2C53T

3-in-1 Oscilloscope, Multimeter and Signal Generator
User Manual

Before first use, please read this manual carefully, especially chapter 6 - Notice (Safety), and keep it for future reference.

Rotorama, s.r.o. - importer and distributor for the Czech Republic - www.rotorama.cz

Contents

1. Product Introduction

1.1 Notice to users

- This manual provides a detailed introduction to the product and the precautions to be observed. Please read this manual carefully before use to ensure the best performance of the product.
- Do not use the instrument in flammable and explosive environments.
- Waste batteries and instruments cannot be disposed of together with household waste (see chapter 8.3 for disposal details).
- If there are any quality issues with the device or if you have any questions about using it, please contact the manufacturer's customer service (chapter 7) or the importer for the Czech Republic (chapter 8.1).

1.2 About the product

FNIRSI-2C53T is a versatile and highly practical three-in-one dual-channel digital oscilloscope launched by FNIRSI, designed for professionals in the maintenance and research industries. This device combines the functionalities of an oscilloscope, a multimeter, and a signal generator. The oscilloscope uses FPGA+MCU+ADC hardware architecture, featuring a 250MS/s sampling rate, a 50MHz analog bandwidth, and an integrated high-voltage protection module that supports peak voltage measurements up to ±400V. It also supports waveform screenshot saving and viewing for secondary analysis.

The multimeter function offers 4.5 digits with 20,000 counts true RMS, supporting AC/DC voltage and current measurements, as well as capacitance, resistance, diode, and continuity measurements, making it an ideal multifunctional instrument for professionals, factories, schools, enthusiasts, or home use.

The built-in DDS function signal generator can output 13 types of function signals, with a maximum output frequency of 50KHz and a step size of 1Hz. The output frequency, amplitude, and duty cycle are adjustable. It features a 2.8-inch 320*240 resolution high-definition LCD screen and a built-in 3000mAh rechargeable lithium battery with a standby time of up to 6 hours. Its compact size provides users with more powerful practical functions and excellent portability.

2. Device Description

2.1 Panel description – front

Front panel of the device

1. Oscilloscope CH1 input
2. Oscilloscope CH2 input
3. Function signal generator output port
4. Screen display
5. Buttons
6. Multimeter inputs (10A, mA, COM, VΩ⊣⊢)

2.2 Panel description – side

Side of the device

1. Charge indicator
2. Charging interface (USB-C)
3. Restoration (reset) button
4. Bracket

2.3 Device parameters

Display screen	2.8 inch HD color screen
Resolution ratio	320 * 240
Charging specifications	TYPE-C (5V / 1A)
Battery	3000mAh lithium battery
Support functions	Oscilloscope, signal generator, digital multimeter (see the relevant chapters for details)
Standby time	6h (laboratory theoretical maximum)
Product volume	167 * 89 * 35mm
Weight	300g

