

DKARDU Mini Logic Analyzer

DKARDU Mini Logic Analyzer User Manual

Model: Mini Logic Analyzer (Part No. JK-US-680)

1. INTRODUCTION

The DKARDU Mini Logic Analyzer is an open-source hardware and software logic analyzer designed for efficient debugging and protocol analysis. It features a compact design, 8 channels, and supports a maximum sampling rate of 24MHz, along with over 100 types of protocol analysis. This device significantly enhances efficiency in scenarios involving complex systems with multiple components, timing analysis, and performance analysis.

This manual provides detailed instructions for setting up, operating, and maintaining your Mini Logic Analyzer.

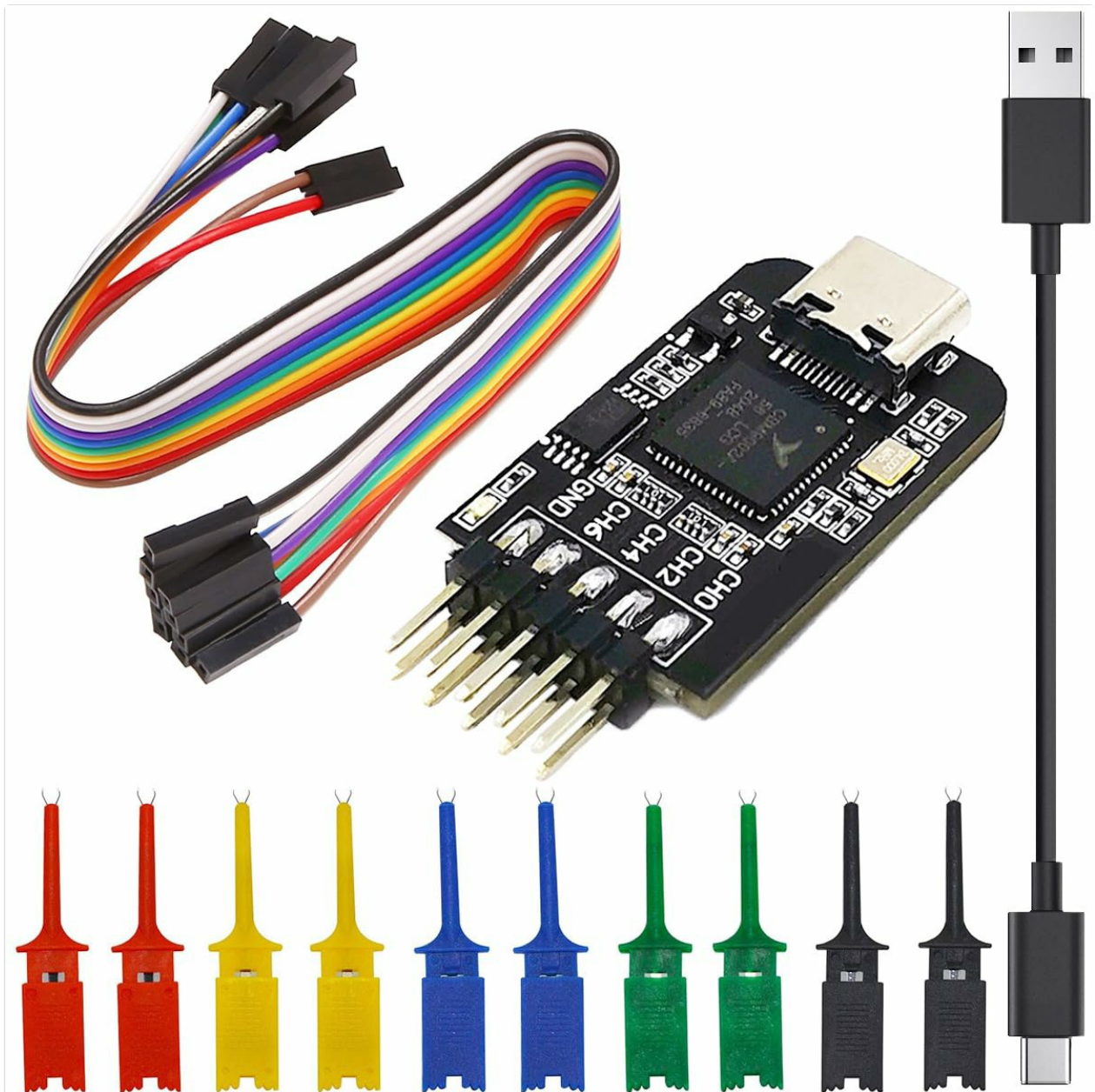


Image 1.1: The DKARDU Mini Logic Analyzer, including the main unit, USB-C cable, 10 female-to-female Dupont cables, and 10 test hook clips.

