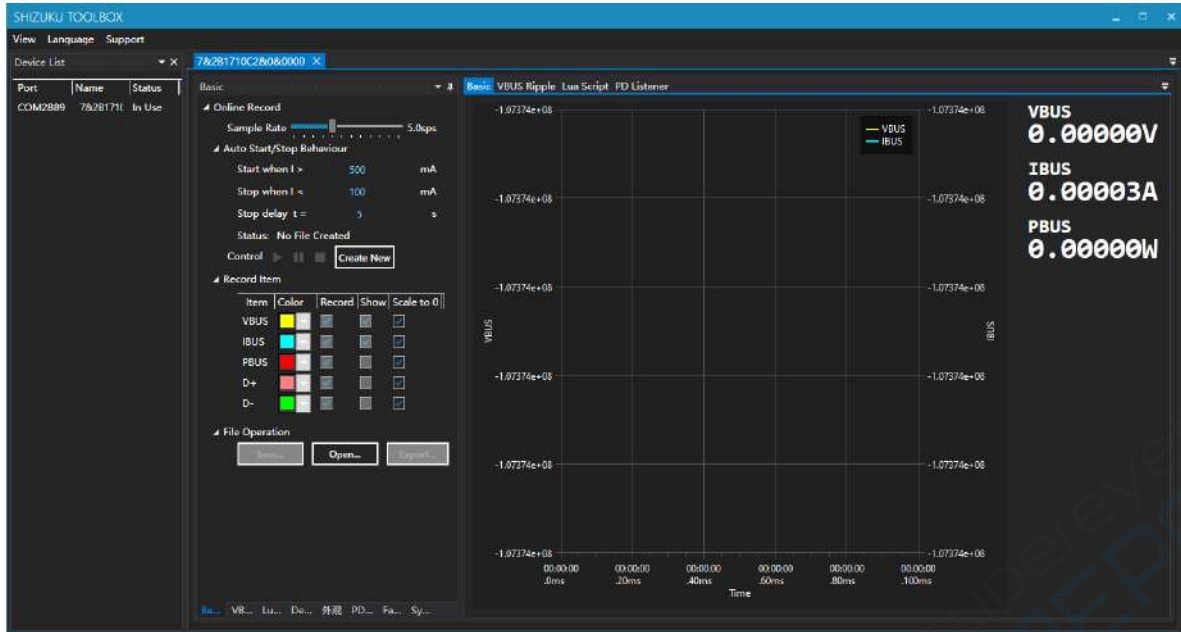


The red arrow points to the device we've just connected.



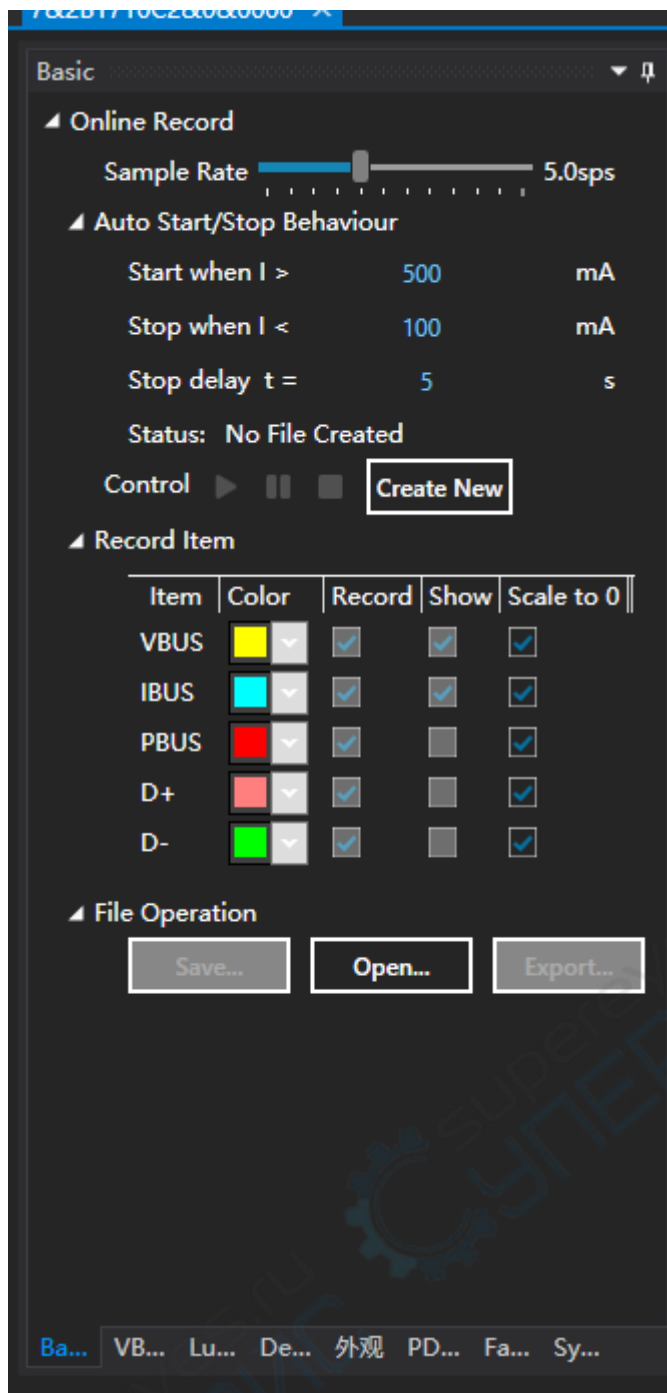
You can click the name of the meter to rename it, it's used to differentiate them when multiple meters are connected.

