



**TELEDYNE TEST TOOLS**  
Everywhereyoulook™

# T3SA3100 / T3SA3200 Spectrum Analyzer Quick Start Guide



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## General Safety Summary

Read the following precautions carefully to avoid any personal injuries, or damage to the instrument or products connected to it. Use the instrument only as specified.

**Use only the power cord supplied for the instrument.**

**Ground the instrument.** The instrument is grounded through the ground conductor of the power cord. To avoid electric shock, always connect to grounded outlets. Make sure the instrument is grounded correctly before connecting its input or output terminals.

**Connect the signal wire correctly.** To avoid damage, observe input polarity and maximum voltage/current ratings at all times.

**Observe all terminal ratings and signs on the instrument to avoid fire or electric shock.** Before connecting to the instrument, read the manual to understand the input/output ratings.

**Do not operate with suspected failures.** If you suspect that the instrument is damaged, contact the Teledyne LeCroy service department immediately.

**Do not operate in wet/damp conditions.**

**Do not operate in an explosive atmosphere.**

**Keep the surface of the instrument clean and dry.**

**Avoid touching exposed circuits or wires.** Do not touch exposed contacts or components when the power is on.

**Do not operate without covers.** Do not operate the instrument with covers or panels removed.

**Use only the fuse specified for the instrument.**

**Use proper over voltage protection.**

**Use anti-static protection.** Operate in an anti-static protected area. Ground measurement cable conductors before connecting to the instrument to discharge any static electricity before connecting the cables to the instrument.

**Observe ventilation requirements.** Ensure good ventilation. Check the vent and fan regularly to prevent overheating.

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## Safety Terms and Symbols

The following terms may appear on the instrument:

**DANGER:** Direct injury or hazard may occur.

**WARNING:** Potential injury or hazard may occur.

**CAUTION:** Potential damage to instrument/property may occur.

The following symbols may appear on the instrument:

|                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |  |  |  |  |  |
| <b>CAUTION</b><br>Risk of injury or damage. Refer to manual.                      | <b>WARNING</b><br>Risk of electric shock or burn                                  | Earth Ground Terminal                                                             | Protective Conductor Terminal                                                     | Frame or Chassis Terminal                                                          | ON/ Standby Power                                                                   | Alternating Current                                                                 |

## Measuring Terminal Ratings

**RF Input:** 50  $\Omega$ , Max +30 dBm,  $\pm 50$  VDC

No rated measurement category per IEC/EN 61010-031:2015. Measuring terminals on this product are not intended to be connected directly to mains.

## Operating Environment

**Temperature:** 0 °C to 50 °C

**Relative Humidity:** 95% RH at 0 to 30 °C

**Altitude:**  $\leq 3000$  m

**Use indoors only.**

**Pollution Degree 2.** Use in an operating environment where normally only dry, non-conductive pollution occurs. Temporary conductivity caused by condensation should be expected.

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## AC Power

**Input Voltage & Frequency:** 100-240 V at 50/60/400 Hz

**Automatic AC selection.**

**Power Consumption:** 30 W maximum

**Mains Supply Connector:** CAT II per IEC/EN 61010-1:2015, instrument intended to be supplied from the building wiring at utilization points (socket outlets and similar).

## Fuse Type

100 V / 110 V : 1.25A / 250 V

220 V / 230 V : 1.25A / 250 V

## 1 General Inspection

Please check the instrument according to the following steps.

### 1. Inspect the shipping container.

Keep the shipping container and packaging material until the contents of the shipment have been completely checked and the instrument has passed both electrical and mechanical tests. It is always good practice to save the shipping container and packaging for use when returning the power supply to Teledyne LeCroy for service or calibration.

The consigner or carrier will be responsible for damage to the instrument resulting from shipping. Teledyne LeCroy will not provide free maintenance or replacement in this instance.

### 2. Inspect the instrument.

If the instrument is found to be damaged, defective or fails in electrical or mechanical tests, please contact the Teledyne LeCroy service department immediately.

### 3. Check the accessories.

Please check that you have received the accessories on the packing list. If the accessories are incomplete or damaged, please contact Teledyne LeCroy immediately.

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## Care

Do not store or leave the instrument in direct sunshine for extended periods of time.

**Note:** To avoid damage to the instrument, please do not leave it in a corrosive atmosphere, any liquid, or solvent.

## Cleaning

Regularly perform the following steps to clean the instrument.

