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› [FNIRSI DST-210 3-in-1 Handheld Oscilloscope, Multimeter, and Signal Generator User Manual](#)

FNIRSI DST-210

FNIRSI DST-210 3-in-1 Handheld Oscilloscope, Multimeter, and Signal Generator User Manual

Model: DST-210

1. INTRODUCTION

The FNIRSI DST-210 is a compact and versatile 3-in-1 handheld device designed for electronic testing and measurement. It integrates the functions of a digital oscilloscope, a true RMS multimeter, and a signal generator into a single portable unit. This manual provides detailed instructions to help you effectively use and maintain your device.



Figure 1: FNIRSI DST-210 3-in-1 Handheld Device

2. PRODUCT OVERVIEW

2.1 Key Features

- **3-in-1 Functionality:** Combines a digital oscilloscope, a true RMS multimeter, and a signal generator.
- **Display:** 2.8-inch TFT color LCD for clear data visualization.
- **Oscilloscope:** 10MHz analog bandwidth, 48MSa/s real-time sampling rate, supports Auto/Normal/Single trigger modes, waveform image saving and display.
- **Multimeter:** 19999-count true RMS measurement for DC/AC voltage, DC/AC current, resistance, capacitance, frequency, temperature, diode, and continuity. Features data hold, record mode with graphical display, and LIVE function for voltage presence detection.
- **Signal Generator:** Outputs 13 types of waveforms (Sine, Square, Sawtooth, Half-wave, Full-wave, Step, Reverse Step, Index Up/Down, DC, Multi-audio, Sink Pulse, Lorentz Wave) with adjustable frequency (0-50KHz), amplitude (0.1-3.0V), and duty cycle (0-100%).
- **Portability:** Compact design with an integrated stand, powered by a 3000mAh rechargeable lithium battery providing up to 10 hours of continuous use. Type-C charging supported.

2.2 Package Contents

Verify that all items are present in the package:

- FNIRSI DST-210 Main Unit
- P6100 High Voltage Probe
- Test Leads (Red and Black)
- Alligator Clips
- Type-C Charging Cable
- Instruction Manual (PDF version available online)
- Packaging Box

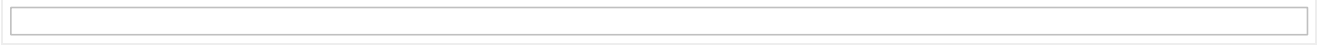


Figure 2: Included Accessories

3. SETUP

3.1 Charging the Device

Before initial use, fully charge the DST-210. Connect the provided Type-C charging cable to the device's Type-C port and a compatible USB power adapter (5V/1A). The battery indicator on the display will show charging status.

3.2 Connecting Probes

For accurate measurements, ensure probes are correctly connected:

- **Multimeter Measurements:** Insert the red test lead into the V Ω HzmA or 10A jack (depending on the measurement) and the black test lead into the COM jack.
- **Oscilloscope Measurements:** Connect the P6100 high voltage probe to the oscilloscope input jack. Ensure the probe's attenuation setting (e.g., X1 or X10) matches the device's setting for accurate readings.
- **Signal Generator Output:** Connect the output cable to the signal generator output port.



Figure 3: Input Jacks and Controls

4. OPERATING INSTRUCTIONS

4.1 Power On/Off

Press and hold the power button (located on the side) to turn the device on or off.

4.2 Mode Selection

Rotate the central knob to switch between Multimeter, Oscilloscope, and Signal Generator modes. Within each mode, further sub-functions can be selected using the knob or dedicated buttons.



