FNB38 manual

(V1.0)

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一、 Overview

FNB38 USB tester is a high-reliability, high-security USB voltage and current detection meter and mobile communication terminal fast charge trigger. With a 1.44-inch TFT LCD display and integrated USB-A, Micro-USB, Type-C interfaces. Use an external 16-bit ADC, PD protocol physical chip. It can be used to measure the power supply or power consumption of products such as USB interfaces, mobile phone chargers, U disks, etc .; it can be used to measure the charging power of mobile phones, the input and output of mobile power;

This instruction manual includes relevant safety information, warning tips and solutions to common abnormal conditions. Please read the contents carefully and strictly observe all warnings and precautions.

二、 Pay attention to safety matters

1. Do not connect a power supply exceeding 24V to the tester.

2.The USB-A input port of FNB38 supports high-power input (such as 20V * 5A = 100W). The USB-A output port can withstand 5A current for a short time. The Micro-USB input port does not support large current and high power. More than 2.5A. When using high current and high power, it is recommended to use Type-C interface output.

3.HID-USB interface is only used for data transmission.

4.When using high voltage and high power work, the temperature of the tester rises. Please be careful to prevent burns.

三、 Appearance and structure diagram (see Figure 1)

1.USB-A input

2.Type-C input

3.Micro-USB input

4.Type-C Output

5.USB-A Output

6. >> button, page / select button

7.<< button, page / select button

8.OK key, function key

9.HID-USB data transmission

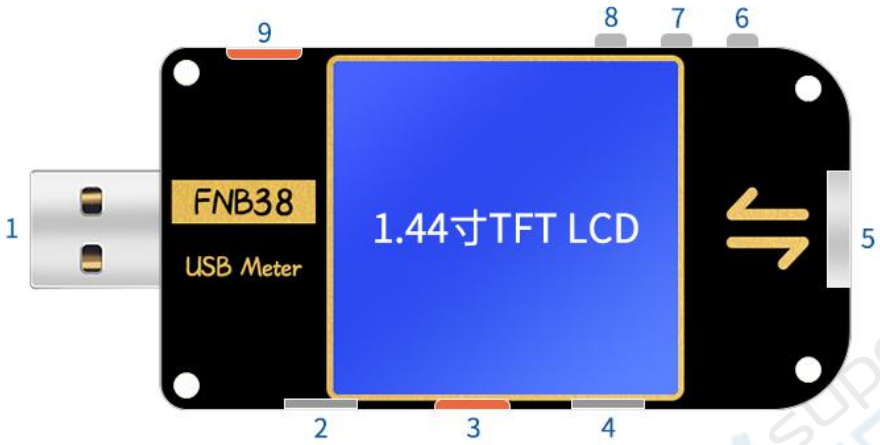


figure 1

四、 Technical index

Accuracy: ± (a% (‰) reading + word count)

index	Range	Resolution	Accuracy
Input voltage	4～24V	0.1mV	±(0.2‰+2)
Input Current	0～5A	0.1mA	±(0.5‰+2)
input power	0～120W	0.1mW	±(0.5‰+2)
Load Equivalent Internal Resistance	0～9999.9Ω	0.1mΩ	±(0.5‰+2)
D + / D- voltage	0～3.3V	0.01V	±(1.0%+2)
Equipment temperature	℃	1℃	±(1.2%+3)
	℉	1℉	±(1.2%+4)
capacity	0～99999mAh	0.0001mAh	for reference
energy used	0～9999.99Wh	0.00001Wh	for reference
Cable internal resistance	0～9999.9Ω	0.0001Ω	for reference
Equipment runtime	999 hours 59 minutes 59 seconds	1 second	5 seconds / hour
Record time	999 hours 59 minutes 59 seconds	1 second	5 seconds / hour

五、 Function page operation instructions

1、 Close-up page (see Figure 2)

Figure 2

description

Only the three key parameters of voltage, current and power are displayed. → indicates the current direction. This page changes the display orientation.