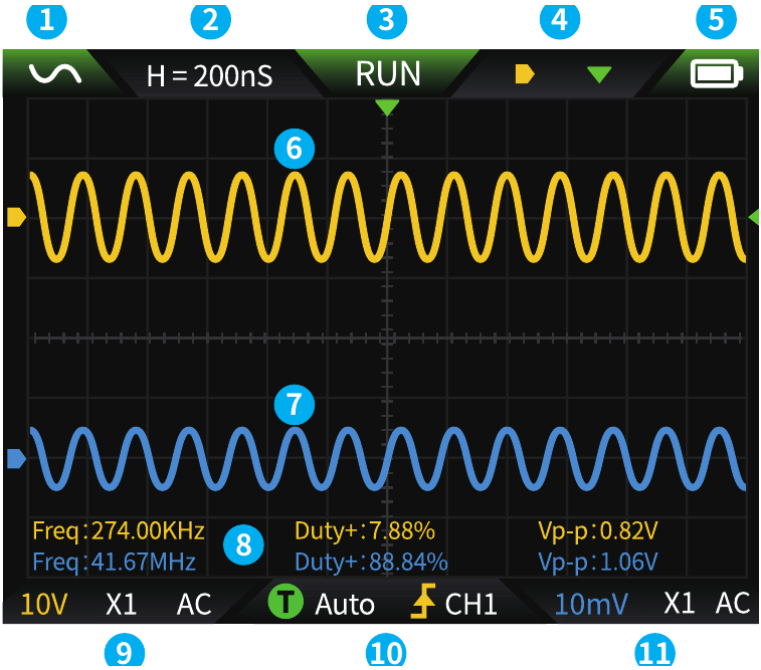
3. Buttons & Functions Introduction

3.1 Oscilloscope – key description

Button	Operation	Function
Power	Short press	Power on / OFF
MENU	Short press	Back
	Long press	Home page (function selection page)
CH1	Short press	CH1 setting
CH2	Short press	CH2 setting
AUTO	Short press	AUTO
	Long press	Baseline correction※
‖▶	Short press	Running stop
	Long press	50% Centered
SAVE	Short press	Save
	Long press	Enter the saved-waveform grid
MOVE (⇄)	Short press	Switch CH1 / CH2 adjustment
	Long press	Quick access to multimeter
SELECT	Short press	Select function for directional keys
	Long press	Quick access to oscilloscope
TRIGGER	Short press	Trigger settings
	Long press	Quick access to signal generator
PRM	Short press	Parameter selection
	Long press	Show / hide measurement parameters

※ The baseline calibration process takes a long time – please be patient and do not operate the equipment during the calibration process. If the equipment is accidentally operated and the calibration is interrupted, please recalibrate. (Baseline calibration requires removing the probe.)

3.2 Oscilloscope – interface description



Oscilloscope waveform display

① Function generator interface status indication: 13 waveforms – sine wave, square wave, sawtooth wave, half wave, full wave, step wave, reverse step wave, index up, index decrease, direct current, multi-audio, sink pulse, Lorentz wave. Gray indicates the waveform output is off.

② Time base: horizontal time base, representing the time length per major division in the horizontal direction.

③ Trigger run/pause indicator icon: RUN indicates running, STOP indicates paused.

④ V/H (yellow/blue): the left and right buttons control the time base, the up and down buttons control the vertical sensitivity of the channels (yellow represents channel 1, blue represents channel 2).

In other modes the same buttons control the horizontal trigger movement (up/down = trigger level), or – when cursor measurement is enabled – the movement of the cursors (up/down = vertical, left/right = horizontal).

⑤ Battery indicator light: full charge / low charge. When the battery is too low, a low battery warning will pop up with a countdown to automatic shutdown.

⑥ Channel 1 waveform data acquisition

⑦ Channel 2 waveform data acquisition

⑧ Measurement parameter display

⑨ Channel 1 vertical sensitivity, probe attenuation, coupling display

(10) Trigger mode, trigger edge, trigger channel display

(11) Channel 2 vertical sensitivity, probe attenuation, coupling display

3.3 Oscilloscope – waveform screenshot saving

Save screenshot: short press SAVE – a “Saving...” progress popup will appear. After about 2 seconds, a popup will indicate that the save was successful. The waveform interface will have saved a BMP format image, named “img_number.” You can view or delete it on the device, or connect it to a computer via USB-C to view it.

Saving a waveform screenshot

View screenshot: long press SAVE to enter the saved waveform screenshot viewing page. The four buttons correspond, in order, to MOVE, SELECT, TRIGGER and PRM. When selecting among multiple saved waveforms, use the directional keys to select the desired one and press ‖▶ to view it.

NOTICE: the storage is full and must be manually deleted before saving again.