Double-click the device, the following should be shown:



Now we will introduce the features one by one:

2.0 Basic(Data Logging)

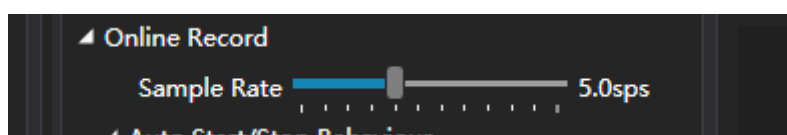


2.0.0 Create New

Click "Create New" to create a new record.

2.0.1 Sample Rate

Drag to adjust the sample rate of the record, range 0.2-1000sps.

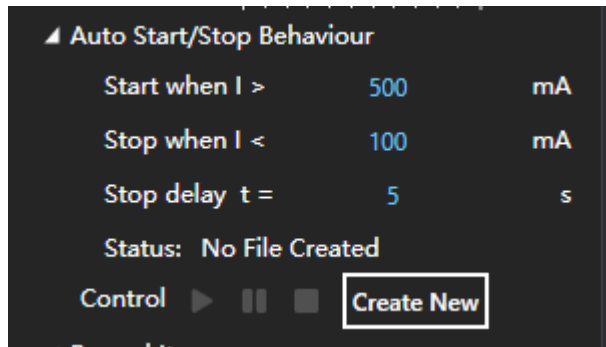


2.0.2 Auto Start/Stop Behavior

After clicking the start button, the record will not start immediately. The program waits for the current to go above `start current`, then it starts record. If you want the record to start immediately, you should set `start current` to 0.

You can specify a current, below which the record stops automatically. If this value is specified as 0, the record will never stop automatically.

To prevent instantaneous low current triggered stop condition unexpectedly, you can set "Stop Delay" parameter, only the current is below the stop threshold for a certain amount of time(Stop Delay t), the record will be stopped.



2.0.3 Record Items

To change the color of a record item, click the color combo box.

Check/Uncheck "Record" column to specify items to be recorded.

Check/Uncheck "Show" column to specify items to be graphed.

Check/Uncheck "Scale to 0" column to specify if a item is graphed relative to 0 (That is, force the lower bound of the graph to be 0).

▲ Record Item

Item	Color	Record	Show	Scale to 0
VBUS		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
IBUS		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
PBUS		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
D+		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
D-		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.0.4 File Operation

Click "Save..." to save the current opened record as file (The record should be stopped).

Click "Open..." to open existing record files (Including offline record created by meter itself).

Click "Export..." to export the current opened record as CSV file to process the data with other application.

2.0.5 Online record typical procedure

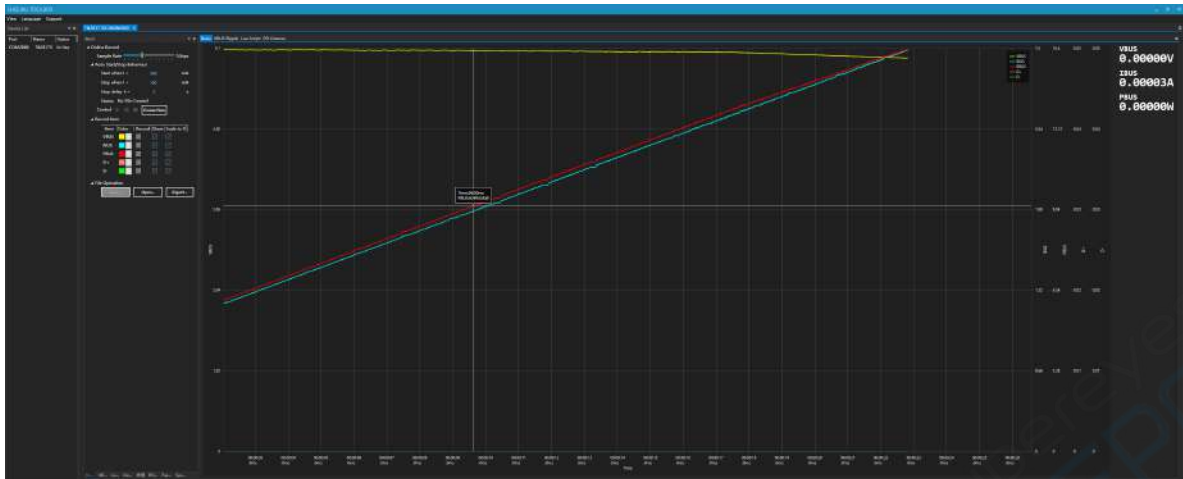
1. Click "Create New".
2. Adjust Sample Rate, Auto Start/stop Parameters to proper values, check items you want to record.
3. Click green start button.
4. After manual/auto stop, analysis/save/export the record.

2.0.6 Graph Area

Click and hold some point on the graph, to view detailed value at that point.

