日期	版本	变更内容
2026.03.02	V1.1	封面、P4、P5、P6、P7、P8
2026.03.17	V1.2	封面、P9:UI界面

FNIRSI

DLA-16/32 (Plus)

Logic Analyzer User Manual V1.2

※Please read this manual carefully before using the product and keep it properly.

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1. Precautions

- When testing a high-voltage system, use a USB isolator to ensure proper isolation. Failure to do so may damage the device or the computer. Any resulting loss or damage is the responsibility of the user.
- The voltage of the system under test must not exceed the device' s rated input voltage. Exceeding this limit may cause permanent damage to the device.
- To take full advantage of USB 3.0 high-speed performance, the device must be connected to a USB 3.0 port on the computer. For detailed instructions and tutorials, please refer to the electronic user guide.

FAQ

- Computer cannot detect the device or operation is unstable.

  a. Avoid using USB hubs whenever possible. Connect the device directly to the computer. For desktop PCs, it is recommended to use a rear-panel USB port on the motherboard.

  b. Check whether the "DLA-Logic" driver is correctly installed in Device Manager. If any abnormal indicators (such as a warning icon) are present, please reinstall the software.

  c. Use the original USB cable whenever possible. Poor cable quality or loose connections may cause unstable device operation.

- Glitches observed in sampled data.

  There are multiple possible causes of signal glitches on input channels. Please refer to the “How to Reduce Glitches” section for guidance on minimizing glitches.

2. Product Overview

The DLA-16 Plus and DLA-32 Plus are logic analyzers designed for testing and analyzing digital circuit signals. They are mainly used to capture, display, and analyze the timing and waveform data of digital signals, helping engineers diagnose faults, verify circuit designs, and optimize system performance. Their main features and functions include:

- Signal Capture
- High-Speed Sampling
- Timing Analysis
- Waveform Analysis
- Trigger Functions
- Protocol Analysis
- Data Storage and Playback
- Software Support

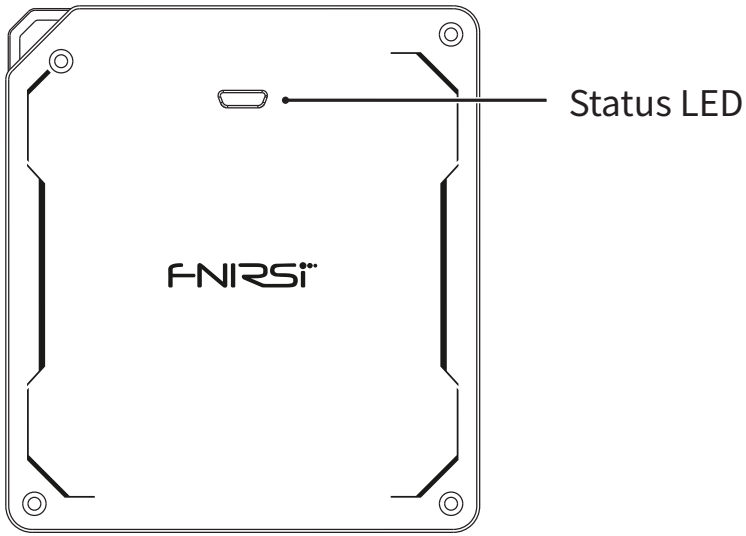
2.1 Product Model

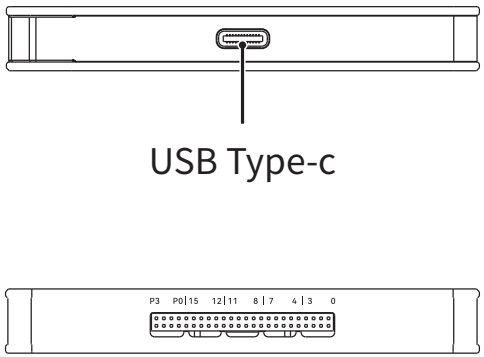
Model		DLA-16 Plus	DLA-32 Plus
Channels		16ch	32ch
Max Sampling Rate	Buffer	1CH/1G 8CH/1G 16CH/500M	1CH/1G 8CH/1G 16CH/500M 32CH/250M
	Stream	1CH/1G 2CH/1G 4CH/500M 8CH/250M 16CH/125M	1CH/1G 2CH/1G 4CH/500M 8CH/250M 16CH/125M 32CH/50M
Min Detectable Pulse Width		2ns	
Max Input Frequency		200MHz	
Hardware Memory Depth		4Gb	