直感的な操作 モダンなパワー

象徴的なノブ操作と自動レンジ測定、あらゆるニーズに応えるツール。

Figure 4: Using the Oscilloscope Function

4.3 Multimeter Operation

In Multimeter mode, the device offers various measurement functions:

- **Voltage/Current (DC/AC):** Select the appropriate DC V, AC V, DC A, or AC A setting. Connect test leads to the circuit. The device supports a record mode that displays measurement trends graphically, and can store up to 10 sets of data.
- **Resistance (Ω):** Select the resistance function. Connect test leads across the component.
- **Capacitance (F):** Select the capacitance function. Connect test leads across the capacitor.
- **Frequency (Hz):** Select the frequency function. Connect test leads to the signal source.
- **Diode Test:** Select the diode function. Connect test leads across the diode to check its forward voltage drop.
- **Continuity Test:** Select the continuity function. Connect test leads across a conductor; a beep indicates continuity.
- **Temperature:** Use a K-type thermocouple (not included) connected to the appropriate jacks for temperature measurement.
- **LIVE Function:** For single-probe voltage presence detection.

電源と接続し、ブザーが鳴った…
でも電源が落ちる?
テスターは通電を示しているのに、
断続的なトラブルが発生!?

DTS-210の波形レコードモードなら、一瞬の電圧低下や断線も正確に検出。
通常のマルチメーターでは見逃されがちな、短時間の電源断や接触不良の原因を可視化できます。



Figure 5: Multimeter Measurement Examples

4.4 Oscilloscope Operation

In Oscilloscope mode, the device displays waveforms:

- **Waveform Display:** Connect the oscilloscope probe to the circuit. The device automatically adjusts settings for stable

waveform display.

- **Trigger Modes:** Select between Auto, Normal, and Single trigger modes to capture different types of signals.
- **Waveform Saving:** Press the 'RUN/SAVE' button to save the current waveform image. Saved images can be reviewed and exported.



Figure 6: Oscilloscope Waveform Display

4.5 Signal Generator Operation

In Signal Generator mode, the device outputs various waveforms:

- **Waveform Selection:** Choose from 13 different waveform types using the menu options.
- **Parameter Adjustment:** Adjust the frequency (0-50KHz), amplitude (0.1-3.0V), and duty cycle (0-100%) as required for your application.

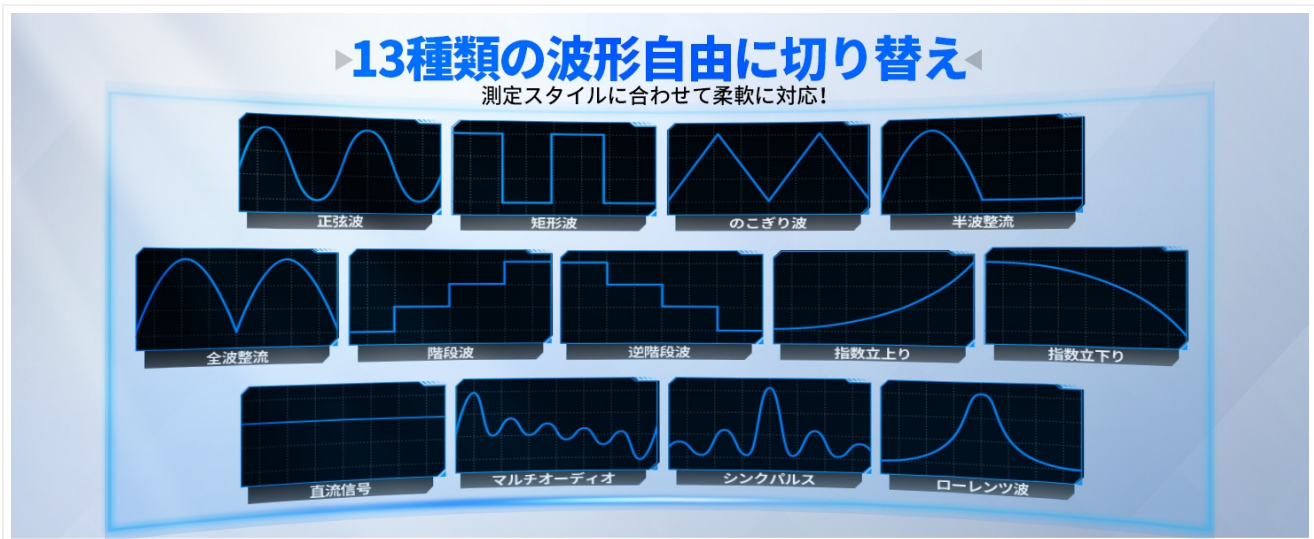


Figure 7: Signal Generator Waveform Selection

4.6 PC Connection and Data Export

The DST-210 can connect to a PC via its Type-C USB port for data management and firmware updates.