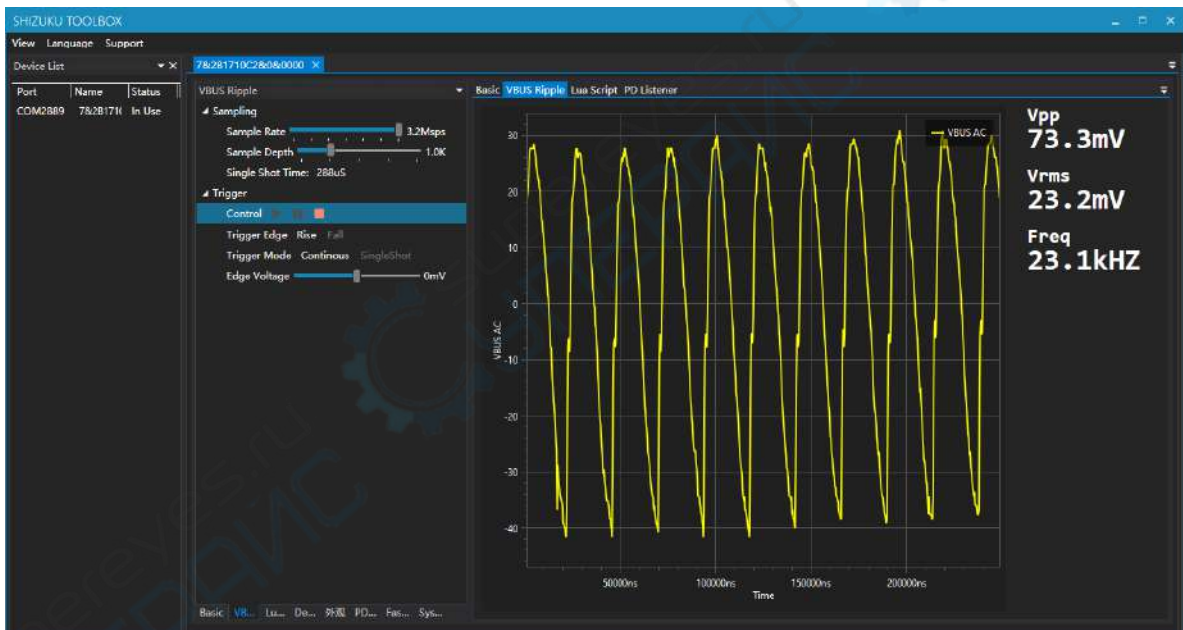
Right click and drag to move the graph horizontally.

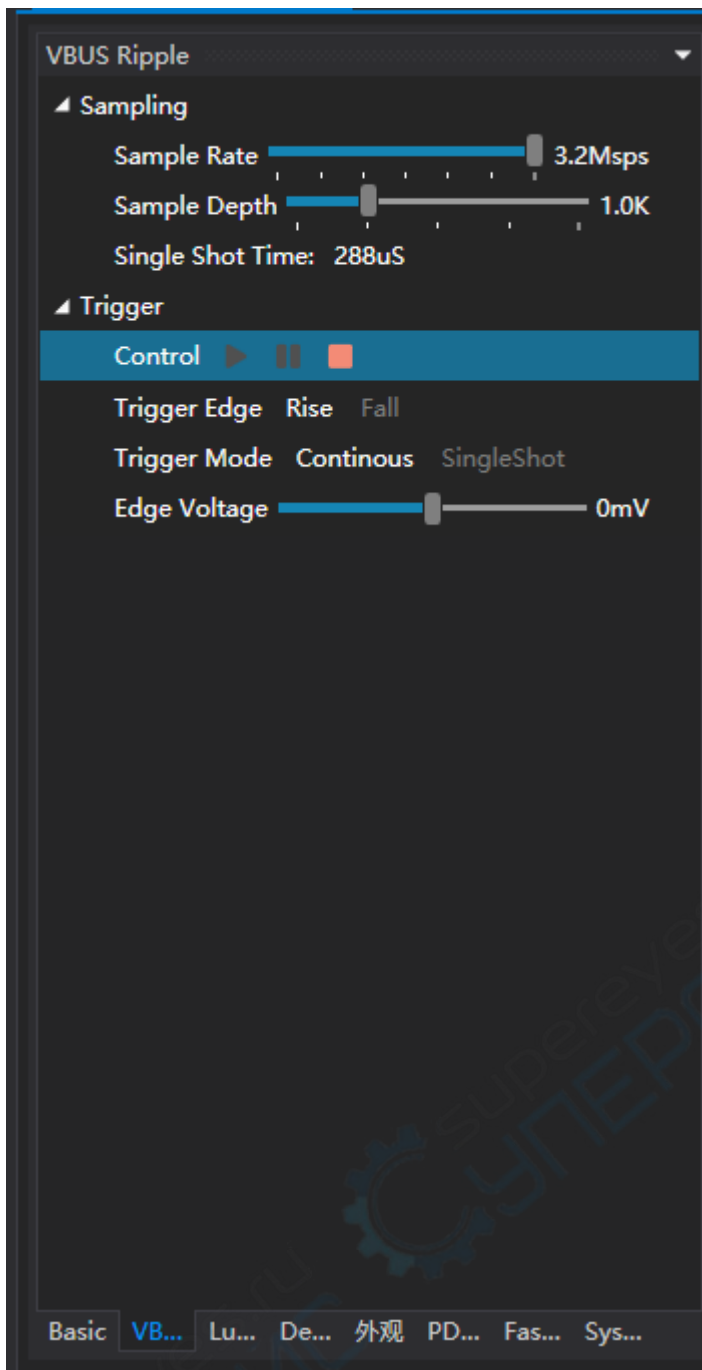
Use the wheel to zoom in/out.



2.1 VBUS Ripple

View AC-coupled voltage on VBUS:





2.1.1 Sample Rate

Drag to adjust the sample rate, range 0.1-3.2Msps.