Max Sampling Depth	**Buffer**	4Gbit
	Stream	At low sampling rates, the limit depends on the available computer memory
Data Buffering Mode		Buffer mode (for high sampling rates) / Stream mode (for long capture durations)/ Roll Mode (Real-Time Waveform Monitoring)
Acquisition Resolution		±1 sample period
Trigger Types		Rising edge / High level / Falling edge / Low level / Any edge
Protocol Support		120+ (open protocol decoding library; custom protocols supported)
Input Voltage Rating		-40V~+40V
Input Impedance		250K/15pF
Threshold Voltage Range		−5 V to +5 V (0.1 V step)
Waveform Output		3.3 V, 1 Hz to 20 MHz, 4-channel PWM
Channel Interface		1.27 mm Shielded Cable Connector

Supply Voltage	5V±0.2V
Supply Current	460 mA (max @ 5 V)
Dimensions	≈90*81*11.5mm
Operating Temperature	0~70°C

▶ 2.1.1 Appearance Overview of DLA-16 Plus

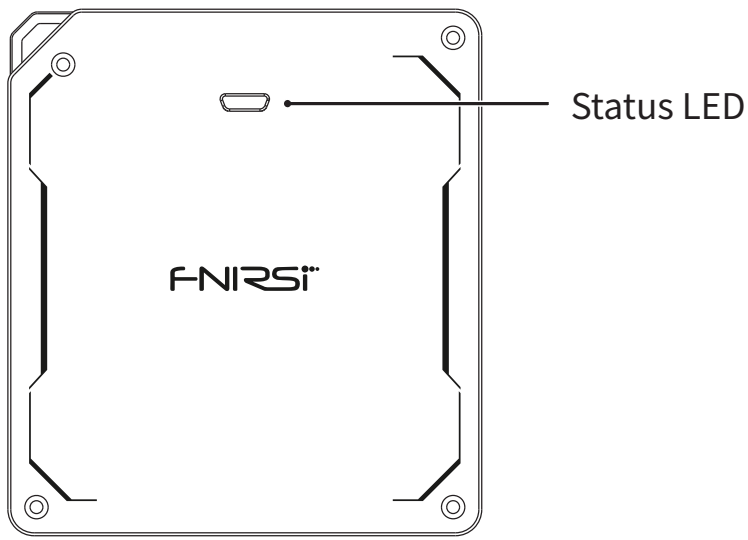


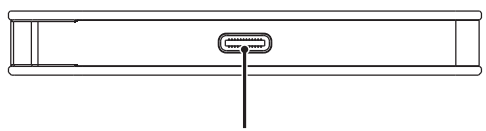


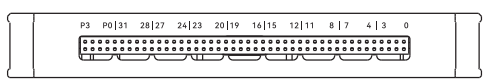
Status LED Description			
Red	Green	Blue	Off
Disconnected	Connected	Acquiring data	1. Power Off 2. Firmware Updating

Pinout Description	
P0 - P3	0-15
PWM Output Ports 0–3 indicate port numbers	Channel Ports 0–15 indicate port numbers

▶ 2.1.2 Appearance Overview of DLA-32 Plus







Status LED Indicators			
Red	Green	Blue	Off
Disconnected	Connected	Acquiring data	1. Power Off 2. Firmware Updating

Pinout Description	
P0 - P3	0-31
PWM Output Ports 0–3 indicate port numbers	Channel Ports 0–31 indicate port numbers