- **Waveform Screenshots:** Long-press the 'RUN/SAVE' button to save waveform screenshots.
- **Data Export:** Connect the device to a computer to view, save, and export recorded waveform images and data.
- **Firmware Updates:** Periodically check the official FNIRSI website for firmware updates to ensure optimal performance and access to new features. Follow the instructions provided with the firmware update package.

明るい時も暗い時も、視認性を重視した設計

モードの切り替えや明るさ調整が簡単で、どんな環境でも最適な視認性が得られます

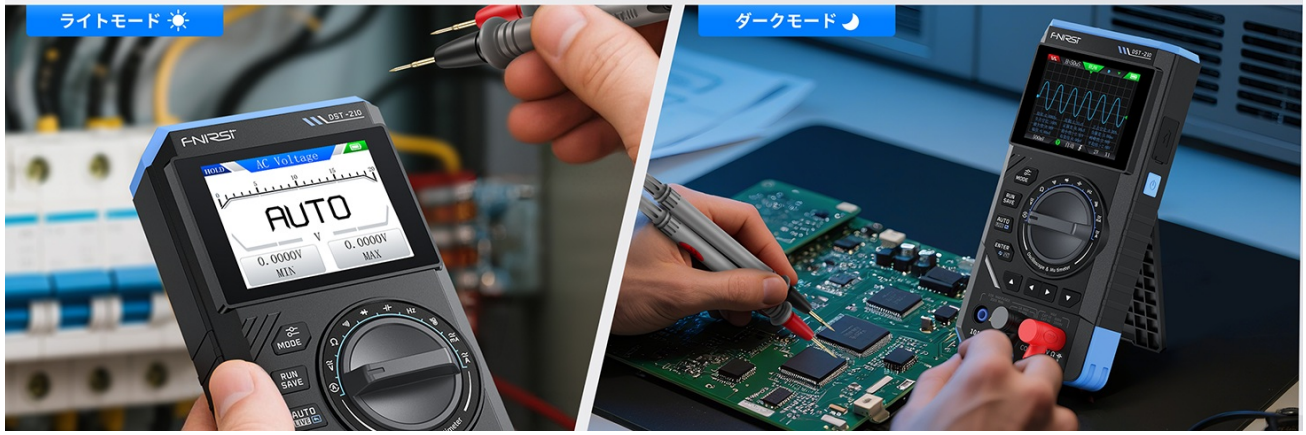


Figure 8: PC Connection for Data Management

5. MAINTENANCE

- **Cleaning:** Use a soft, dry cloth to clean the device. Do not use abrasive cleaners or solvents.
- **Storage:** Store the device in a cool, dry place away from direct sunlight and extreme temperatures.
- **Battery Care:** To prolong battery life, avoid fully discharging the battery frequently. Charge the device regularly, even if not in use for extended periods.
- **Probe Care:** Inspect test leads and probes for damage before each use. Replace any damaged accessories immediately.

6. TROUBLESHOOTING

| Problem | Possible Cause | Solution |
|---|--|---|
| Device does not power on. | Low battery or faulty power button. | Charge the device fully. If the issue persists, contact support. |
| Unstable or inaccurate readings in Multimeter mode. | Poor probe connection, incorrect mode selection, or external interference. | Ensure probes are securely connected. Verify the correct measurement mode is selected. Minimize external electrical interference. |
| Oscilloscope waveform is not stable. | Incorrect trigger settings or probe attenuation. | Adjust trigger level and mode. Ensure probe attenuation (X1/X10) matches the device setting. |
| Signal generator output is incorrect. | Incorrect waveform type, frequency, amplitude, or duty cycle settings. | Verify all signal generator parameters are set as desired. |
| Cannot connect to PC or export data. | Faulty USB cable, incorrect PC driver, or software issue. | Try a different Type-C cable. Ensure necessary drivers are installed on your PC. Refer to the official website for software and driver downloads. |

