

TinySA Basic Model – Introduction and First Use

AD6AE



WARNING: Be aware of bad quality copy products, see [where to buy](#) below.

The tinySA is already well documented. *This post will refer only to the TinySA 'Basic' model.* There is a lot of documentation online. Any or all of it can be copied and pasted. Links for the Menu Options are listed and will open sub-links that provide greater detail. They're not lab-grade but are quite accurate for the price. Validate all claims — reading a post in a user's group doesn't make it so.

Welcome to the tinySA® wiki! [tinySA | Main / HomePage](#); [hamcom.dk/TinySA/TinySA ULTRA_UK.mp4](#)
For a complete manual: [Description of TinySA a real Spectrum Analyzer for little money.pdf](#)

Note: The text refers to **Low** (lower port) and **High** (upper port) which double as **Inputs** or **Outputs**. This refers to physical connector positions as well as signal levels and frequency ranges. When selected, the low port produces a Sine Wave output; the high produces a Square Wave output. High In/Out is the Upper SMA Jack and Low In/Out is the Lower SMA Jack.

The tinySA Units are small spectrum analyzers and signal generators with some nice capabilities:

- **tinySA Basic**
 - Screen size 2.8 inches
 - Spectrum Analyzer with two inputs, high quality MF/HF/VHF (lower) input port for 0.1MHz-350MHz, lesser quality UHF (upper) input port for 240MHz-960MHz or
 - Signal Generator with two outputs, sine wave output for 0.1MHz - 350MHz and square wave output for 240MHz-960MHz when not used as Spectrum Analyzer.
 - Switchable resolution bandpass filters for both ranges between 2.6kHz and 640kHz
 - Color display showing max 290 scan points providing gapless covering up to the full low or high frequency range.

Introduction and other videos - Kurt Poulson

- A short 7 minute video introducing the main features of the tinySA can be found [here](#).
- A short introduction video to the tinySA Ultra can be found [here](#).
- Many more videos available in "my [YouTube channel](#)"
- Erik Kaashoek has created a very extensive introduction video for the tinySA Ultra. Watch it [here](#)

Manual: For those that prefer to read a document instead of browsing a wiki.

- The English version can be found [here](#).
([Description of TinySA a real Spectrum Analyzer for little money.pdf](#))
- A second option is a PDF version of the wiki, which allows for easier reading for some people, that can be found [here](#) (tinysa@groups.io | Home)

Main subjects covered in this wiki:

- [Spectrum Analyzer introduction](#)
- [Make sure you do not buy a bad performing illegal copy product](#)
- [First use](#)
 - Follow link and read left navigation bar for all menu options

Credits: The tinySA Firmware (FW) is based on the NanoVNA FW created by edy555

Be aware of bad performing illegal copies. Buying elsewhere is at your own risk.

Safe places to buy an original tinySA

- **Aursinc on Amazon**
- **SeeSii store on Amazon**
- [Zeenko store on AliExpress](#). This is the factory store, guaranteed to deliver genuine tinySA. Other sellers on AliExpress may sell bad clones. To be sure, only buy from Zeenko store on AliExpress.
- [R&L Electronics](#) in the USA. When the tinySA is listed as "out of stock" R&L can still take you order and will only charge your credit card when the product is available again (which may take a few weeks).
- [Eleshop](#) in Europe
- [Switch Science](#) in Japan
- [Taobao](#) in China
- [1688](#) in China

The 'tinySA' Basic model - First Use

After completing the setup steps you can begin using the **tinySA**. Visit the [Videos](#) page for ideas how to use the tinySA and if you get stuck, the "[Getting support](#)" page may have the answer.

1. Unpack

2. Charge the Internal tinySA Battery

3. Check tinySA Authenticity

If you did not purchase from the '[Where to buy](#)' page you may be holding a fake.

4. Update Firmware – Not necessary; works well out of the box.

The tinySA arrives with the current firmware version of the manufacture date. But some owners want to [Update the firmware](#).

5. The included instructions outline how to:

- **Run the Self-test – Required on First Use – Optional Anytime Thereafter**
- **Calibrate**
- **Warnings — Avoiding Input Overload**

6. The tinySA is Now Ready to Use

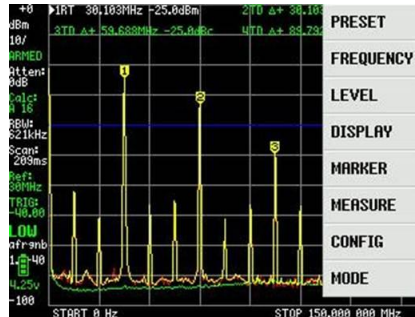
Connect an input signal or antenna to the low input and go back to the [INPUT](#) menu, you can select which input to use from the [MODE](#) menu, select either [LOW INPUT](#) or [HIGH INPUT](#).