3.4 Oscilloscope – parameters

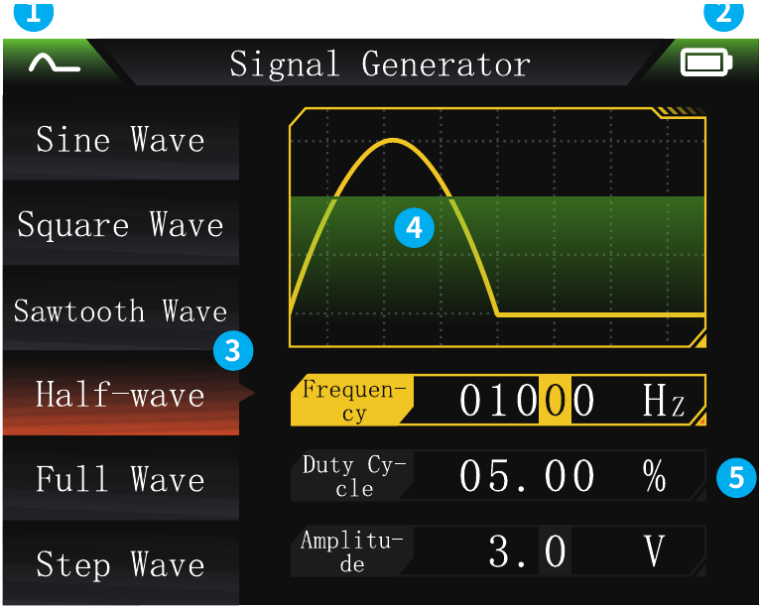
Channel	Dual channel
Sample Rate	250MS/s
Analog Bandwidth	50M (dual channel independent 50M)
Storage Depth	1Kpts
Impedance	1MΩ

Time Base Range	10ns – 20s
Vertical Sensitivity	10mV/div – 10V/div (X1)
Maximum Measured Voltage	±400V
Trigger Mode	AUTO / Normal / Single
Trigger Type	Rising edge, falling edge
Display Mode	Y-T / Rolling / X-Y
Coupling Method	AC / DC
Persistence	OFF, 500ms, 1s, ∞
Math	8 basic operations + FFT
Waveform Screenshot Save	Supported
Export Waveform Image	Supported
Cursor Measurement	Supported

3.5 Function signal generator – key description

Button	Operation	Function
Power	Short press	Power on / OFF
MENU	Short press	Back
	Long press	Home page (function selection page)
⏯	Short press	Confirm
	Long press	Run / Stop
MOVE	Long press	Quick access to multimeter
SELECT	Long press	Quick access to oscilloscope
TRIGGER	Long press	Quick access to signal generator

3.6 Function signal generator – interface description



Signal generator menu

① Output status indication: a total of 13 types – detailed statuses are described in section 3.2.

② Battery indicator light: full charge / low charge. When the battery is too low, a low battery warning will pop up with a countdown to automatic shutdown.

③ Selection of 13 output waveforms: sine wave, square wave, sawtooth wave, half wave, full wave, step wave, reverse step wave, index up, index decrease, direct current, multi-audio, sink pulse, Lorentz wave.

④ Waveform schematic: gray indicates closed.

⑤ Parameters for waveform adjustment.

Operation: first use the directional keys to select the output waveform, then press the center key on the directional keys to enter waveform parameter settings (adjust settings using the directional keys).

3.7 Function signal generator – parameters

Channel	Single channel
Frequency	1Hz – 50KHz
Amplitude	0.1 – 3.0V

3.8 Digital multimeter – key description

Button	Operation	Function
Power	Short press	Power on / OFF
MENU	Long press	Home page (function selection page)
AUTO	Short press	Automatic measurement
‖▶	Short press	Data hold
MOVE	Short press	Switch AC/DC, diode/continuity, etc.
◀	Short press	Switch range leftward according to UI
▶	Short press	Switch range rightward according to UI

3.9 Digital multimeter – interface description

Multimeter display

① REL: relative measurement
② Specific measurement range
③ Battery indicator
④ Range scale
⑤ HOLD: data hold
⑥ Measurement value
⑦ Range status indication: yellow indicates selected, gray indicates not selected
⑧ Maximum, minimum, and average values of the current range's measurements

3.10 Digital multimeter – probe interface

High current measurement: red test lead connected to 10A, black test lead connected to COM.

Notice: if the measured current is greater than 10A, it will burn out the fuse. Please preliminarily evaluate the current before measuring.

Low current measurement: red test lead connected to mA, black test lead connected to COM.

Notice: if the measured current is greater than 1A, it will burn out the fuse. Before measuring, please preliminarily evaluate the current. If unsure, please use the high current range for measurement first.

Automatic range, voltage, resistance, capacitance, temperature, diode/continuity measurement: red test lead connected to VΩ⊣⊢, black test lead connected to COM; switch to the corresponding function range according to the parameter you need to measure.