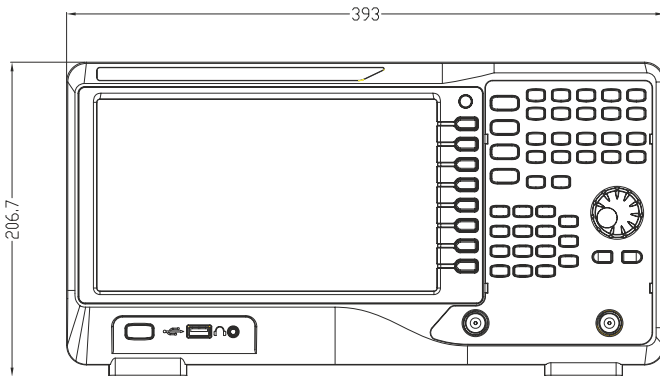
1. Disconnect the instrument from all power sources, then clean it with a soft, damp cloth.
2. Remove loose dust on the outside of the instrument with a soft cloth. When cleaning the LCD, take care to avoid scratching it.

**Note:** To avoid damage to the surface of the instrument, please do not use any corrosive liquid or chemical cleanser. Make sure that the instrument is completely dry before restarting it to avoid short circuit or personal injury.

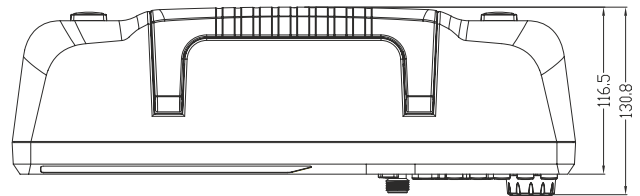


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## Appearance and Dimensions



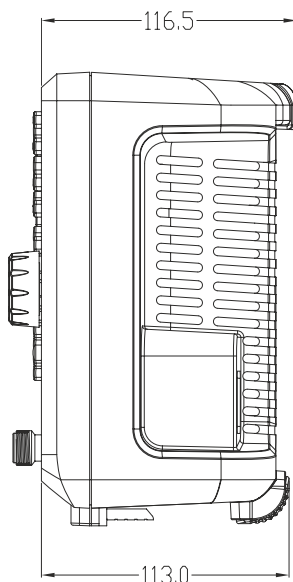
Front View



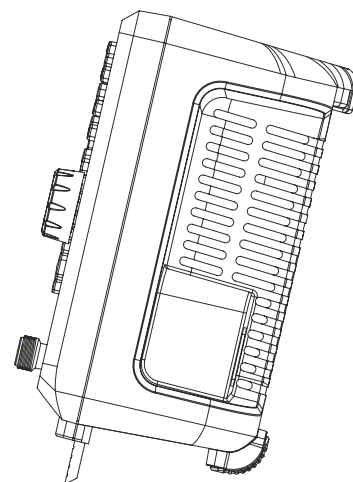
Top View

### Adjust the Supporting Legs

Adjust the supporting legs to tilt the Spectrum Analyzer upwards for stable placement, and easier operation and observation of the instrument.