2. PACKAGE CONTENTS

Please verify that all items listed below are included in your package:

- 1 x Mini Logic Analyzer Unit
- 1 x USB to Type-C Cable
- 10 x Female-to-Female Dupont Cables
- 10 x Test Hook Clips

3. SPECIFICATIONS

Feature	Specification
Operating System Compatibility	Windows, Linux, Mac, Android

Feature	Specification
Software Environment	PulseView (Sigrok open-source community)
Sampling Channels	8 Channels
Maximum Sampling Rate	24MHz
Logic Level (Low)	[-0.5V, 0.8V]
Logic Level (High)	[2V, 5.25V]
Input Voltage Range	[-0.5V, 5.25V]
Dimensions	Approximately 3.9cm x 2.0cm (1.54in x 0.79in)
Weight	50 g
Connector Type	USB Type-C

SHOW DETAILS

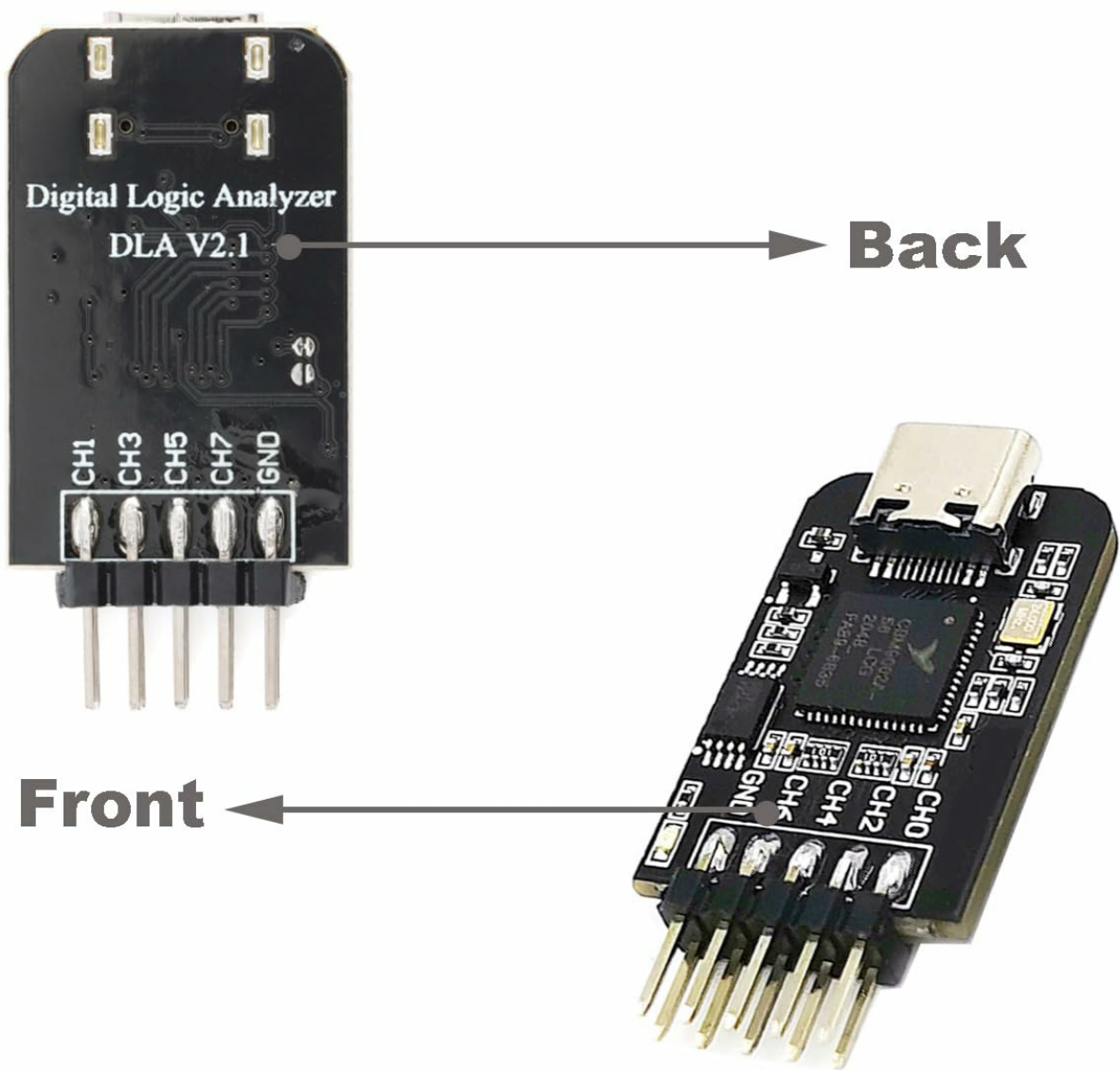


Image 3.1: Front and back views of the Mini Logic Analyzer, showing the DLA V2.1 marking on the back and channel labels (CH0-CH7, GND) on the front.

