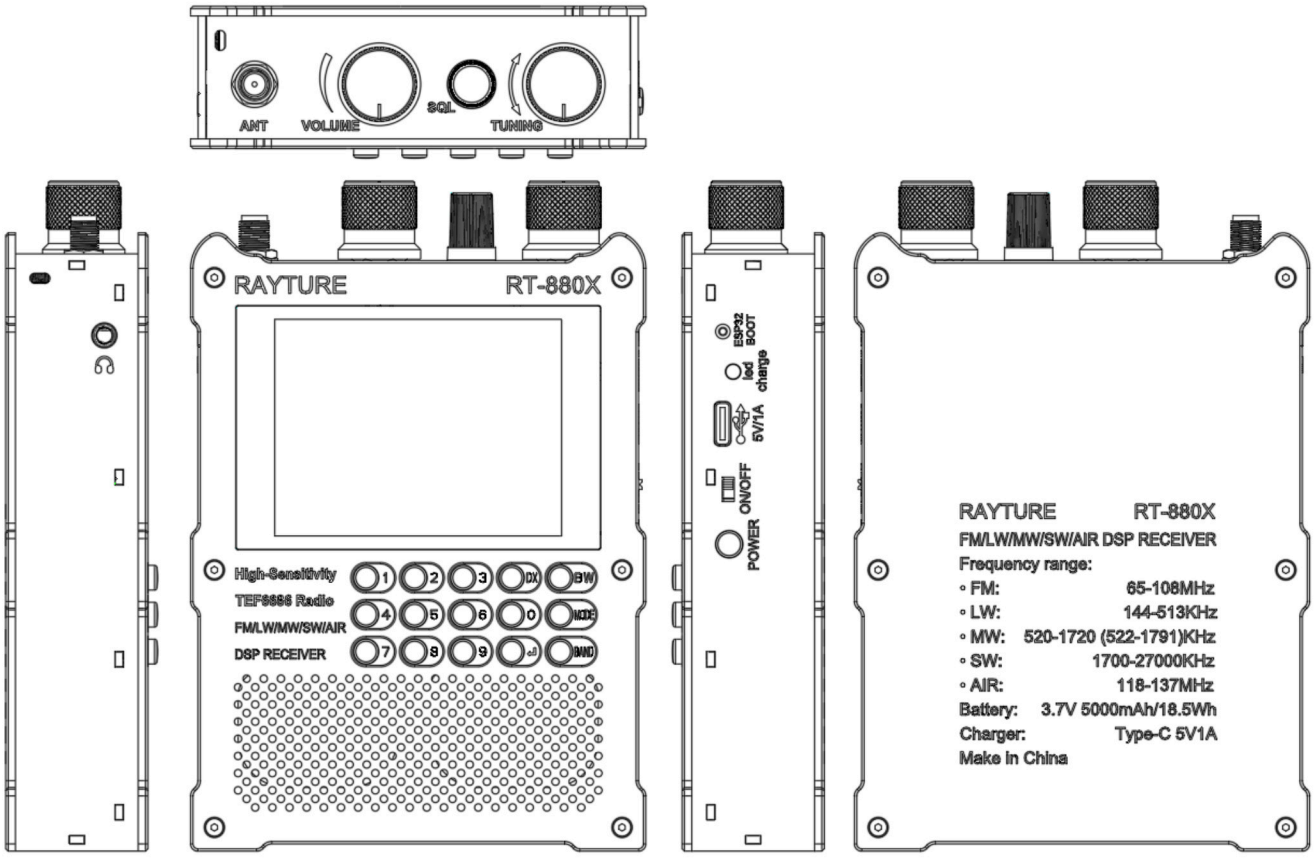
RT-880X

High-Sensitivity Color-Screen Receiver

User Manual



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1 Product Overview

The RT-880X is a multiband color-display receiver based on the TEF6686 receiver platform and an ESP32 control platform. It supports FM, OIRT, LW, MW, SW, and AIR reception, with manual tuning, automatic scanning, direct frequency entry, 198 presets, RDS information, WiFi networking, time synchronization, and multiple reception interfaces.

1.1 Key Specifications and Features

Category	Function
Reception	FM, OIRT, LW, MW, SW, AIR.
Tuning	MAN manual tuning, AUTO seek tuning, MEM preset recall, and direct frequency input.
Reception Processing	AUTO BW, manual bandwidth, stereo/mono, iMS, EQ, squelch, FM/AM AGC, and noise processing.
Presets and Scanning	198 presets, DX scanning, memory-channel scanning, and automatic FM scanning and storage.
RDS	PI, PS, Long PS, PTY/PTYN, RT/eRT/RT+, AF, EON, TP/TA, CT, and more.
Display	320×240 interface, 14 themes, multiple frequency fonts, dynamic reception views, and the Classic FM interface.
Network and Time	Up to 5 WiFi profiles, web setup, NTP, RDS time, manual time, and an external RTC.
Maintenance and Resources	Selective reset, touch calibration, logbook/CSV, XDRGTK, RDS Spy, Stationlist, and firmware information.
Antenna	Built-in ferrite rod antenna; MW can use either the ferrite rod antenna or the SMA input.