The 10A and mA inputs are fuse-protected and rated 250V MAX (marked on the device as “10A MAX FUSED” / “1A MAX FUSED”). The VΩ⊣⊢ input is rated for measurement category 600V CAT IV / 1000V CAT III – see the markings on the device itself.

Automatic range: it can only automatically identify voltage and resistance levels, and when measuring voltage it will automatically identify AC voltage/DC voltage.

3.11 Digital multimeter – parameters

Function	Range	Accuracy
DC Voltage	1.9999V / 19.999V / 199.99V / 1000V	±(0.5% + 3)
AC Voltage	1.9999V / 19.999V / 199.99V / 750.0V	±(1% + 3)
DC Current	19.999mA / 199.99mA 1.9999A / 9.999A	±(1.2% + 3)
AC Current	19.999mA / 199.99mA 1.9999A / 9.999A	±(1.5% + 3)
Resistance	19.999MΩ / 1.9999MΩ / 199.99KΩ / 19.999KΩ	±(0.5% + 3)
	1.9999KΩ / 199.99Ω	±(2.0% + 3)
Capacitance	999.9μF / 99.99μF / 9.999μF 999.9nF / 99.99nF / 9.999nF	±(2.0% + 5)
	9.999mF / 99.99mF	±(5.0% + 20)
Temperature	-55~1300℃ / -67~2372℉	±(2.5% + 5)
Diode	Supported	—
Continuity test	Supported	—

4. Setting, Firmware Upgrade and Startup Screen

4.1 Setting

Settings menu

① Set single item selection: Language, Sound and light, Startup on Boot, Auto Shutdown, USB Sharing, About, Factory Reset.

② Specific settings details:

- **Language:** Chinese, English.
- **Sound and light:** Brightness 25-100; Sound 0-10.
- **Startup on Boot:** Off, oscilloscope, signal generator, and multimeter. This setting is used to set which functional block starts automatically when the device is powered on.
- **Auto Shutdown:** off, 15 minutes, 30 minutes, 1 hour.
- **USB Sharing:** once enabled, you can connect to a computer via the USB interface to transfer pictures, etc.
- **About:** brand information and firmware version number.
- **Factory Reset:** restores the device to its factory settings.

※ First press the direction keys to select the corresponding setting, then press the right direction key to enter the parameters for that item (complete the setting by adjusting the direction keys).

4.2 Upgrade

① Obtain the latest firmware from the official website and unzip it to the desktop.

② Connect the device to the computer using a USB-A to Type-C data cable, press and hold the MENU button, then press the Power button to enter firmware upgrade mode – the computer will show the device as a USB flash drive.

③ Copy the firmware to the USB drive; after successful copying, the device will automatically upgrade the firmware.

④ Observe the upgrade percentage. After the upgrade is completed, the device will restart. If the upgrade fails, please contact official customer service for help.

4.3 Customizing the Startup Screen

1. Prepare the replacement startup screen image and rename it to “LOGO2C53T.jpg”.
2. Power on the device and connect it to the computer using a USB-A to Type-C data cable.
3. Open Settings and enable USB Sharing. Drag the prepared startup logo into the “LOGO” folder on the device's USB drive.
4. Once the operation is complete, the custom logo will be applied the next time the device starts up.

Notice: before changing the logo, please carefully check the file name, image pixel size, format, etc.

5. Common In-circuit Testing Methods

The following procedures describe the recommended oscilloscope setup for typical measurements in electronic circuits. The probe attenuation ratio (1X or 10X) is chosen according to the expected level of the measured signal – the probe and the oscilloscope must always be set to the same ratio.

5.1 Battery or DC voltage measurement

Gear selection

The battery voltage is generally below 80V, and other DC voltages are uncertain. It is necessary to adjust the gear according to the actual situation – if it is below 80V, use 1X gear, and if it is above 80V, use 10X gear (both the probe and oscilloscope are set to the same gear).

① Firstly, set the oscilloscope to Auto trigger mode (default after startup), which is used to test periodic signals (DC voltage belongs to periodic signals).

② Set the oscilloscope to the corresponding gear (default 1X after startup).

③ Set the oscilloscope to DC coupling mode.

④ Insert the probe and pull the switch on the probe handle to the corresponding gear position.