3. Quick Start Guide

3.1 Software Installation

① Download Software

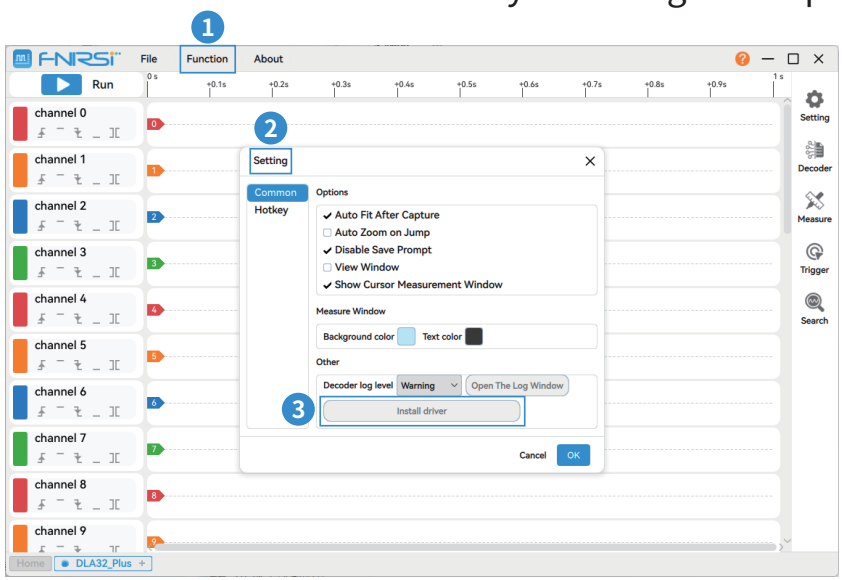
Download the latest PC software from the official website: www.fnirsi.com.The installation package is named DLA_Logic_V1.0_x64.exe.

② Installation

Double-click the downloaded installation file and follow the on-screen instructions by clicking Next to complete the installation. After installation, a software shortcut will be automatically created on the desktop. Double-click the shortcut to launch the DLA_Logic software.

③ Install Driver

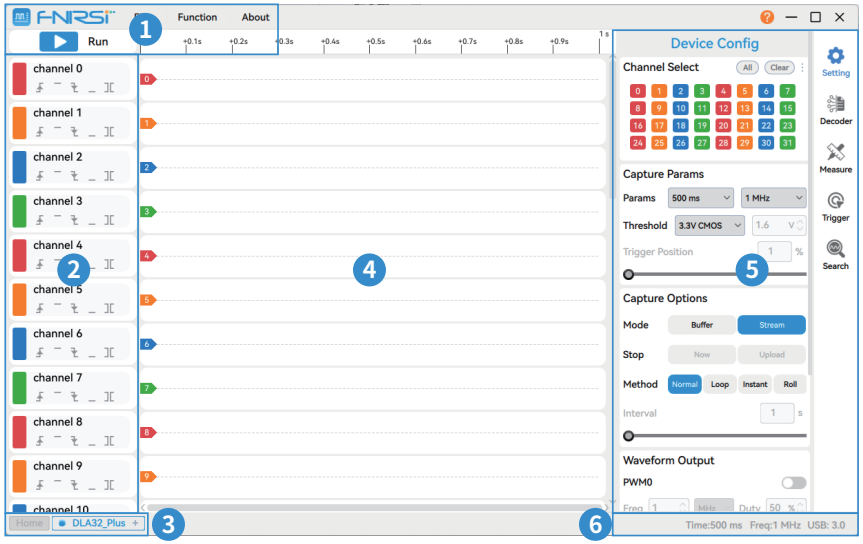
Before the software is used for the first time, the driver must be installed to ensure the device is recognized and connected properly. During software installation, driver installation is selected by default. If not selected, the driver can be installed manually following the steps below. The installation procedure is as follows:



※**Note:** During software installation, antivirus programs such as 360 may display warnings. This is a false positive. Please temporarily disable the antivirus or choose Allow to complete the installation.