1.2 Bands and Tuning Steps

Band	Firmware Range	Tuning Step / Notes
FM	65-108MHz	Suitable for Russia/Eastern Europe
	76-95MHz	Suitable for Japan
	76-108MHz	Suitable for campus broadcasting
	87-108MHz	Suitable for Europe/Oceania/Africa/Asia
	87.5-108MHz	Suitable for China/USA
	OIRT default tuning step: 30kHz; FM tuning steps: 50/100/200kHz; default: 100kHz	
LW	144–513 kHz	Default tuning step: 9 kHz
MW	522–1791 kHz	Default tuning step: 9 kHz
	520–1720 kHz	Default tuning step: 10 kHz
SW	1700–27000 kHz	Default tuning step: 5 kHz
AIR	118.000–137.000 MHz	Default tuning step: 25 kHz

1.3 Reception Indicators and Specifications

Display/Indicator	Meaning
S meter/Signal value	Received signal strength; selectable units: dBμV, dBf, or dBm.
M Meter / MP	Modulation, with peak hold.
CN/US	Carrier-to-noise ratio/noise indicator.
WAM/CO	FM multipath / AM co-channel interference indicator.
O/BW	Tuning offset/current bandwidth.

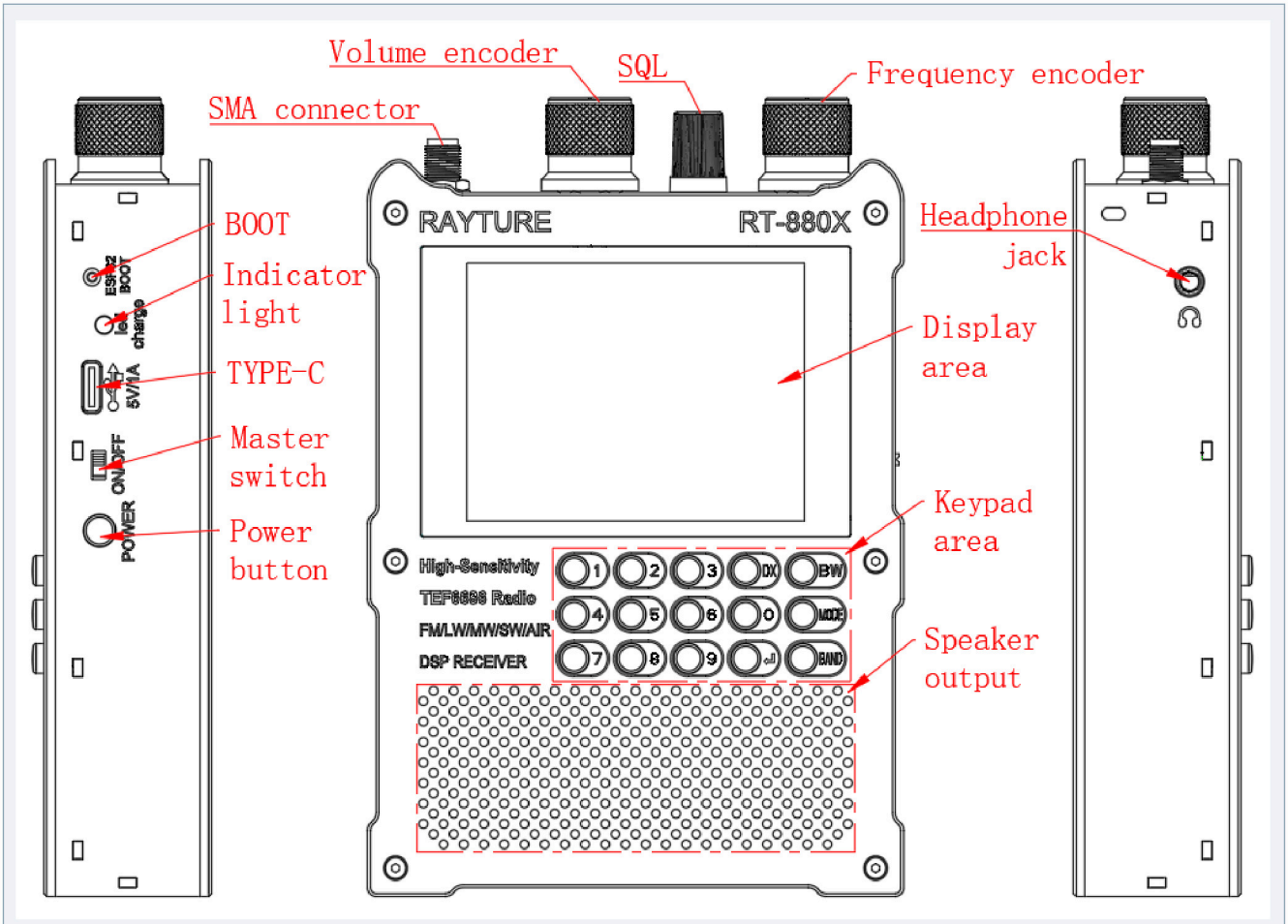
Band	Telescopic Antenna Reception Sensitivity	Selectivity
FM	FM(S/N=30dB) ≤ 0.5uV	FM ≥ 60dB(±150kHz)
Shortwave	SW(S/N=20dB) ≤ 10uV	SW ≥ 60dB(BW=3kHz/±5kHz)
MW	MW(S/N=20dB) ≤ 10uV	MW ≥ 60dB(BW=3kHz/±9kHz)
LW	LW(S/N=20dB) ≤ 10uV	LW ≥ 60dB(BW=3kHz/±9kHz)