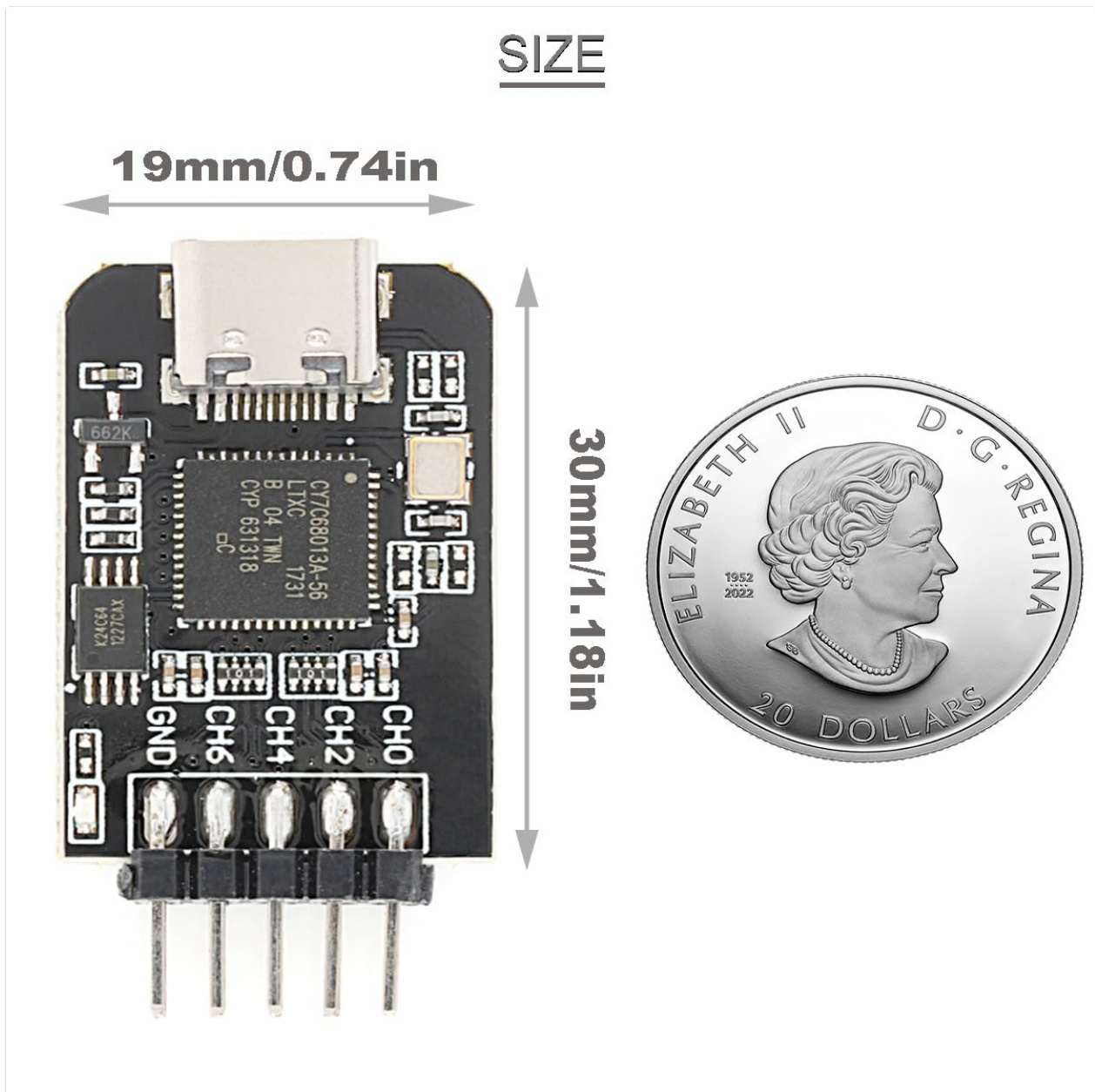


Image 3.2: Physical dimensions of the Mini Logic Analyzer, measuring approximately 30mm (1.18in) in length and 19mm (0.74in) in width, shown next to a coin for scale.

4. SETUP

4.1. Software Installation (PulseView)

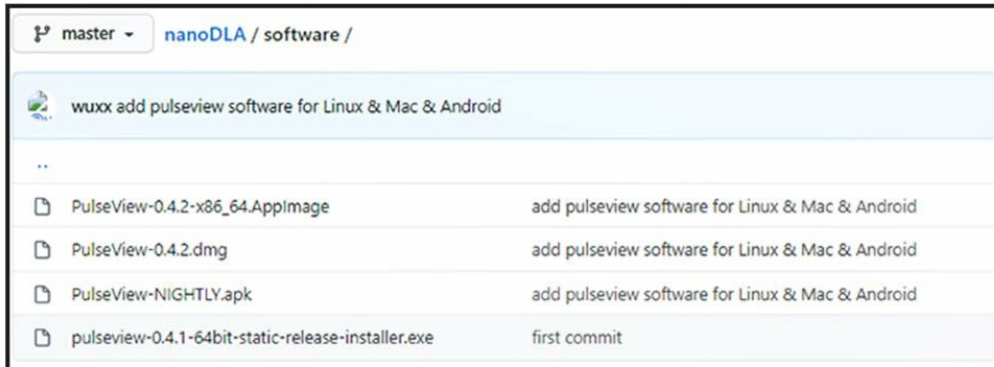
The Mini Logic Analyzer uses PulseView software, which is part of the open-source Sigrok project. Follow these steps to install PulseView:

1. **Download PulseView:** Obtain the appropriate installation package for your operating system (Windows, Linux, Mac, Android) from the official Sigrok website or the provided GitHub link:
<https://github.com/wuxx/nanoDLA/tree/master/software>.
2. **Run Installer:** Double-click the downloaded installation package and follow the on-screen instructions to complete the installation.

SOFTWARE INSTALLATION

Install PulseView

Download the installation package from the data link, double-click the installation package to install.



Install driver

1.Plug the nanoDLA into a PC USB port. nanoDLA will be recognized as another device in Device Manager.



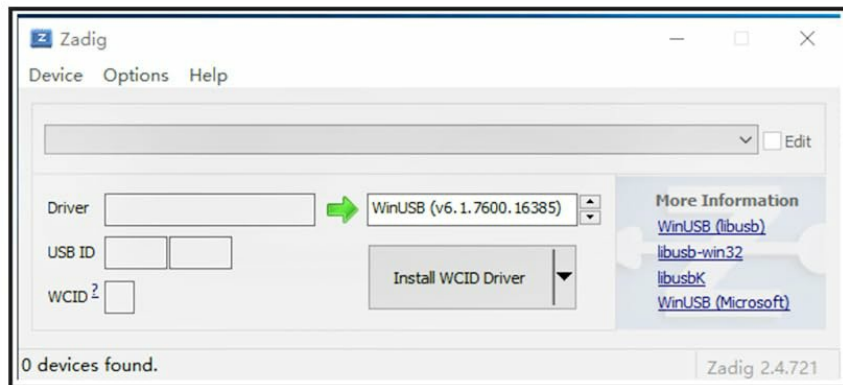
Image 4.1: Screenshot showing the PulseView software download options for various operating systems (Linux, Mac, Android, Windows).