Instructions

(1) << >> key

Short press: Turn the page.

(2) OK key

Long press: Switch the screen display direction.

2、 Capacity / power consumption observation page (see Figure 3)

Figure 3

description

FNB38 supports 5 sets of capacity / power consumption records, and offline voltage and current curve records.

Run:XXX:XX:XX Represents the tester's startup time, without saving, restarts the timer after restart.

Rec:XXX:XX:XX It indicates the valid time of the tester's recording capacity / power consumption. It is saved offline and will not be lost after power failure.

Time It shows the voltage and current offline curve recording time. This time can be set by Cap / Ele Limit, and Rec:XXX:XX:XXRecord validity time for association or disassociation:

When Cap / Ele Limit is ON, the effective time of recording is limited by the time of offline curve recording. For example, Time is set to 1h. After recording for 1h, offline curve recording is completed, and the capacity / power consumption is no longer recorded. It is OFF. After the offline curve recording is completed, the capacity / power consumption continues to be recorded. Cap / Ele Limit is OFF by default and can be set by the user.

Thres Indicates the recording current threshold.When the Auto Rec Switch is ON, Auto is displayed. This value is meaningful, that is, when the current is greater than Thres, the capacity / power consumption / offline curve is automatically recorded; if the current is less than Thres, no recording is made.

When Auto Rec Switch is OFF, Manual is displayed, and the Thres value is meaningless. Recording on / off is determined by the OK key. After recording is turned on, all records are recorded regardless of the current.

Memor Indicates the remaining recording capacity of the offline curve. When it is 0%, the recording is completed.

Grp:1/5 Indicates the record group.

ON/OFF Indicates the current recording status on / off.

Instructions

(1) << key

Short press: page turning;

(2) Long press: switch to capacity / power consumption list (see Figure 4) (see the following description).

(3) >> key

Short press: page turning;

(4) Long press: switch record group.

(5) OK key

Short press: When set to manual recording, recording can be paused / started, and it is invalid when set to automatic recording;

Long press: Clear the current group record data, including capacity, power consumption, and record valid time.

3. Capacity / power consumption list (see Figure 4)

Figure 4

description

To facilitate the comparative analysis of multiple sets of capacity / power consumption data, you can switch to the capacity / power consumption list (Figure 4).

Instructions

(1) << key

(2) Long press: Switch to the capacity / power consumption observation page (see Figure 3).

(3) >> key

Short press: switch observation group.

(4) OK key

Short press: When set to manual recording, recording can be paused / started, and it is invalid when set to automatic recording;

Long press: Clear the current group record data, including capacity, power consumption, and record valid time.

Method for clearing recorded data：(note)

(1) Press the OK button on the pages of Figure 3 and Figure 4 to clear the capacity, power consumption, and recording time of each group.

(2) Offline record curve page (as shown in Figure 8), click OK, pop-up clear confirmation window, you can clear the offline record curve separately.

(3) Select Clear all Records in the settings to clear all records (5 sets of capacity / power consumption / recording time and voltage and current offline recording curves). (Enter the follow-up instructions of the setting method)

4.Fast charge identification page (see Figure 5)

Figure 5

description

This page is used to observe the current charging protocol, D + / D- voltage.

Wake Indicates automatic wake-up current, current change≥When Wake, exit from standby.

Bright Represents the current screen brightness.

Instructions

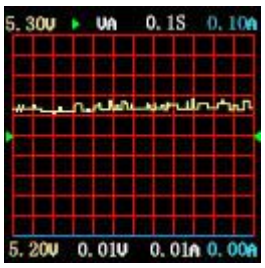
(1) << >> key

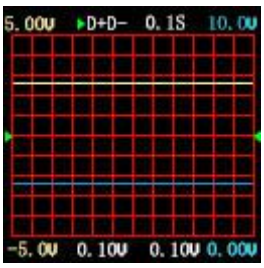
Short press: page turning;

(2) OK key

Short press: release D + / D-. When the fast charge trigger state (except the PD protocol), D + / D- can be released to return to the non-trigger state.