⑤ Ensure that the battery has power or DC voltage output.

⑥ Connect the probe clamp to the negative pole of the battery or DC source, and connect the probe tip to the positive pole.

⑦ Press the [AUTO] button once, and the DC electrical signal will be displayed. Note that battery voltage or other DC voltages have no curve or waveform – only a straight line with an up/down offset – and the peak-to-peak value (Vpp) and frequency (F) of this signal are both zero.

5.2 Crystal oscillator measurement

Gear selection

When the crystal oscillator encounters capacitance, it is easy to stop oscillation. The input capacitance of the 1X probe is as high as 100-300pF, while the 10X gear is around 10-30pF; oscillation easily stops in the 1X gear, so both the probe and oscilloscope need to be switched to the 10X gear.

① Firstly, set the oscilloscope to Auto trigger mode (default after startup), which is used to test periodic signals (crystal oscillator resonance sine signals belong to periodic signals).

② Set the oscilloscope to 10X gear (default 1X after startup).

③ Set the oscilloscope to AC coupling mode.

④ Insert the probe and pull the switch on the probe handle to the 10X position.

⑤ Ensure that the crystal oscillator motherboard is powered on and running.

⑥ Connect the probe clamp to the ground wire of the crystal oscillator motherboard (negative pole of the power supply), pull out the probe cap to expose the needle tip, and touch it to one of the pins of the crystal oscillator.

⑦ Press the [AUTO] button once, and the waveform of the tested crystal oscillator will be displayed. If the waveform after AUTO adjustment is too small or too large, you can manually adjust the waveform size in zoom mode.

5.3 PWM signal measurement of MOS transistor or IGBT

Gear selection

The PWM signal voltage for directly driving MOS tubes or IGBTs is generally within 10V~20V, and the PWM front-end control signal is also generally within 3-20V. The maximum test voltage for 1X gear is 80V, so using 1X gear for testing PWM signals is sufficient (both the probe and oscilloscope set to 1X gear).

① Firstly, set the oscilloscope to Auto trigger mode (default after startup), which is used to test periodic signals (PWM belongs to periodic signals).

② Set the oscilloscope to 1X gear (default after startup).

③ Set the oscilloscope to DC coupling mode.

④ Insert the probe and move the switch on the probe handle to the 1X position.

⑤ Ensure that the PWM motherboard has a PWM signal output at this time.

⑥ Connect the probe clamp to the S pole of the MOS tube and the probe tip to the G pole of the MOS tube.

⑦ Press the [AUTO] button once, and the measured PWM waveform will be displayed. If the waveform after AUTO adjustment is too small or too large, you can manually adjust the waveform size in zoom mode.

5.4 Signal generator output measurement

Gear selection

The output voltage of the signal generator is within 30V, and the maximum test voltage for 1X gear is 80V. Therefore, using 1X gear for testing the signal generator output is sufficient (both the probe and oscilloscope set to 1X gear).

① Firstly, set the oscilloscope to Auto trigger mode (default after startup), which is used to test periodic signals (the signal output by the signal generator belongs to periodic signals).

② Set the oscilloscope to 1X gear (default after startup).

③ Set the oscilloscope to DC coupling mode.

④ Insert the probe and move the switch on the probe handle to the 1X position.

⑤ Ensure that the signal generator is turned on, working, and outputting a signal.

⑥ Connect the probe clamp to the black clamp on the output line of the signal generator, and connect the probe tip to the red output line.

⑦ Press the [AUTO] button once, and the waveform output by the generator will be displayed. If the waveform after AUTO adjustment is too small or too large, you can manually adjust the waveform size in zoom mode.

5.5 Household electric supply 220V or 110V measurement

Gear selection

Household electricity is generally 180-260V, with a peak-to-peak voltage of 507-733V. In some countries, household electricity is 110V, with a peak-to-peak voltage of 310V. The highest measurement for 1X gear is 80V, and the highest measurement for 10X gear is 800V (10X gear can withstand up to 1600V peak-to-peak). Therefore, it is necessary to set it to 10X gear, which means that both the probe and oscilloscope must be switched to 10X gear.

① Firstly, set the oscilloscope to Auto trigger mode (default after startup), which is used to test periodic signals (50Hz household power is considered a periodic signal).