3.2 Interface Overview

After launching the DLA_Logic software, the interface appears as shown below:

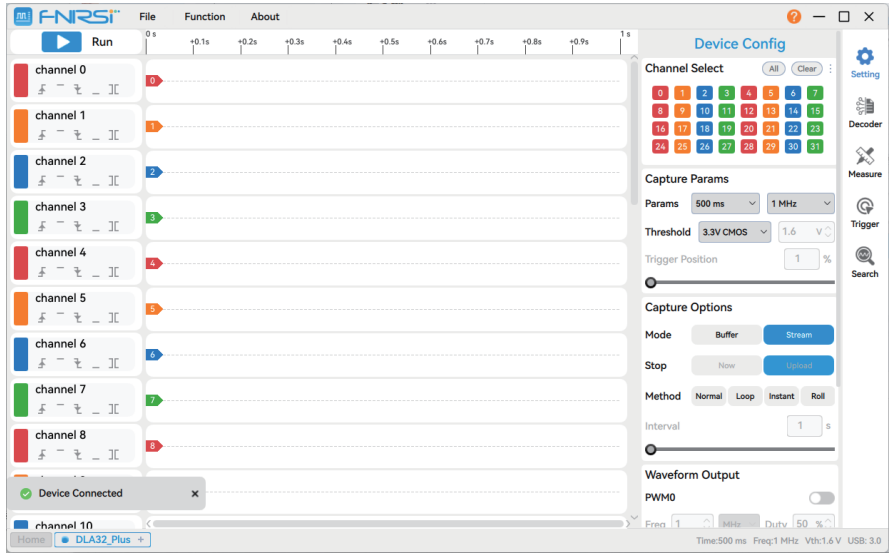


No.	Area	Description
①	Toolbar	Located at the top-left of the interface, it provides common device and software settings, as well as data import and export functions.
②	Channel Options	Located on the left side of the interface, it allows configuring trigger conditions, adjusting channel order, and renaming channels.
③	Device Page	Located at the bottom-left corner of the interface, it allows switching between different pages, including the Home page, newly connected devices, opened files, and projects.

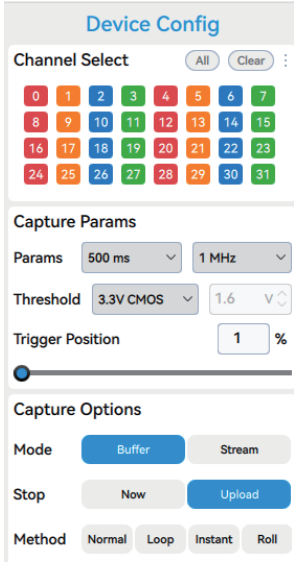
④	Waveform Display Area	Located in the center of the interface. The topmost row is the time axis, and the leftmost column shows H and L indicating the current high and low levels of each channel. The main area displays waveform data and decoded information, with four shortcut buttons in the bottom-right corner.
⑤	Sidebar Toolbar	Located on the far right of the interface, it contains functions such as acquisition controls, acquisition parameters, protocol decoding, and measurements. Users can show or hide sections by clicking the icons.
⑥	Parameter Information	Located at the bottom-right corner of the interface, it displays the current acquisition parameters of the connected device.

3.3 Device Connection

Connect the logic analyzer to your computer using the supplied USB cable, and attach the signal lines from the device under test to the channel input ports (GND must be connected). Launch the DLA_Logic software—it will detect and connect to the device automatically. Once connected, a “Device Connected” icon will appear in the bottom-left corner, as shown.



3.4 Data Acquisition



Click Setting to open the Device Configuration window. Select the channels and configure the appropriate parameters, such as sampling time, sampling rate, trigger thresholds, run mode, and acquisition mode. Then tap Run in the top-right corner to start data acquisition.