1.4 Other Information

Item	Specification
Presets	198 presets; 20 per page across 10 pages, with presets 181–198 on the last page.
Configure Wi-Fi	Up to 5 network profiles can be saved; the scanned network list can cache up to 64 SSIDs, with 5 per page.
Display	320 × 240 pixels; physical dimensions and touch technology depend on the actual hardware.
Theme / Language	14 themes; 22 languages, including Simplified Chinese.
Main Controller	ESP32-WROOM-32U, Flash 8MB, Wi-Fi + Bluetooth dual-core module.
Tuner IC	NXP TEF6686HN/V102, chip marking F8602.

2 Exterior, Connectors, and Controls

2.1 Front and Rear Panels

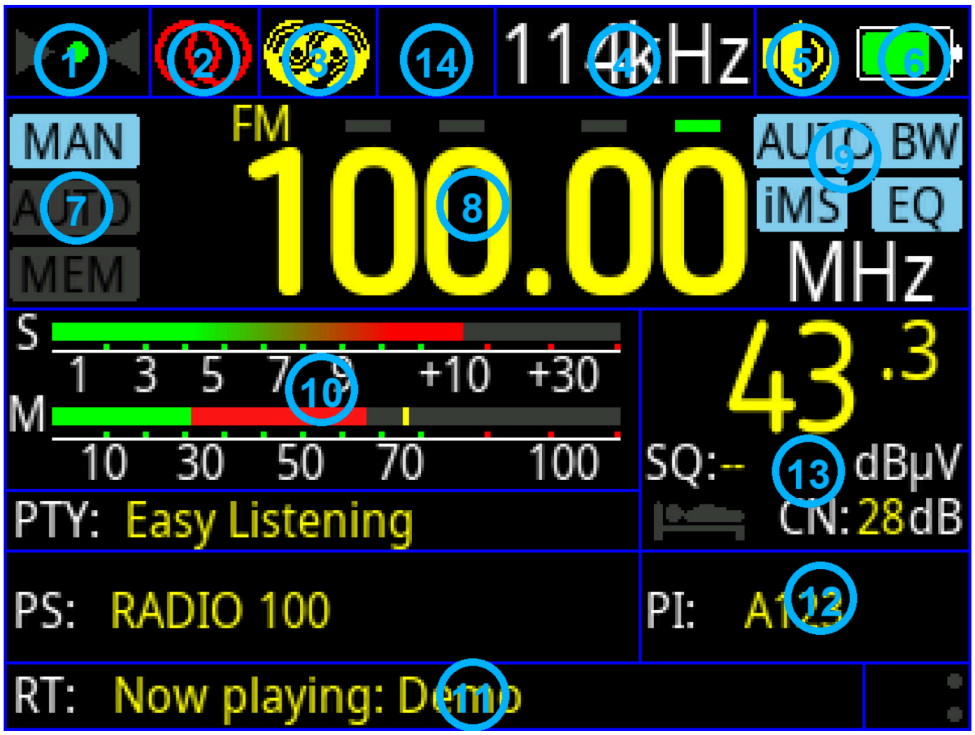


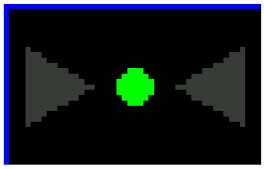
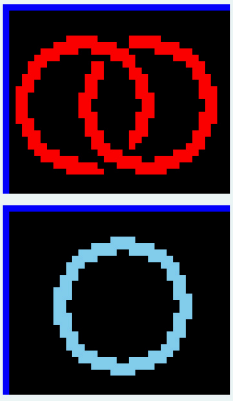
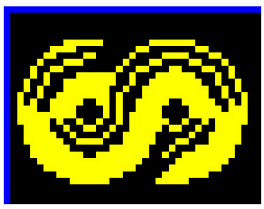
Control	
BOOT	Hold BOOT and then press the power button to start the device in flashing mode.
Main Power Switch and Power Button	Turn off the main power switch when the device will not be used for an extended period.
Volume encoder	Adjusts the volume
Tuning encoder	Tune frequency
SQL Potentiometer	Adjust squelch
SMA connector	Connects the antenna
Button area	Numeric keys, Delete, Enter, BW, MODE, BAND

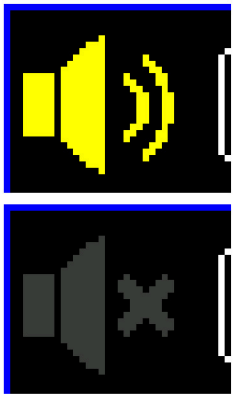
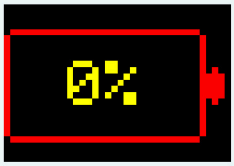
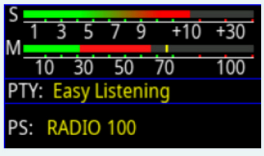
2.2 Power-On Maintenance Key Combinations

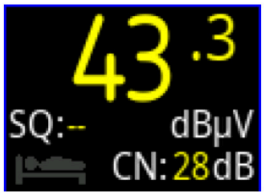
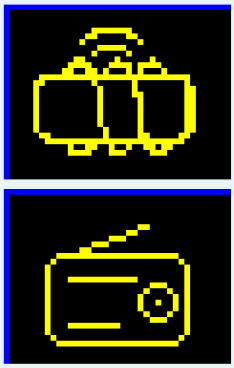
At startup, hold BW to reverse the rotary direction; hold MODE to flip the screen; hold BAND to run the S-meter test/calibration; or hold the encoder to switch between standard and optical encoder modes. Press BW + MODE to enter touch calibration, BW + BAND to invert the display colors, or BW + encoder to perform a full factory reset and rebuild the preset memory.

3 Main-Screen Icons and Touch Controls



Interface Display	Description	Operation
	Area 1 Frequency offset / tuning status	Tap the screen briefly to freeze/unfreeze the display. Touch and hold the screen to turn off the display; touch anywhere on the screen to turn it back on.