2.1.2 Sample Depth

Drag to adjust the sample depth (How many points are contained per sample).

2.1.3 Trigger Edge

Click to select the trigger edge.

2.1.4 Trigger Mode

Click to select the trigger mode.

2.1.5 Edge Voltage

Drag to specify the edge voltage.

2.1.6 Graph Area

Graph area is on the right side of the screen.

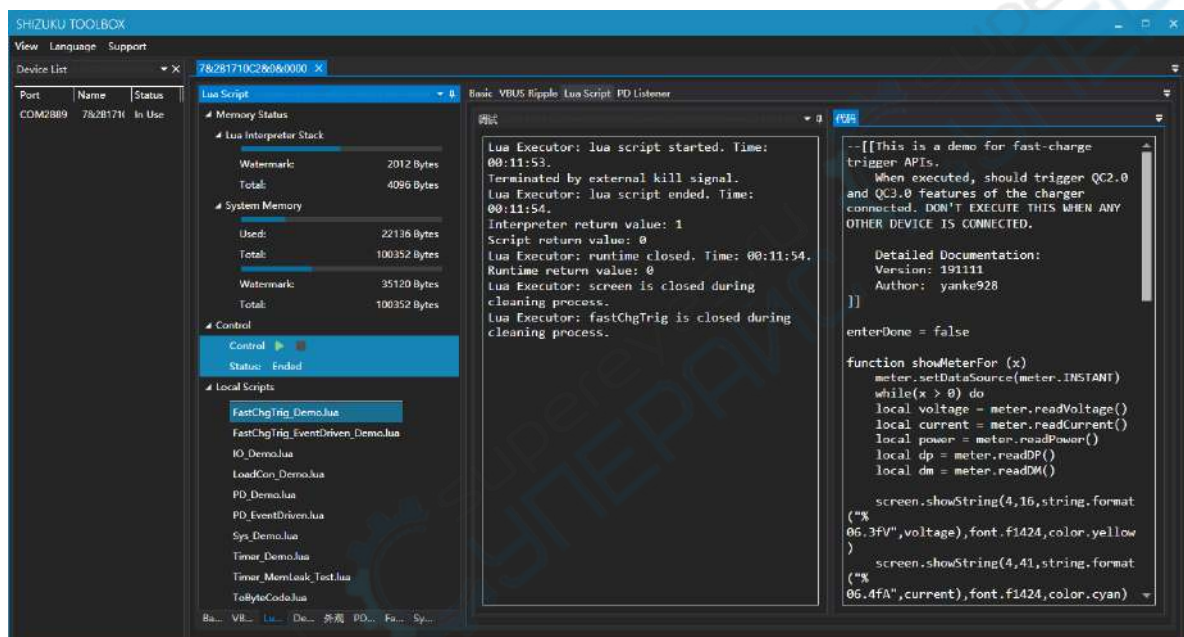
Click and hold a point on the graph to see precise value on that point.

Right click and drag to move the graph horizontally.

Use the wheel to zoom in/out.

2.2 Lua Script

This article only describes lua related features on the software, for more information, please visit:
TODO TODO TODO



2.2.1 Memory Status

Real-time memory status is shown here.

2.2.2 Local Scripts

Here local scripts are listed, example codes are stored by default.

2.2.3 Debug

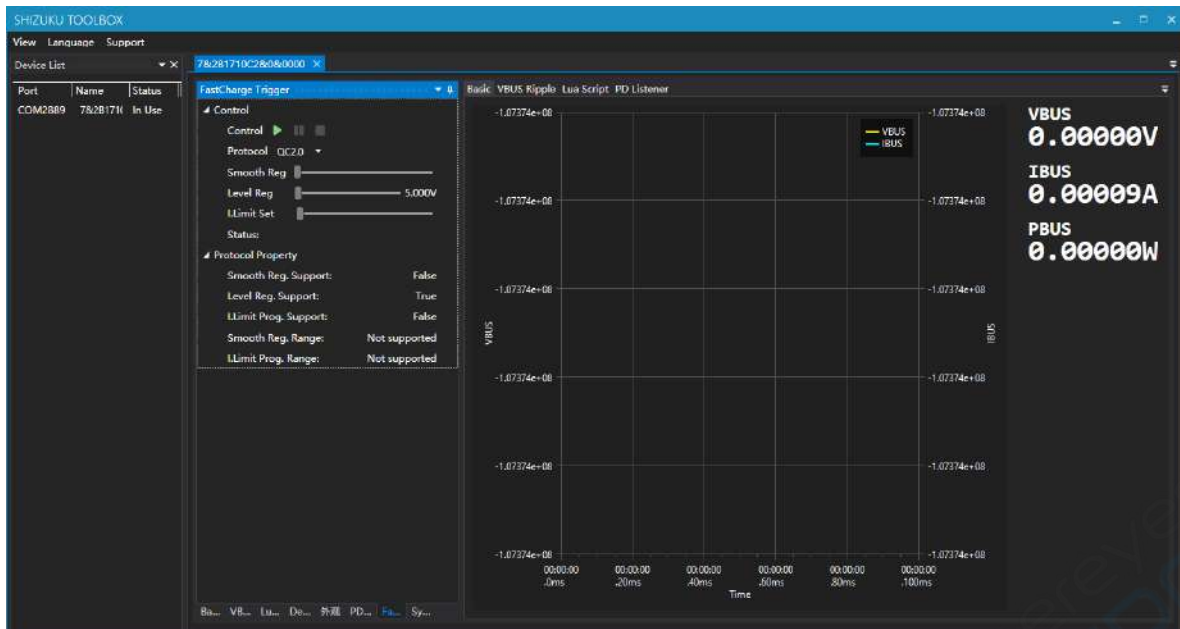
This is the output terminal. Outputs of Lua program, Lua executor, Lua Interpreter are all here.