Use the [FREQ](#) menu to set the frequency range displayed and the [LEVEL](#) menu to set the displayed levels.

You can always go back to a defined state by clicking the [PRESET](#) button in the input menu and then [LOAD STARTUP](#)

Screen Info and Jog wheel

The screen is divided in 5 areas.



1. Info Panel – Left Side

From top to bottom the following info is shown (between brackets the actual info shown)

- Reference level (+0) turns green when manually set, white when automatic
- Unit (dBm)
- Scale (10dBm/square) turns green when manually set, white when automatic.
- Scan status (ARMED) can be PAUSED either manually or when single sweep is done, auto rearms.
- Attenuation (0dB) turns green when **manually set**; white when automatic.
- Calculation (A 16 means a Running Average of 16 measurements), only shown when calculation active.
- RBW (612kHz) turns green when manually set, white when automatic.
- Scan time as measured (209ms), turns red while first scan is still in progress after changing settings.
- Cal output frequency (30MHz); is only shown when cal. output is active.
- Amplification of the external amplifier or attenuator; only shown when not zero.
- Trigger level set (-40dBm), turns red when waiting for trigger in NORMAL mode, turns green when SINGLE trigger completed. Only shown when not in AUTO
- Input mode (LOW) LOW is low input mode/port. HIGH is high input mode/port.
- Compact setting status (afrngb) all lower case letters mean everything is on automatic.
- FW version (1.0-40)
- Battery Charge Level and Voltage
- Measurement Baseline level (-100dBm)

2. Marker Panel – Across Top

- Shows info for a maximum of 4 active markers. Symbol Legend:
- An optional arrow indicates the currently selected marker
- The type of marker is denoted with some letters. R=Reference, D=Delta marker, N=Noise marker with level normalized per Hz RBW
- The frequency of the marker, a '+' or '-' indicates a delta frequency
- Level of the marker. If no unit is indicated the level is in dBmW or in dBc for a delta marker. A marker can be selected by touching its marker info. A selected marker can be positioned using the jog switch unless it is a tracking marker. Only one marker can be a Reference marker.

3. Scan Info – Across Bottom

- Shows the Start/Stop, Center/Span or Zero span/Scan time info.
- Scan info can be selected by touching the info. Selected info is marked with a caret symbol and can be changed using the jog switch

4. Measurement Panel (Display) – On Screen

Shows maximum 3 traces.

- Yellow trace is the measurement trace, either as measured (when no calculation is active) or as calculated.
- If a calculation is active a red trace shows the info from the last scan.
- The stored info is shown in a green trace
- Shows maximum of 4 markers. Tracking markers are automatically positioned. Non-tracking markers can be grabbed and shifted to any location, or the **MARKER SEARCH** can be used to position them.
- The active trigger level is indicated with a blue line

5. Menu – Right Side

The menu is shown after touching the screen or pushing the jog button. This menu activation aborts the current sweep. After the menu setting is finished the sweep (when not in paused mode) will restart with the possibly updated settings.

6. Jog wheel – Top Right of Case Edge (beside power switch)

(Touch Screen is the primary and the Jog wheel is an alternate means of user input.)

- Pressing in (no left or right movement) toggles and activates menus.
- Pushing left or right moves the cursor left or right when no menu is displayed.
- Pushing left or right while a menu is displayed highlights and steps through the displayed menu options.
- Pushing left or right during startup starts the tinySA without loading any user settings
- The jog wheel is the only source for user input when certain menus are activated, such as Brightness.

tinySA Menu Tree – Lists All of The Main Menu Sub-Functions in Detail

Everything the device can do is in the Home Screen Menu Tree links and are too detailed to show here.

Home Screen Main Menu

- **PAUSE** pauses the sweep (no link).
- **PRESET** loads or saves configurations.
- **FREQ** sets everything related to the frequency range to scan.
- **LEVEL** sets everything related to the level of the signals being measured.
- **TRACE** sets everything related to a trace including storage
- **DISPLAY** controls various aspects of how the signals are being displayed.
- **MARKER** controls the markers on the display.
- **MEASURE** helps to quickly set the tinySA for certain measurements.
- **STORAGE** opens the storage menu. In some models, may be listed in the **Trace Menu**.
- **CONFIG** opens the configuration menu.
- **MODE** opens the input/output mode switching menu.

“It isn’t what you don’t know that gets you in trouble, but what you know for sure that just ain’t so.” – *Mark Twain*