5. Curve display page (as shown in Figures 6, 7, 8)





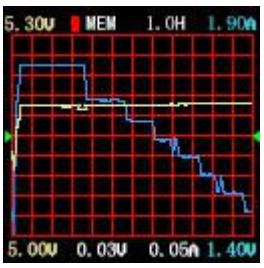


Figure 6 Figure 7 Figure 8

description

Figure 6 is the real-time curve of voltage and current.

Figure 7 shows the data D + and D- real-time curves.

Figure 8 shows the offline recording curve of voltage and current.

Instructions

(1) << >>key

Short press: page turning;

(2) Long press: Decrease / increase time base. (Only pages in Figures 6 and 7).

(3) OK key

Short press: screenshot curve; (Figures 6 and 7 are valid);

The curve clear window pops up; (Figure 8 is valid);

Long press: switch display curve.

6.Cable measurement page (see Figure 9)

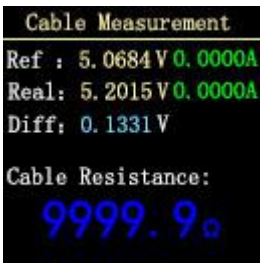


Figure 9

description

FNB38 uses the voltage drop method to measure the internal resistance of the cable. It needs to be used with a constant current load.

Instructions

(1) << >>key

(2) Short press: page turning;

(3) OK key

Short press: Record the reference value. Long press: switch display curve.

Measurement steps

(1) Connection method: charger + FNB38 + constant current load (current adjusted to about 1A), record the reference value.

(2) Connection method: charger + cable + FNB38 + constant current load (current adjusted to about 1A), the system automatically calculates the cable internal resistance.

7.Fast charge detection and trigger page (see Figure 10)

Figure 10

description

Fast charge detection, fast charge trigger, short press OK to enter selection.

7.1 Fast charge protocol detection

After selecting Protocol detection protocol detection, press OK shortly to pop up DANGEROUS !!! (see Figure 11). At this time, if you press the OK button for a long time, it enters the state of automatic detection of the fast charge protocol; if you press the OK button shortly, the detection is canceled.

After the test is completed, short press the OK key to exit the test interface; long press the OK

key to repeat the test steps and retest.

Figure 11

Note: Do not connect any electrical appliances during the testing process, otherwise the high voltage triggered during the testing process may burn the electrical appliances!

7.2 QC2.0 trigger

Select QC2.0, press OK shortly to enter the QC2.0 trigger page (as shown in Figure 12), Trigger Failure will display Trigger Failure!

Figure 12

Instructions

(1) << >>key

Short press: Switch the QC2.0 trigger voltage.

(2) OK key

Long press: Exit the current page. (Still triggering).

7.3 QC3.0 trigger

Select QC3.0, press OK shortly to enter the QC3.0 trigger page (as shown in Figure 13), Fail Failure will display Trigger Failure!

Figure 13

Instructions

(1) << >>key

Short press: Decrease / increase QC3.0 trigger voltage.

(2) OK key

Long press: Exit the current page. (Still triggering).

7.4 Huawei FCP trigger

Select Huawei FCP and press OK to enter the Huawei FCP trigger page (see Figure 14). If the entry fails, Trigger Failure! Will be displayed.

Figure 14

Instructions

(1) << >>key

Short press: Switch the FCP trigger voltage.

(2) OK key

Long press: Exit the current page. (Still triggering).

7.5 Huawei SCP trigger

Select Huawei SCP and press OK key to enter the Huawei SCP trigger page (as shown in

Figure 15). Trigger Failure will display Trigger Failure!

Figure 15

Instructions

(1) << >>key

Short press: Decrease / increase SCP trigger voltage.