2.2.4 Code

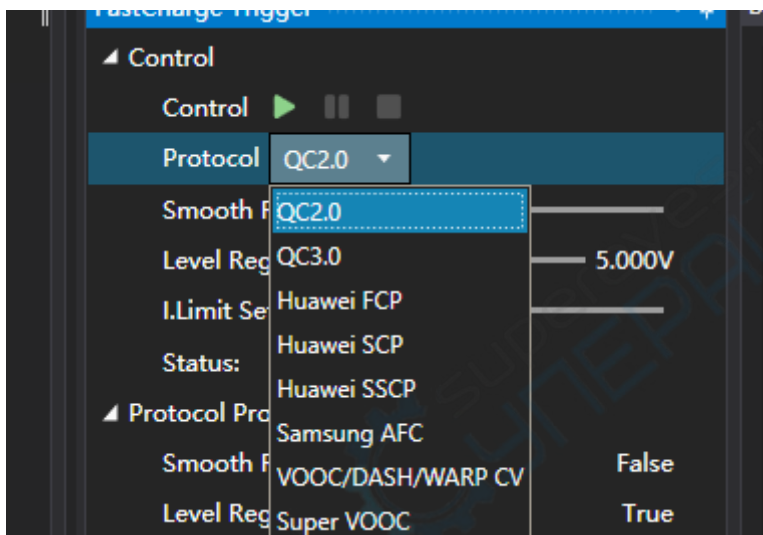
Currently loaded code, click green button to download and execute.

2.2 FastCharge Trigger

You can use fast-charge trigger feature on the PC software as well as the meter itself.

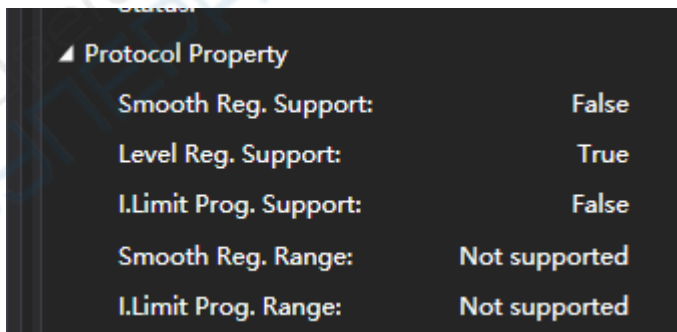


2.3.1 Select the protocol



Select the protocol being triggered here.

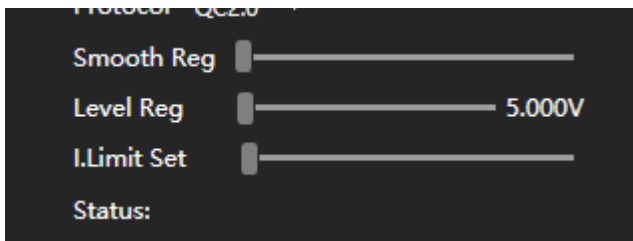
2.3.2 Protocol Properties



Here properties of the protocol you've selected are shown.

2.3.3 Adjustment

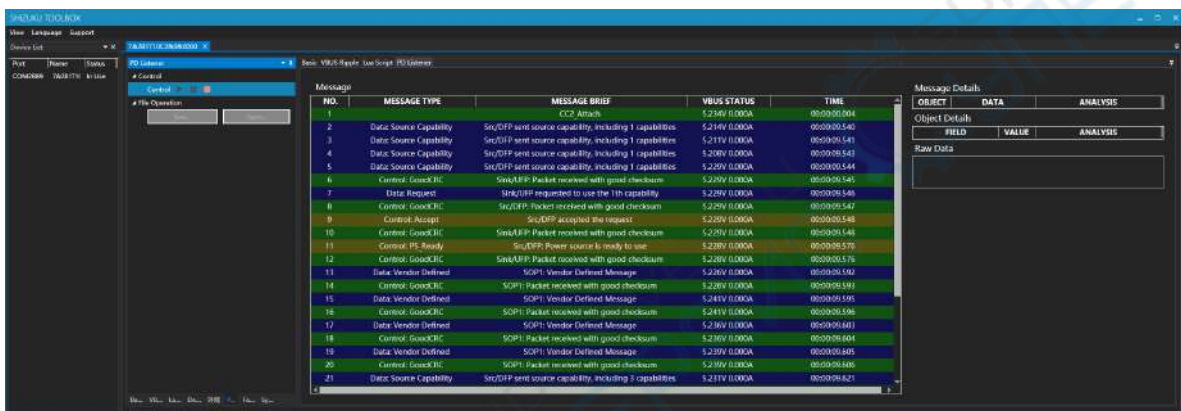
After click the green start button, you can make adjustments on voltage and current limit:



2.4 PD Listener

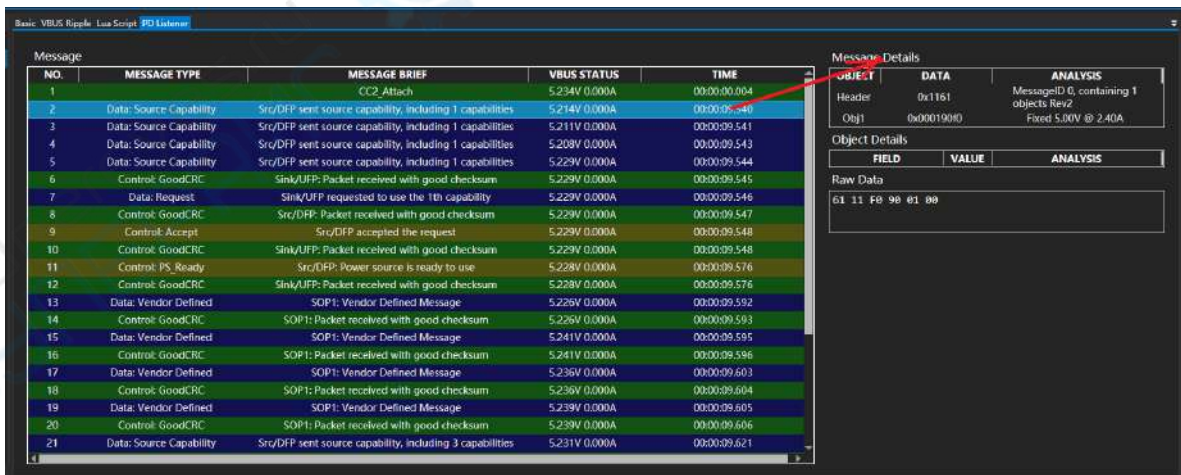
To use listener, please follow the following procedure strictly:

1. Make sure PD communication switch is on the "ON" position.
2. Connect the charger and the meter with a C-C cable.
3. Click green start button.
4. Use another C-C cable to connect the other Type-C port to your being tested device.
5. **If you expected some message to appear but it didn't, you might need to flip one of the Type-C plug connected on the meter.**



2.4.1 Message Details

Click a message and you'll see message details on the right side:



2.4.2 Object Details

Click a data object and you'll see object details on the bottom:

Message Details

OBJECT	DATA	ANALYSIS
Header	0x1161	MessageID 0, containing 1 objects Rev2
Obj1	0x000190f0	Fixed 5.00V @ 2.40A

Object Details

FIELD	VALUE	ANALYSIS
Type	0x0	Fixed
Dual-Role Power	0b	False
USB Suspend Supported	0b	False
Unconstrained Power	0b	False
USB Communications Capable	0b	False
Dual-Role Data	0b	False
Unchunked Extended Messages Supported	0b	False
Peak Current	0x0	100% Ioc
Voltage	0x64	5000mV
Max Current	0xF0	2400mA

Raw Data

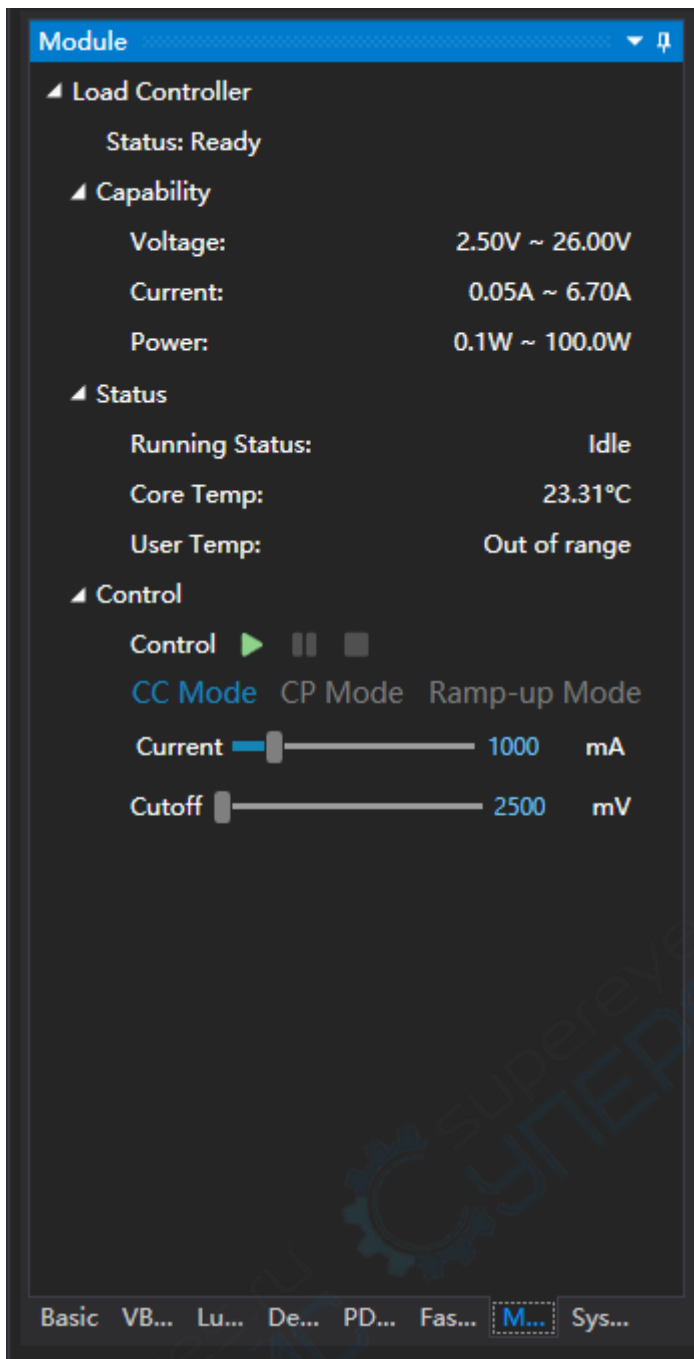
```
61 11 F0 90 01 00
```

2.4.2 File Operations

You can save and open PD listener stream:



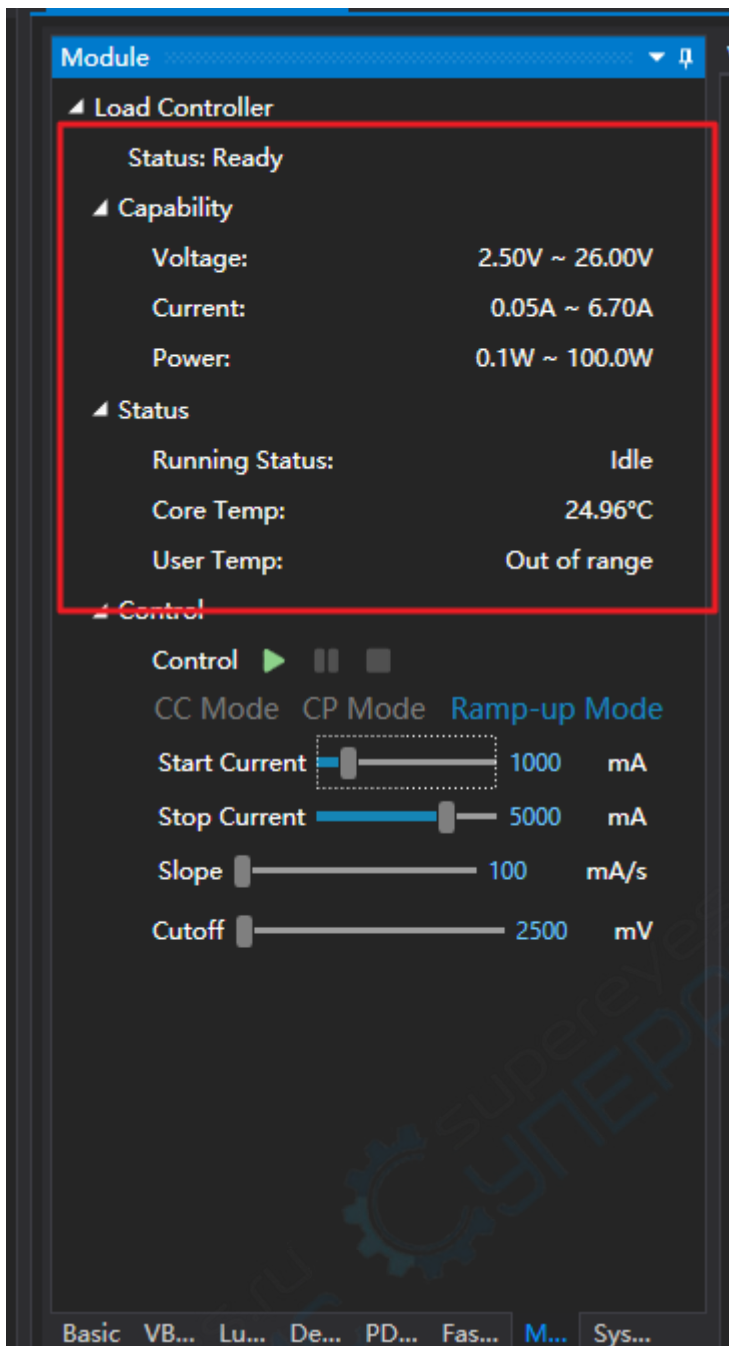
2.5 Modules



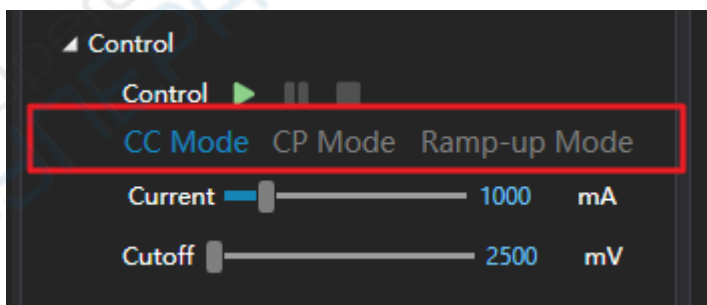
The module panel contains the expansion modules accessible from the software.

2.5.1 Load Controller

You can operate `load` modules mounted on the meter here.



Capabilities and the status of the module is shown above.