② Set the oscilloscope to 10X gear (default 1X after startup).

③ Set the oscilloscope to DC coupling mode.

④ Insert the probe and move the switch on the probe handle to the 10X position.

⑤ Ensure that there is a household electrical output at the tested end.

⑥ Connect the probe clamp and probe tip to the two wires of the household appliance, without distinguishing between positive and negative poles.

⑦ Press the [AUTO] button once, and the waveform of the household electricity will be displayed. If the waveform after AUTO adjustment is too small or too large, you can manually adjust the waveform size in zoom mode.

5.6 Power ripple measurement

Gear selection

If the power output voltage is below 80V, set it to 1X gear (both the probe and oscilloscope set to 1X gear). If it is between 80-800V, set it to 10X gear (both the probe and oscilloscope set to the same gear).

① Firstly, set the oscilloscope to Auto trigger mode (default after startup), which is used to test periodic signals.

② Set the oscilloscope to the corresponding gear (default 1X after startup).

③ Set the oscilloscope to AC coupling mode.

④ Insert the probe and move the switch on the probe handle to the corresponding gear position.

⑤ Ensure that the power supply is powered on and there is a voltage output.

⑥ Connect the probe clamp to the negative terminal of the power output, connect the probe tip to the positive terminal, and wait about 10 seconds for the display to settle.

⑦ Press the [AUTO] button once, and the power ripple will be displayed.

5.7 Inverter output measurement

Gear selection

The output voltage of the inverter is similar to that of household electricity, usually around a few hundred volts, so it needs to be set to the 10X gear (both the probe and oscilloscope set to the 10X gear).

① Firstly, set the oscilloscope to Auto trigger mode (default after startup), which is used to test periodic signals (the signals output by the inverter belong to periodic signals).

② Set the oscilloscope to 10X gear (default 1X after startup).

③ Set the oscilloscope to DC coupling mode.

④ Insert the probe and move the switch on the probe handle to the 10X position.

⑤ Ensure that the inverter is powered on and has a voltage output.

⑥ Connect the probe clamp and probe tip to the output end of the inverter, without distinguishing between positive and negative poles.

⑦ Press the [AUTO] button once, and the waveform output by the inverter will be displayed. If the waveform after AUTO adjustment is too small or too large, the waveform size can be manually adjusted in zoom mode.

5.8 Power amplifier or audio signal measurement

Gear selection

The output voltage of the power amplifier is generally below 40V, and the maximum test voltage for 1X gear is 80V, so using 1X gear is sufficient (both the probe and oscilloscope set to 1X gear).

① Firstly, set the oscilloscope to Auto trigger mode (default after startup).

② Set the oscilloscope to 1X gear (default after startup).

③ Set the oscilloscope to AC coupling mode.

④ Insert the probe and move the switch on the probe handle to the 1X position.

⑤ Ensure that the amplifier is turned on, working, and outputting an audio signal.

⑥ Connect the probe clamp and probe tip to the two output terminals of the power amplifier, without distinguishing between positive and negative poles.

⑦ Press the [AUTO] button once, and the waveform output by the power amplifier will be displayed. If the waveform after AUTO adjustment is too small or too large, you can manually adjust the waveform size in zoom mode.

5.9 Automotive communication signals / bus signals measurement

Gear selection

Communication signals used in automobiles are generally lower than 20V, and the highest test voltage for 1X gear is 80V. Therefore, using 1X gear for testing automotive communication signals is sufficient (both the probe and oscilloscope set to 1X gear).

① Firstly, set the oscilloscope to Normal trigger mode (default after startup is Auto). The Normal trigger mode is specifically used to measure non-periodic digital signals – if you use Auto trigger mode, you cannot capture non-periodic signals.

② Set the oscilloscope to 1X position (default after startup).

③ Set the oscilloscope to AC coupling mode.

④ Insert the probe and move the switch on the probe handle to the 1X position.

⑤ Connect the probe clamp and probe tip to two signal wires of the communication line, regardless of positive or negative. If there are multiple signal wires, determine the signal wires in advance or try selecting two of them multiple times to test.

⑥ Ensure that there is a communication signal on the communication line at this time.