4.2. Driver Installation

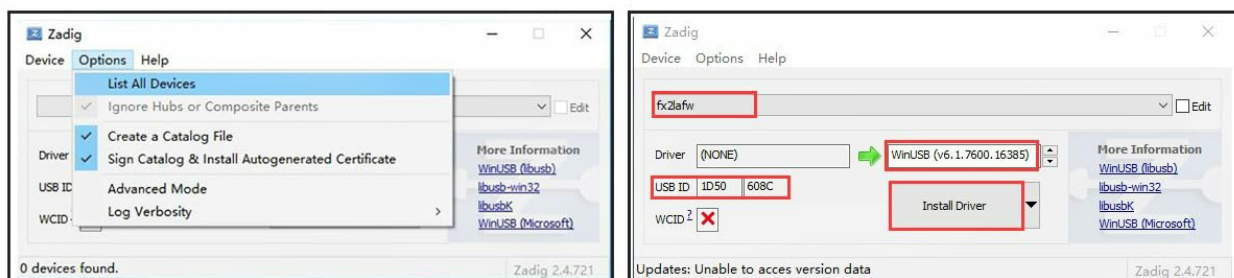
After installing PulseView, you need to install the necessary drivers for the logic analyzer to be recognized by your computer. This process typically involves using the Zadig utility for Windows users.

1. **Connect the Device:** Plug the nanoDLA (Mini Logic Analyzer) into a PC USB port using the provided Type-C cable.
2. **Initial Recognition:** Your PC's Device Manager may initially recognize the nanoDLA as an 'other device' or an unknown device.
3. **Launch Zadig:** Search for and open the Zadig utility on your PC. If you don't have it, download it from the Sigrok website or a reliable source.
4. **Select Device:** In Zadig, go to 'Options' and toggle on 'List All Devices'. From the dropdown menu, select the device named "fx2lafw" (or similar, look for USB ID 1D50:608C).
5. **Install Driver:** Ensure "WinUSB" is selected in the driver field, then click the "Install Driver" button.

2. Search “Zadig” in the the start menu of PC, then open it



3. Click “Options” and toggle on “List All Devices”. Choose device named “fx2lafw”, whose USB ID is 1D50:608C and select “WinUSB” in the driver blanket. Then click “Install Driver” button.



4. After finishing installation of driver, nanoDLA would be recognized as a USB device in device manager



Image 4.2: Screenshot illustrating the Zadig utility interface, showing the device list and the option to select 'other devices' for driver installation.

HOW TO USE

1. Plug nanoDLA to PC USB port and open PulseView software



2. Configure channels and sampling rate, then click "Run" button in the top left corner to sample data

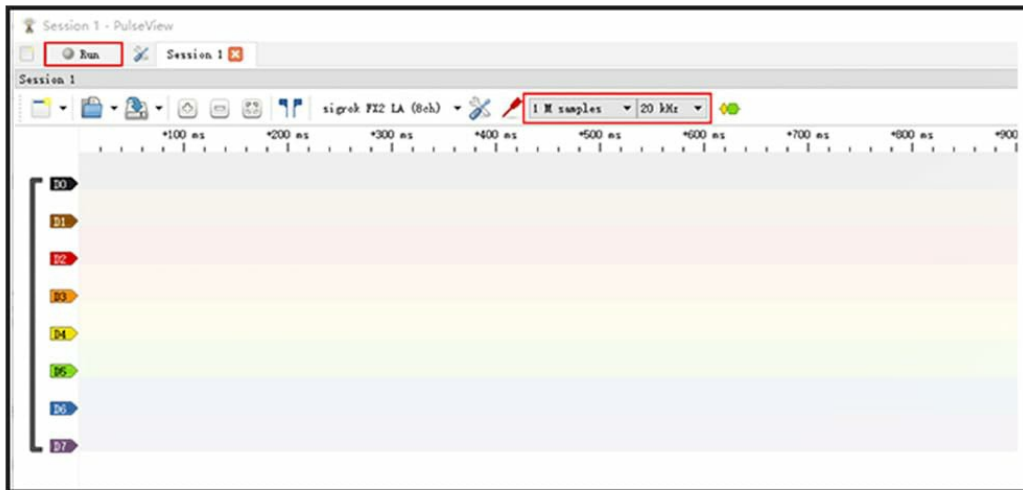


Image 4.3: Screenshot of the Zadig utility, highlighting the selection of "fx2lafw" (USB ID 1D50:608C) and the "WinUSB" driver for installation.

After successful driver installation, the nanoDLA should be recognized as a "Universal Serial Bus Device" in your Device Manager.

5. OPERATING INSTRUCTIONS

Once the software and drivers are installed, you can begin using your Mini Logic Analyzer with PulseView.