Before Adjusting



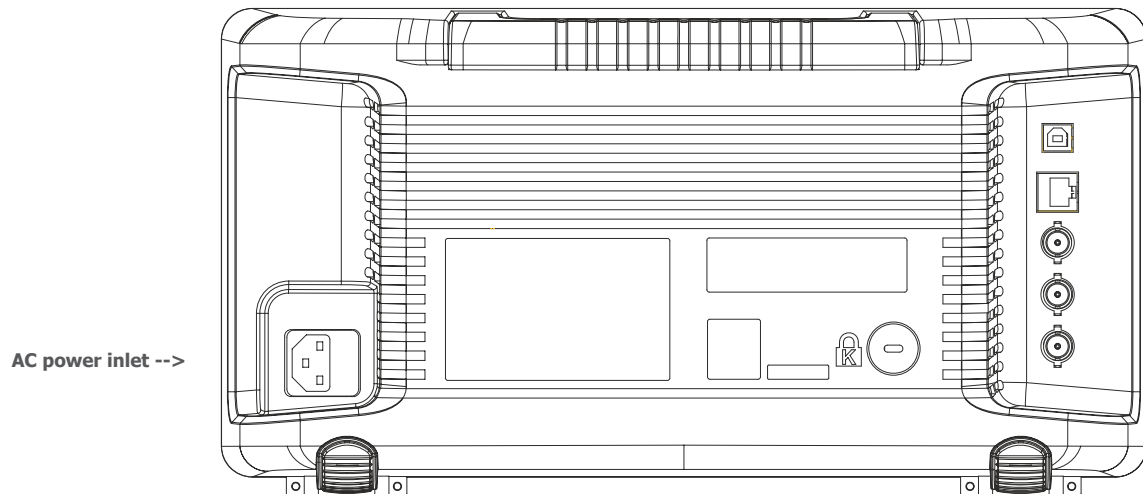
After Adjusting

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## Connecting to the AC Power Supply

The Spectrum Analyzer accepts 100-240V, 50/60/440Hz AC power supply. Please use only the power cord provided to connect the instrument to the power source.

Connect the power cord to the AC inlet as shown in the figure below.



## 2. General Description

The T3SA3x00 series spectrum analyzer has a frequency range from 9 kHz up to 2.1 GHz / 3.2 GHz. It is lightweight and small in size, with a user-friendly interface, concise display style, reliable measurement precision, and plenty of RF measurement functions. Applicable to research and development, education, production, maintenance and other related fields, it meets a wide range of user

### The Front Panel



1. Graphical User Interface
2. Menu Control Keys
3. Function Keys
4. Numeric Keyboard
5. Adjust Knob
6. Arrow Keys

7. RF Input
8. Tracking Generator Output
9. Earphone interface
10. USB Host
11. Power Switch

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## Function Details:

**Frequency:** Sets the Center Freq \ Start Freq \ Stop Freq \ Freq Step

**Span:** Sets the Span \ Full Span \ Zero Span \ Zoom In \ Zoom Out \ Last Span

**Amplitude:** Sets the REF Level \ Attenuator \ Preamp \ Amplitude

**Auto Tune:** Automatically sets the optimal parameters according to the characteristics of the signal

**BW:** Adjusts the RBW, VBW, VBW / RBW Rate, Average Type (Log power \ Power \ Voltage)

**Trace:** Selects Trace \ Trace Setup \ Trace Math

**Sweep:** Selects the Sweep Time \ Sweep Rule \ Sweep Mode

**Detect:** Selects the Detector Type

**Trigger:** Selects the Free Trigger \ Video Trigger \ External Trigger

**Limit:** Sets the Pass \ Fail Limit

**TG:** Sets the Tracking Generator Level \ TG Level Offset \ Normalize

**Demod:** Sets AM and FM Parameters

**Marker:** Selects the Marker Trace and Marker Math

**Marker→:** Sets Markers to Freq

**Marker Fn:** Selects the Noise Marker \ N dB BW \ Freq Counter \ Read Out of Freq

**Peak:** Searches for the Peak Signal and counts the Peak Frequency

**Meas:** Selects the Channel Power \ ACPR \ Occupied BW \ T-Power

**Meas Setup:** Used to choose the Parameter Details for Channel Power \ ACPR \ Occupied BW \ T-Power

**System:** Selects the Language \ Power on/Preset \ Interface \ Calibration \ System Information \ Data & Time \ Self Test

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## Function Details Continued:

**Mode:** Selects the Spec Analyzer \ EMI \ Reflection Meas

**Display:** Used to adjust the Grid Brightness \ Display Line

**File:** Selects the File System

**Preset:** Resets the system to default status

**Couple:** Selects the RBW \ VBW \ Attenuator \ Freq Step \ Sweep Time Mode

**Help:** Opens Help Information

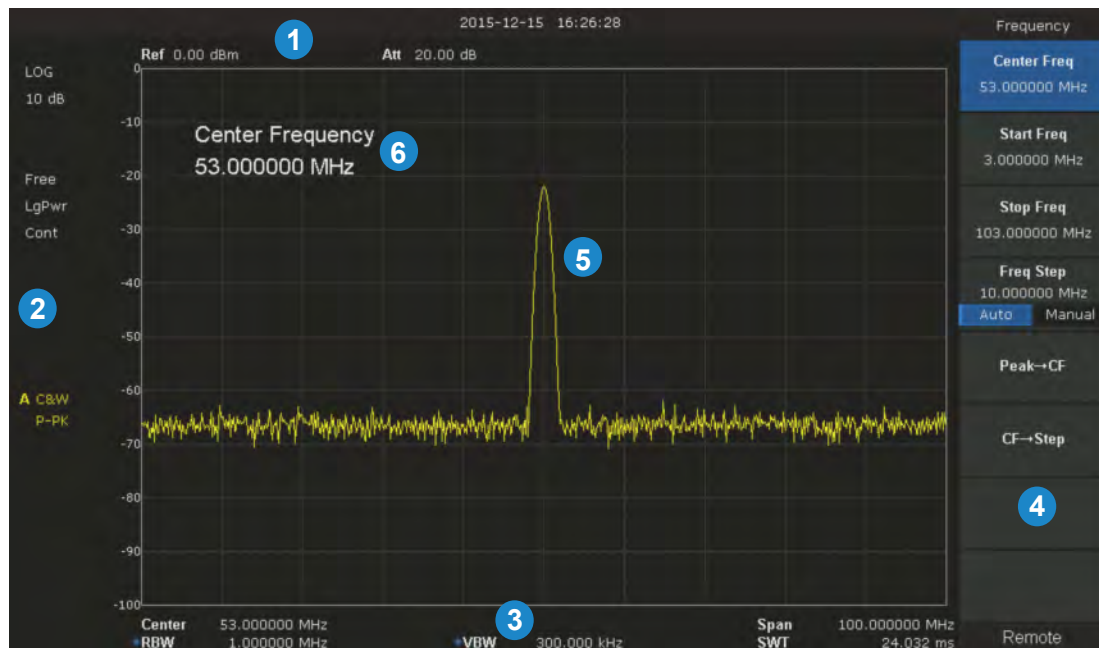
**Save:** Save Shortcut Key

## Rear Panel



- |                       |                          |
|-----------------------|--------------------------|
| 1. Handle             | 5. 10MHz Reference Out   |
| 2. USB Device         | 6. External Trigger In   |
| 3. Function Keys      | 7. Kensington Lock Point |
| 4. 10MHz Reference In | 8. AC Power Socket       |

## Graphical User Interface



1. Top of the screen information area.
2. Left of the screen information area.
3. Bottom of the screen information area.

The top, left and bottom screen information areas show the current setup and use status.

4. Softkey menus showing options and settings.
5. Waveform display area.
6. Active parameter.

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## User Notices and Warnings



### RF Input

Ensure that the input signal to the RF input port does not contain more than 50 Volts DC, otherwise damage will occur to the instrument. The AC (radio frequency) input signal component should not exceed a maximum continuous power level of +30dBm.



### Tracking Generator Output

To avoid damage to the tracking generator, The reverse DC voltage must not exceed 50V DC.



## More Information

You can view your instrument model, serial number, and hardware and software version by selecting **System ->Information**.

For more information about this product, please refer to the following manuals:

**Spectrum Analyzer User Manual:** provides detailed information about the functions of this product.

**Spectrum Analyzer Datasheet:** provides the main characteristics and specifications of this product.



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## ABOUT TELEDYNE TEST TOOLS

### Company Profile

Teledyne LeCroy is a leading provider of oscilloscopes, protocol analyzers and related test and measurement solutions that enable companies across a wide range of industries to design and test electronic devices of all types. Since our founding in 1964, we have focused on creating products that improve productivity by helping engineers resolve design issues faster and more effectively. Oscilloscopes are tools used by designers and engineers to measure and analyze complex electronic signals in order to develop high-performance systems and to validate electronic designs in order to improve time to market.

The Teledyne Test Tools brand expands on the Teledyne LeCroy product portfolio by adding a comprehensive range of test equipment solutions for its customers. The new range of product solutions deliver engineers with a broad range of quality test solutions that enables speed to market product validation and design. More and more designers, engineers and lecturers are relying on Teledyne Test Tools to meet their testing, education and electronics validation needs with confidence and within budget.

### Location and Facilities

Headquartered in Chestnut Ridge, New York, Teledyne Test Tools and Teledyne LeCroy have sales, service and development subsidiaries in the US and throughout Europe and Asia. Teledyne Test Tools and Teledyne LeCroy products are employed across a wide variety of industries, including semiconductor, computer, consumer electronics, education, military/aerospace, automotive/industrial, and telecommunications.