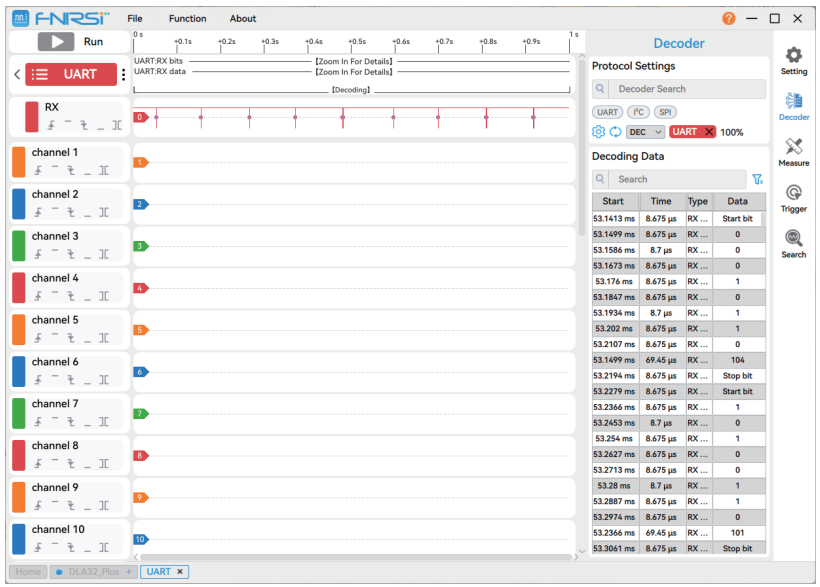
3.5 Protocol Decoding

After data acquisition is complete, click Decoder to open the Protocol Decoder Configuration window. In the Decoder Search field, search for the protocol you want to decode. In the Protocol Settings window, configure the protocol parameters, then click OK to decode the data. The decoded data will be displayed in the Waveform Display Area. The operations in the waveform area are as follows:

- Zoom waveform: Use the mouse scroll wheel (middle button). Scroll up to zoom in, scroll down to zoom out.
- Pan waveform: Press and hold the left mouse button to drag the waveform horizontally.
- Zoom to selected region: Press and hold the right mouse button and drag to form a rectangle. Release the button to zoom into the selected area.

- Scroll channels: Hover over the Channel Options area on the left and scroll with the mouse wheel (middle button) to move channels up or down, or use keyboard shortcuts.
- Quick jump to zero point: Click at the bottom-right corner of the waveform display area.
- Quick zoom to full screen: Click at the bottom-right corner of the waveform display area.

The figure below shows the DLA32 Plus capturing serial communication data and the results after protocol decoding:



3.6 How to Reduce Glitches

When using the logic analyzer, improper wiring can easily introduce glitches, which may prevent the software from analyzing data correctly. The following methods can help reduce glitches:

Method		Description
Hardware Wiring	Direct Connection	1. Keep the GND connection as short as possible. Connect it directly to the GND of the device under test (DUT); do not daisy-chain the connection. 2. Connect the signal lines as directly as possible to the pins of the logic analyzer.
	Multiple Grounding	Distribute multiple GND channels to different locations on the device under test. Do not connect multiple GND channels to a single grounding point.
	Twisted Pair Wiring	Keep all channel wires (including GND) tightly bundled together.
	Cross Grounding	Use unused channels as GND channels connected to the device under test. It is recommended to wire signals between GND channels in an alternating pattern, for example: GND–Signal–GND–Signal–GND–Signal–GND. Using twisted pair wiring can further improve signal quality.

4. Contact Us

Product Name: Logic Analyzer

Model: DLA-16/32 (Plus)

Manufacturer: Shenzhen FNIRSI Technology Co., Ltd.

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Tel: +86 755 28020752

Service Email: support@fnirsi.com

Business Email: business@fnirsi.com

Website: www.fnirsi.com

Standard Implemented: GB/T 15471-2013

http://www.fnirsi.com/

5. Warranty Information

※This page serves as the basic warranty card. Please keep it properly.

Thank you for choosing our products. The warranty period of this product starts from the date of sale. During the product warranty period, if the product is installed and used according to the user manual, under normal conditions, and the fault is caused by defects in original materials or workmanship, you are entitled to free repair services according to the terms of this warranty. Please keep this warranty card properly as proof of warranty. No replacement will be issued if it is lost.

The following situations will incur paid repair services:

- Unable to present the original valid warranty card.
- Damage caused by improper installation not meeting product requirements, standards, or relevant specifications.
- Damage caused by accessories in the installation environment not meeting product requirements, standards, or relevant specifications.
- Damage caused by improper use, improper storage, unauthorized disassembly, or unauthorized repairs by the user.
- Expiration of the warranty period.

Warranty Card

Product Model	DLA-16/32 (Plus)	**Qty.**	
Distributor Name (where to buy)		**Contact**	
Address		**Invoice Number** (Order Number)	
Purchase Date (as per invoice)	**Year** **Month** **Day**		

User Name:	**Address:**
Contact:	**Fault Description:**

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