(2) OK key

Long press: Exit the current page. (At the same time exit the SCP trigger state).

7.6 Samsung AFC trigger

Select Samsung AFC, press OK shortly to enter the Samsung AFC trigger page (as shown in Figure 16), Fail Failure will display Trigger Failure!

Figure 16

Instructions

(1) << >>key

Short press: switch AFC trigger voltage. (When the charger does not support trigger voltage, the voltage will return to 5V)

(2) OK key

Long press: Exit the current page. (Still triggering).

7.7 PD protocol trigger (requires connection to Type-C interface)

Select PD protocol, short press OK button to count into PD protocol trigger page (as shown in Figure 17). After the trigger fails, the page will not display voltage and other information, long press OK button to exit.

Figure 17

PD2.0 Instructions

(1) << >>key

Short press: Select PD trigger voltage.

(2) OK key

Long press: Exit the current page.

PD3.0 Instructions

(1) << >>key

Short press: Select trigger voltage. When the PPS is triggered, the voltage is lowered / raised. OK button

(2) OK key

Short press: When the PPS trigger is selected, the step voltage unit is changed.

Long press: Exit the current page.

Note: PPS trigger requires continuous communication to maintain, so the charger will restart for a period of time after exiting the interface.

8.System information and setting page (see Figure 18)

Figure 18

description

Press and hold << to power on, FNB38 enters the system information and settings page.

VX.X Indicates the current firmware version.

SN:XXXXXX Indicates the unique serial number of the device.

Run:XXXXXX Represents the number of device runs.

Instructions

(1) << >>key

Short press: switch setting items.

(2) OK key

Short press: The setting window pops up.

Long press: Exit the setting page, and the device starts from the LOGO page.

Setting item description

	The screen displays brightness settings, ranging from 1-20 levels.
	OK key: short press: switch green dot position. Where is the green dot, which corresponds to which operational block. Long press: Effective when the green dots are NO / YES. << >> key: short press: when the green dot is at the maximum grid (20Level, not explained later), change the parameter.
	Standby screen display brightness setting, the range is 0-20 level, when it is 0, the backlight is turned off.
	OK key: short press: switch green dot position. Where is the green dot, which corresponds to which operational block. Long press: Effective when the green dots are NO / YES. << >> key: short press: when the green dot is on the largest grid, change the parameter.

	Standby time, ranging from 0-30 minutes. Does not stand by when OFF.
	OK key: short press: switch green dot position. Where is the green dot, which corresponds to which operational block. Long press: Effective when the green dots are NO / YES. << >> key: short press: when the green dot is on the largest grid, change the parameter.

	Automatic recording switch: ON: recording when the current exceeds the threshold; OFF: The current threshold is invalid, and recording is started and stopped by pressing the button.
	OK key: short press: switch green dot position. Where is the green dot, which corresponds to which operational block. Long press: Effective when the green dots are NO / YES. << >> key: short press: when the green dot is on the largest grid, change the parameter.
	Current threshold: effective when the automatic recording switch is ON, current ⩾ this value, recording voltage and current equivalent.
	OK key: short press: switch green dot position. Where is the green dot, which corresponds to which operational block. Long press: Effective when the green dots are NO / YES. << >> key: short press: when the green dot is on the largest grid, change the parameter.
	Recording time: curve recording time, no recording when NO, range is 0-9 hours, recording time interval is calculated automatically. (Such as one hour, one point every 10 seconds)
	OK key: short press: switch green dot position. Where is the green dot, which corresponds to which operational block.