⑦ Adjust the vertical sensitivity to the 50mV gear.

⑧ Set the time base to 20μS.

⑨ When there is a communication signal on the communication line, the oscilloscope will capture it and display it on the screen. If it cannot be captured, try adjusting the time base (1mS~6nS) and the trigger level (red arrow) multiple times for debugging.

5.10 Infrared remote control receiver measurement

Gear selection

The infrared remote control signal generally ranges from 3 to 5, with a maximum test voltage of 80V in 1X gear. Therefore, using 1X gear for testing the infrared receiver signal is sufficient (both the probe and oscilloscope set to 1X gear).

① Firstly, set the oscilloscope to Normal trigger mode (default after startup is Auto). The Normal trigger mode is specifically used to measure non-periodic digital signals; the infrared remote control signal belongs to a non-periodic digital coding signal and would not be captured in Auto mode.

② Set the oscilloscope to 1X position (default after startup).

③ Set the oscilloscope to DC coupling mode.

④ Insert the probe and move the switch on the probe handle to the 1X position.

⑤ Connect the probe clamp to the ground terminal (negative pole) of the infrared receiver motherboard, and connect the probe tip to the data pin of the infrared receiver head.

⑥ Set the vertical sensitivity to the 1V gear.

⑦ Set the time base to 20μS.

⑧ Adjust the trigger red arrow position to approximately 1 large grid distance above the yellow arrow position on the left.

⑨ At this point, use the remote control to send a signal to the infrared receiver, and a waveform will appear on the oscilloscope.

5.11 Amplification circuits with sensors (temperature, humidity, pressure, Hall, etc.) measurement

Gear selection

Sensor signals are generally relatively weak, about a few millivolts, and this small signal cannot be directly detected by an oscilloscope. This type of sensor has a signal amplifier on the motherboard which can measure the amplified signal. The 1X gear can be used (both the probe and oscilloscope set to 1X gear).

① Firstly, set the oscilloscope to Auto trigger mode (default after startup).

② Set the oscilloscope to 1X position (default after startup).

③ Set the oscilloscope to DC coupling mode.

④ Insert the probe and pull the switch on the probe handle to the 1X position.

⑤ Connect the probe clamp to the ground terminal (negative pole of the power supply) of the sensor motherboard, locate the output terminal of the amplification section, and connect the probe tip to this output terminal.

⑥ Adjust the vertical sensitivity to the 50mV gear.

⑦ Switch to keyboard movement mode and move the yellow arrow horizontally to the bottom of the waveform.

⑧ Adjust the time base to 500mS and enter the large time base slow scan mode.

⑨ If the yellow signal line appears at the top, it is necessary to reduce the vertical sensitivity (100mV, 200mV, 500mV, etc.). When the updated signal on the right is not at the top (usually in the middle), the signal received by this sensor can be detected at this time.

6. Notice (Safety)

- When dual channels are used simultaneously, the ground clamps of the two probes must be connected together. It is strictly prohibited to connect the ground clamps of the two probes to different potentials, especially at different phase terminals or 220V of high-power equipment. Otherwise, the oscilloscope motherboard will be burned because the two channels are grounded together inside the device, and connecting to different potentials will cause a short circuit in the internal ground wires of the motherboard – as is the case with all oscilloscopes.
- The maximum tolerance for the BNC input of the oscilloscope is 400V, and it is strictly prohibited to input a voltage exceeding 400V under the 1X probe switch.
- When charging, a separate charger must be used. It is strictly prohibited to charge the device from the power supply or USB port of another currently tested device, as this may cause a short circuit in the motherboard ground wire and burn the motherboard during testing.
- Before using the product, please check whether the insulation near the shell and the interfaces is damaged.
- Please hold your finger behind the protective guard of the test lead.
- When measuring the circuit under test, do not touch any of the input connectors.
- Please disconnect the test probe from the circuit before changing the gear position.
- When the DC voltage to be tested is higher than 36V, or the AC voltage is higher than 25V, users should take precautions to avoid electric shock.
- When the battery level is too low, a pop-up prompt will appear – please charge it in a timely manner to avoid affecting measurement performance.