1. **Connect and Launch:** Plug the nanoDLA into your PC's USB port and open the PulseView software.
2. **Configure Channels and Sampling Rate:** In PulseView, configure the desired channels (CH0-CH7) and set the sampling rate. The maximum sampling rate is 24MHz.
3. **Start Sampling:** Click the "Run" button (usually located in the top-left corner) to begin sampling data.

3. After signals are sampled, you can use decoder to decode them. Let's take UART sampled data as an example. Click the decoder menu and select UART protocol, then configure UART parameters such as channels, baud rate, data bits, parity type. Afterwards, the data sampled will be decoded.

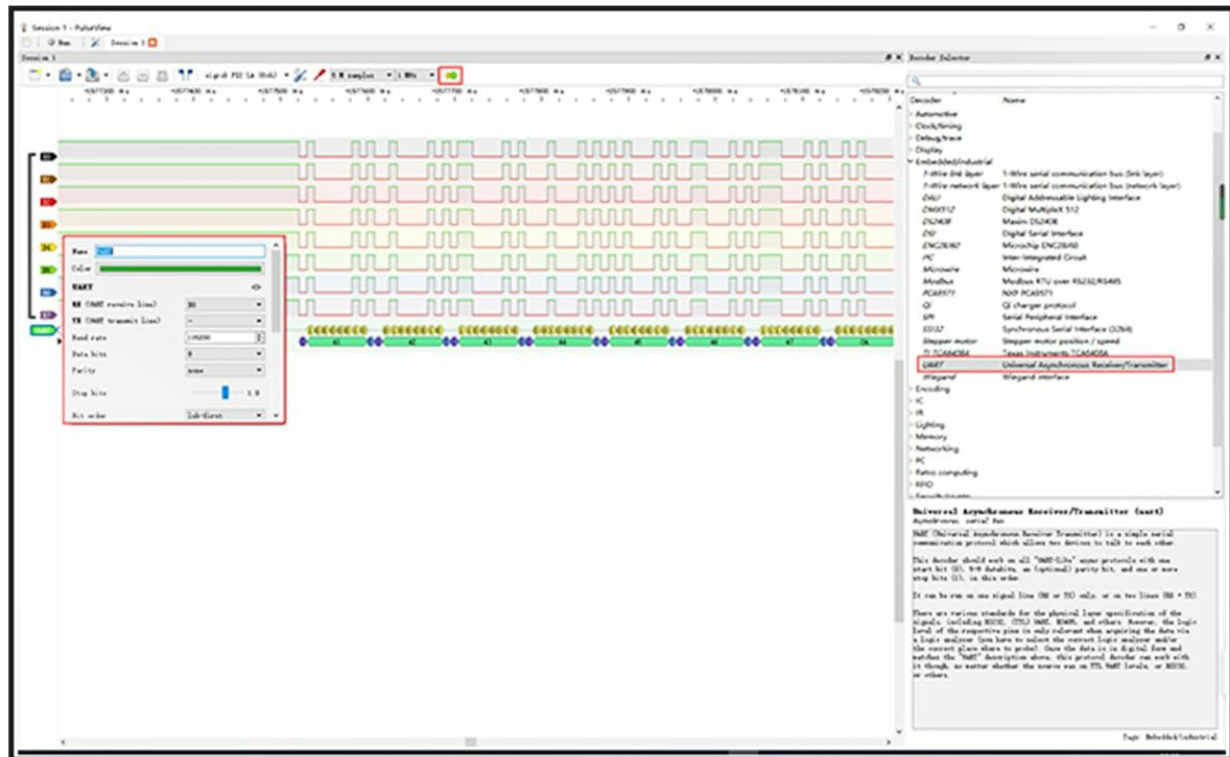


Image 5.1: Screenshot of the PulseView software interface, demonstrating how to configure channels and sampling rate, and initiate data sampling.

4. Decode Signals: After signals are sampled, you can use the built-in decoders to analyze them. For example, to decode UART sampled data:

- Click the decoder menu.
- Select the UART protocol.
- Configure UART parameters such as channels, baud rate, data bits, and parity type.

The sampled data will then be decoded and displayed.