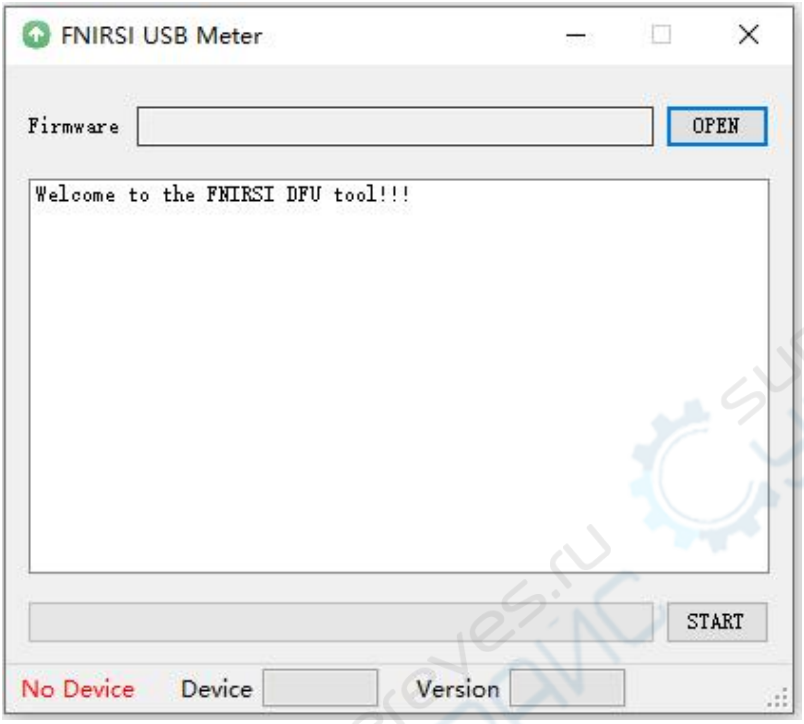
	Long press: Effective when the green dots are NO / YES. << >> key: short press: when the green dot is on the largest grid, change the parameter.
	Capacity / power consumption record limit: When OFF, the capacity / power consumption is not limited by the recording time; When ON, the recording time is up and the capacity / power consumption is no longer recorded.
	OK key: short press: switch green dot position. Where is the green dot, which corresponds to which operational block. Long press: Effective when the green dots are NO / YES. << >> key: short press: when the green dot is on the largest grid, change the parameter.
	Data transfer switch.
	OK key: short press: switch green dot position. Where is the green dot, which corresponds to which operational block. Long press: Effective when the green dots are NO / YES. << >> key: short press: when the green dot is on the largest grid, change the parameter.

	Temperature display symbol: ° C / ° F.
	OK key: short press: switch green dot position. Where is the green dot, which corresponds to which operational block. Long press: Effective when the green dots are NO / YES. << >> key: short press: when the green dot is on the largest grid, change the parameter.

	System language: Chinese / English.
	OK key: short press: switch green dot position. Where is the green dot, which corresponds to which operational block. Long press: Effective when the green dots are NO / YES. << >> key: short press: when the green dot is on the largest grid, change the parameter.
	Automatic wake-up current: When the current changes ⩾ this value, it exits the standby state.
	OK key: short press: switch green dot position. Where is the green dot, which corresponds to which operational block. Long press: Effective when the green dots are NO / YES. << >> key: short press: when the green dot is on the largest grid, change the parameter.
	Clear all records: including voltage and current curves, 5 sets of capacity / power consumption record values.
	OK key: short press: switch green dot position. Where is the green dot, which corresponds to which operational block. Long press: Effective when the green dots are NO / YES.
	Restore factory settings: This setting does not clear the recorded values.
	OK key: short press: switch green dot position. Where is the green dot, which corresponds to which operational block. Long press: Effective when the green dots are NO / YES.