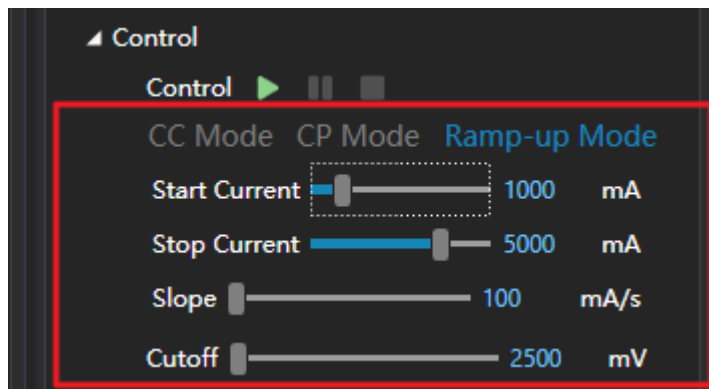


To start the load, you select the load mode here first.
Usages for different modes are stated below:

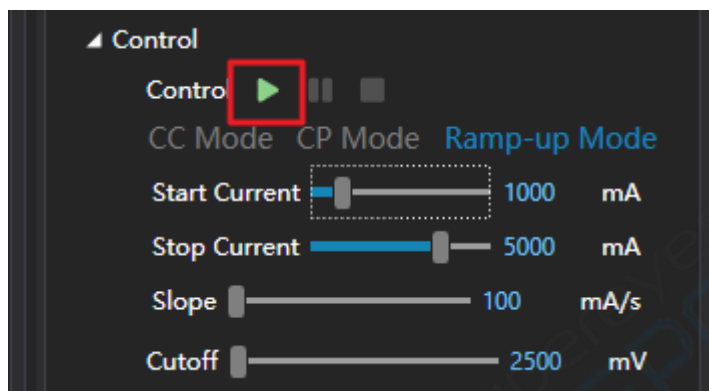
CC Mode: Constant current mode, usually used for aging or capacity tests.

CP Mode: Constant power mode, usually used for aging or capacity tests.

Ramp-Up Mode: In this mode, the load is increased gradually, from **Start Current**, to **Stop current**, with specified slope **Slope**. This is usually used to determine the maximum load capability of a power source. Apply this combined with graphing yields a V-I graph of the power source.



Then, you set the parameters for your mode (Different modes have different parameters). You can either drag the scrollbar or edit the value in the textbox directly.

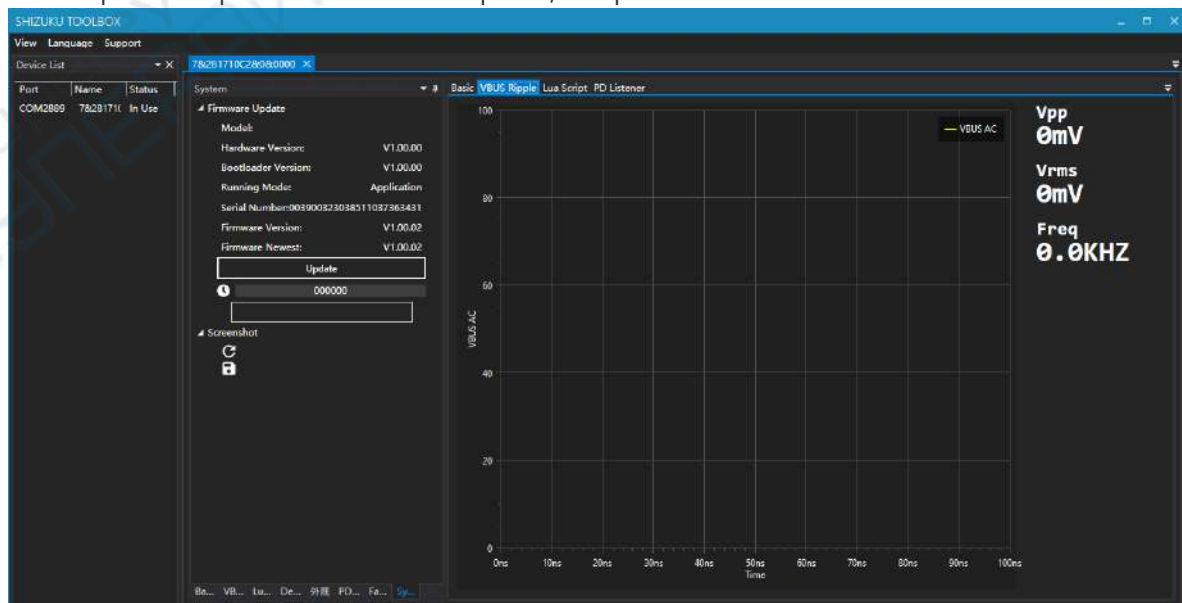


Finally, you click the start button.

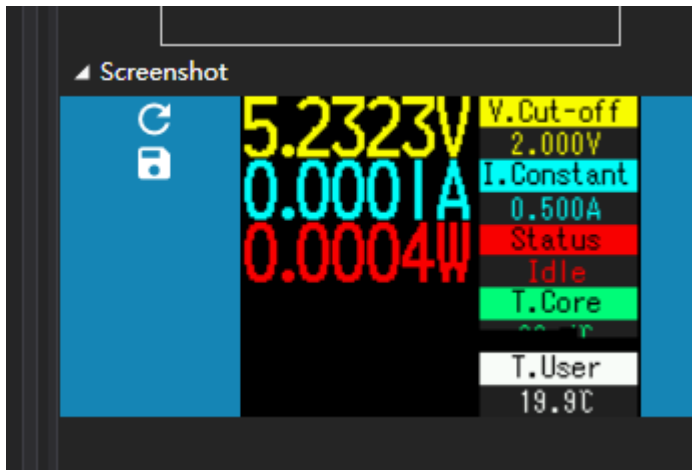
2.6 System

2.6.1 Firmware Update

Click "Update" to perform a firmware update, this process should take around 20 seconds.



2.6.2 Screenshot



Click refresh button to capture new screenshot, click save button to save the screen shot.

Notice that some UI might not be able to be captured (Mostly graphing like VBUS oscilloscope, VBUS & IBUS graph), as they utilizes different graphic mode.