Important Note on Sampling Rate: While the logic analyzer supports up to 24MHz sampling, the actual achievable rate can vary depending on your PC's operating system, USB controller, USB bus status, and USB drivers. For optimal signal reconstruction, a sampling rate at least 5 times (and ideally 10 times) the original signal frequency is recommended. In practice, Linux systems often achieve 24MHz, while most Windows systems (Win7/Win10) typically achieve 16MHz.

6. MAINTENANCE

To ensure the longevity and optimal performance of your DKARDU Mini Logic Analyzer, follow these general maintenance guidelines:

- **Storage:** Store the device in a dry, dust-free environment away from extreme temperatures.
- **Cleaning:** Use a soft, dry cloth to clean the device. Avoid using liquid cleaners or solvents.
- **Handling:** Handle the device and its accessories with care to prevent physical damage. Avoid bending or stressing the connectors.
- **Cable Care:** Inspect cables regularly for any signs of wear or damage. Replace damaged cables immediately.

7. TROUBLESHOOTING

If you encounter issues with your Mini Logic Analyzer, consider the following troubleshooting steps:

- **Device Not Recognized:**
 - Ensure the USB cable is securely connected to both the logic analyzer and your computer.
 - Verify that the drivers are correctly installed using the Zadig utility as described in Section 4.2.
 - Try connecting to a different USB port on your computer.
 - Restart your computer.
- **No Signal or Incorrect Readings:**
 - Check the connections of the Dupont cables and test clips to your circuit. Ensure they are making good contact.
 - Verify that the correct channels are selected and configured in PulseView.
 - Adjust the sampling rate. If the signal frequency is too high for the chosen sampling rate, the readings may be inaccurate. Remember the 5x-10x rule mentioned in Section 5.
 - Ensure the logic levels of your circuit are within the input voltage range of the logic analyzer ([-0.5V, 5.25V]).
- **Software Issues (PulseView):**
 - Ensure you are using the latest version of PulseView.
 - Consult the PulseView documentation or community forums for specific software-related issues.

8. WARRANTY AND SUPPORT

8.1. Warranty Information

Specific warranty details for this product may vary. Please refer to the purchase documentation or contact your retailer for information regarding warranty coverage.

8.2. Technical Support

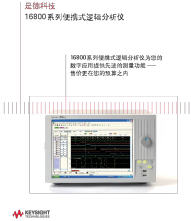




For technical assistance, software updates, or additional documentation, please refer to the following resources:

- **User Manual & Documentation:** <https://github.com/wuxx/nanoDLA/blob/master/README.md>
- **Software Downloads:** <https://github.com/wuxx/nanoDLA/tree/master/software>
- **Sigrok Project (PulseView):** For general PulseView support and community resources, visit the official Sigrok website.

If you require further assistance, please contact DKARDU customer support through your purchase platform.

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Related Documents - Mini Logic Analyzer

	<p>Keysight 16800 Series Portable Logic Analyzers</p> <p>Explore the Keysight 16800 Series portable logic analyzers, offering advanced measurement capabilities for digital applications with flexible configurations, deep memory, and high-speed timing analysis, all within budget. Learn about features, specifications, and ordering options.</p>
	<p>Acute Logic Analyzer: Comprehensive Protocol Decode and Bus Trigger Guide</p> <p>Explore the advanced protocol decoding and bus triggering capabilities of Acute logic analyzers. This guide details support for numerous serial and parallel communication protocols, essential for embedded system development and debugging.</p>
	<p>IKA LOGIC Logic Analyzer User Manual: ScanaStudio Software & Device Guide</p> <p>Comprehensive user manual for IKA LOGIC logic analyzers, covering ScanaStudio software, device installation, operation, and troubleshooting for models like SP209, SQ series, and ScanaPLUS.</p>
	<p>Lattice Semiconductor Radiant Software Reveal User Guide</p> <p>Comprehensive user guide for Lattice Semiconductor's Radiant software, detailing the Reveal Inserter and Reveal Analyzer tools for FPGA design debugging, logic analysis, and signal tracing.</p>
	<p>Xilinx Vivado Design Suite User Guide: Programming and Debugging FPGA Designs</p> <p>Comprehensive guide to programming and debugging FPGA designs using Xilinx Vivado Design Suite. Covers bitstream generation, hardware programming, in-system debugging, and logic analysis with ILA and ChipScope Pro.</p>

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PC-based T&M Instruments:</div><div>Acute PC-based T&M Instruments</div><div>1-Wire CAN FD I2C SPI USB</div><div>Acute</div></div></div>
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