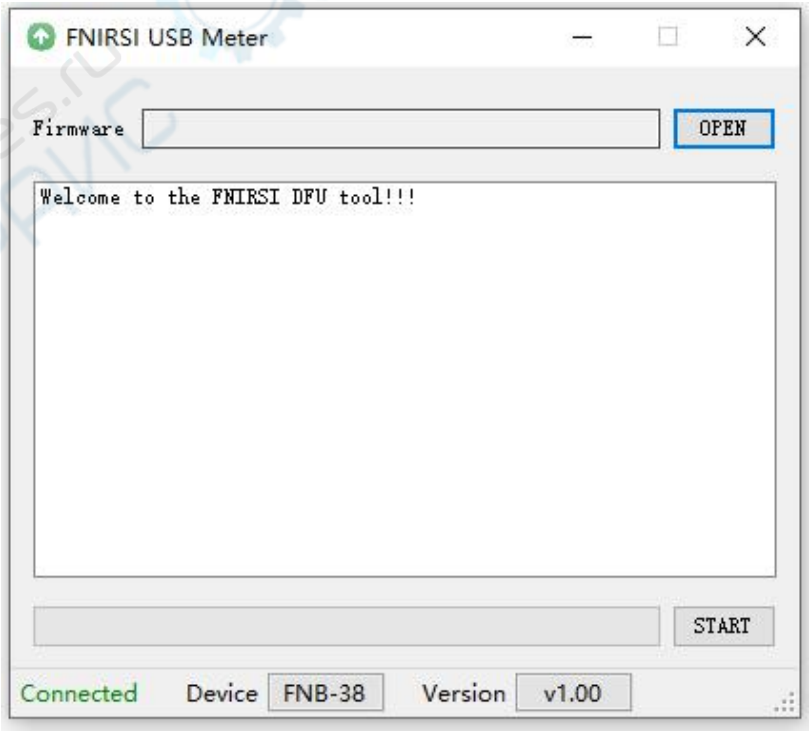
六、 Upgrade firmware instructions

1、 Open the FNIRSI USB Meter upgrade tool.

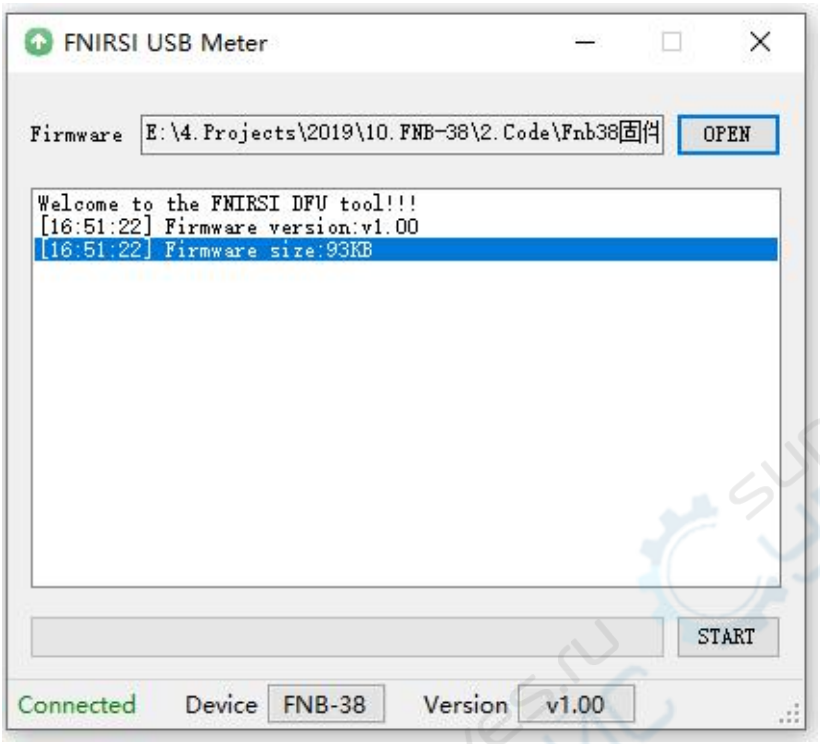


2. When FNB38 is off, press and hold the OK key to access the HID-USB interface.

Shows connected, device model, device firmware version.



3. Click OPEN and select Upgrade Firmware.



4.Click START to start upgrading the firmware. After the upgrade is completed, FNB38 will restart automatically.