7. Manufacturer

The FNIRSI-2C53T is manufactured, and technically supported, by the company below. For purchase, warranty claims, and returns in the Czech Republic, please contact the importer, Rotorama, s.r.o. (chapter 8.1).

Manufacturer	Shenzhen FNIRSI Technology Co., Ltd.
Address	West of Building C, Weida Industrial Park, Dalang Street, Longhua District, Shenzhen, Guangdong, China
Phone	0755-28020752
Web	www.fnirsi.cn
E-mail (business)	business@fnirsi.com
E-mail (service & support)	service@fnirsi.com

8. Information for the EU and Czech Market

8.1 Importer and responsible person in the EU

The product is placed on the European Union market by the importer stated below, who is at the same time the responsible person within the meaning of Article 16 of Regulation (EU) 2023/988 of the European Parliament and of the Council on general product safety (GPSR).

Importer / responsible person in the EU	Rotorama, s.r.o.
Company ID (IČO)	051 57 692
VAT ID (DIČ)	CZ05157692
Registered office	Okrajová 1351, 674 01 Třebíč, Czech Republic
E-mail	info@rotorama.cz
Phone	+420 252 252 098
Website	www.rotorama.cz

8.2 Product conformity

CE

- The product bears the **CE** marking and complies with the requirements of the applicable European Union harmonisation legislation.
- A copy of the **EU Declaration of Conformity** is available from the importer at the address stated above or at the e-mail address info@rotorama.cz.
- **Product identification:** the type designation (2C53T) and the serial number are given on the rating label on the back of the device; the firmware version number can be found in *Settings → About*.

8.3 Disposal of electrical equipment and batteries

- The crossed-out wheeled bin symbol on the product, its packaging or in the documentation means that at the end of its service life the product **must not be disposed of together with mixed municipal waste**.
- Hand it over at a take-back point for electrical equipment – at a collection yard, at a take-back point of a collective system, or at the retailer when purchasing a new equivalent product. Take-back is free of charge for the end user.
- The product contains a built-in rechargeable battery. Where possible, hand it over together with the device – do not dispose of the battery in mixed waste or in fire.
- The obligations under Act No. 542/2020 Coll., on end-of-life products, are fulfilled by the importer through a collective take-back system.
- Proper disposal helps prevent negative impacts on the environment and human health and contributes to the reuse of secondary raw materials.

Through its contractual partner **ASEKOL a.s.**, the company ensures the take-back of waste electrical equipment from households and the separate collection of waste electrical equipment, batteries and accumulators in accordance with the applicable legislation. The customer is entitled to hand over old electrical equipment or a battery or accumulator at any collection point of the above contractual partner. The addresses of these take-back points are listed at www.asekol.cz, www.ecobat.cz and also https://visoh2.mzp.cz/RegistrMistZO/RegistrMistZOPublic/MapaMistZpetOdberu.

9. Warranty and rights arising from defective performance

9.1 Rights of the buyer under Czech law

The rights and obligations of the contracting parties are governed by Czech law, in particular by Act No. 89/2012 Coll., the Civil Code, and Act No. 634/1992 Coll., on consumer protection. The manufacturer's warranty terms set out below (Chapter 9.2) **do not in any way limit** the buyer's rights arising from these regulations.

- The seller is liable to the buyer for the product being free of defects on receipt. If the buyer is a consumer, a defect may be notified **within two years of receipt** of the product (Section 2165 of the Civil Code).
- If a defect appears within **one year** of receipt, the product is deemed to have been defective already at the time of receipt (Section 2161(5) of the Civil Code).
- When purchasing online, a consumer has the right to **withdraw from the contract within 14 days** of receiving the goods without giving a reason (Section 1829 of the Civil Code).
- Claims should be made with the retailer from whom you purchased the product. The importer's contact details are given in Chapter 8.1.
- The competent body for out-of-court settlement of consumer disputes is the **Czech Trade Inspection Authority**, Štěpánská 796/44, 110 00 Prague 1, www.coi.cz.

9.2 Manufacturer's warranty terms

❊ The following text is the manufacturer's original warranty statement.

Any FNIRSI user who contacts us with questions has our promise of a satisfactory solution, plus an extra 6 months of warranty on top of the statutory period, as a thank-you for their support.