7. SPECIFICATIONS

7.1 Oscilloscope Parameters

| Category | Specification |
|----------------------------|---|
| Real-time Sampling Rate | 48MSa/s |
| Analog Bandwidth | 10MHz |
| Input Impedance | 1M Ω |
| Coupling Method | AC/DC |
| Measurement Voltage Range | 1:1 Probe: $\pm 80\text{Vpp}$ ($\pm 40\text{V}$), 10:1 Probe: $\pm 800\text{Vpp}$ ($\pm 400\text{V}$) |
| Vertical Sensitivity | 10mV/div ~ 10V/div (at X1) |
| Vertical Offset | Adjustable (with indicator) |
| Horizontal Time Base Range | 50ns ~ 20s |
| Trigger Mode | Auto, Normal, Single |
| Edge Trigger | Rising/Falling Edge |
| Trigger Level | Adjustable (with indicator) |
| Waveform Freeze | Supported (HOLD function) |
| Automatic Measurement | Max, Min, Average, RMS, Peak-to-Peak, Frequency, Duty Cycle, etc. |

7.2 Multimeter Parameters

| Measurement Function | Range | Accuracy |
|----------------------|---|----------------|
| DC Voltage | 1.9999V/19.999V/199.99V/1000V | $\pm(0.5\%+3)$ |
| AC Voltage | 1.9999V/19.999V/199.99V/750V | $\pm(1.0\%+3)$ |
| DC Current | 19.999mA/199.99mA/1.9999A/9.999A | $\pm(1.2\%+3)$ |
| AC Current | 19.999mA/199.99mA/1.9999A/9.999A | $\pm(1.5\%+3)$ |
| Resistance | 19.999M Ω /199.99k Ω /19.999k Ω | $\pm(2.0\%+5)$ |
| Capacitance | 999.9 μF /99.99 μF /9.999 μF /999.9nF/99.99nF, 9.999mF/99.99mF | $\pm(2.0\%+5)$ |
| Frequency | 9.999MHz/999.9kHz/99.99kHz/9.999kHz/999.9Hz/99.99Hz | $\pm(0.1\%+2)$ |
| Temperature | [-55~1300°C] / [-67~2372°F] | $\pm(2.5\%+5)$ |
| Diode/Continuity | Supported | N/A |
| LIVE Function | Supported | N/A |

7.3 Signal Generator Parameters

| Category | Specification |
|--------------------|---------------|
| Output Waveforms | 13 types |
| Waveform Frequency | 0 ~ 50KHz |

| Category | Specification |
|--------------------|-----------------------|
| Duty Cycle | 0 ~ 100% (adjustable) |
| Waveform Amplitude | 0.1 ~ 3.0V |

7.4 General Specifications

| Category | Specification |
|------------------|-----------------------------------|
| Product Model | DST-210 |
| Display | 2.8-inch TFT Color Display |
| Backlight | Brightness Adjustable |
| Power Supply | Type-C (5V/1A) |
| Battery | 3000mAh |
| Language Support | Chinese, English |
| Product Size | Approx. 177.43 mm x 87 mm x 35 mm |
| Product Weight | Approx. 300g |

8. WARRANTY AND SUPPORT

For any questions, issues, or support needs regarding your FNIRSI DST-210, please contact us through the following methods:

- **Amazon Message:** If you purchased the product on Amazon, you can contact us via the Amazon messaging system. Go to your 'Order History', select the relevant order, and click 'Problem with order' or 'Contact Seller'.
- **Email Support:** You can also reach our after-sales service center directly via email at support@fnirsi.com. Please include your order number and a detailed description of your issue for faster assistance.

When attaching large photos or videos, email support is recommended due to potential attachment size limits on Amazon's messaging system.

Your browser does not support the video tag.

Video 1: Demonstration of FNIRSI DST-210's Multimeter, Oscilloscope, and Signal Generator Functions.