	Area 2 Stereo / mono status Available only in FM/OIRT	Touch this area to toggle between stereo and mono.
	Area 3 RDS status; highlighted when decoded The icon is displayed only in FM/OIRT mode.	Touch this area to enter/exit Advanced RDS.
	Region 4 Current demodulation bandwidth	Touch this area to open the Bandwidth Selection interface.

	Region 5 Speaker/mute status	Touch to toggle mute.
	Region 6 Battery level, displayed as either a percentage or voltage When WiFi is enabled, the WiFi icon appears here.	When battery status is shown, touch to toggle between voltage and percentage.
	Area 7 MAN/AUTO/MEM tuning mode	Touch the corresponding position to change the selection.
	Area 8 Band, main frequency, and tuning step	When Frequency interaction interface is enabled in menu settings, touch here to open the frequency input interface. When Frequency interaction interface is disabled in the menu, touch this area to change the band.
	Area 9 AUTO BW, iMS, EQ	Touch the corresponding position to turn it on/off.
	Area 10 S/M meter, PTY, and PS information Animated display	Touch this area to cycle through the S/M meter, RDS information, and Dynamic views.
	Area 11 RT RadioText or reception telemetry	Touch this area to switch between the RT and telemetry displays.
	Region 12 PI/time display	Touch this area to toggle between the PI and time displays.

	Area 13 Signal, SQ, sleep timer toggle, and C/N	Touch the signal value to open the main menu. The bed icon is the sleep switch (the sleep countdown duration is set in the menu).
	Area 14 The ferrite rod icon is shown in MW. The Classic FM interface icon is displayed only in FM mode. Not displayed in other band modes.	Touch below the corresponding icon to use its function. Touch the ferrite-rod icon to enable or disable the ferrite rod antenna; Touch the Classic FM interface icon to open the Classic FM interface.

4 Other Operations and Display Views

4.1 Frequency Entry Screen



How to open:

In Display settings > Frequency interaction interface, select On. Return to the main screen and touch the main frequency. The illustration shows FM 100.00 MHz with preset slot 1 empty.

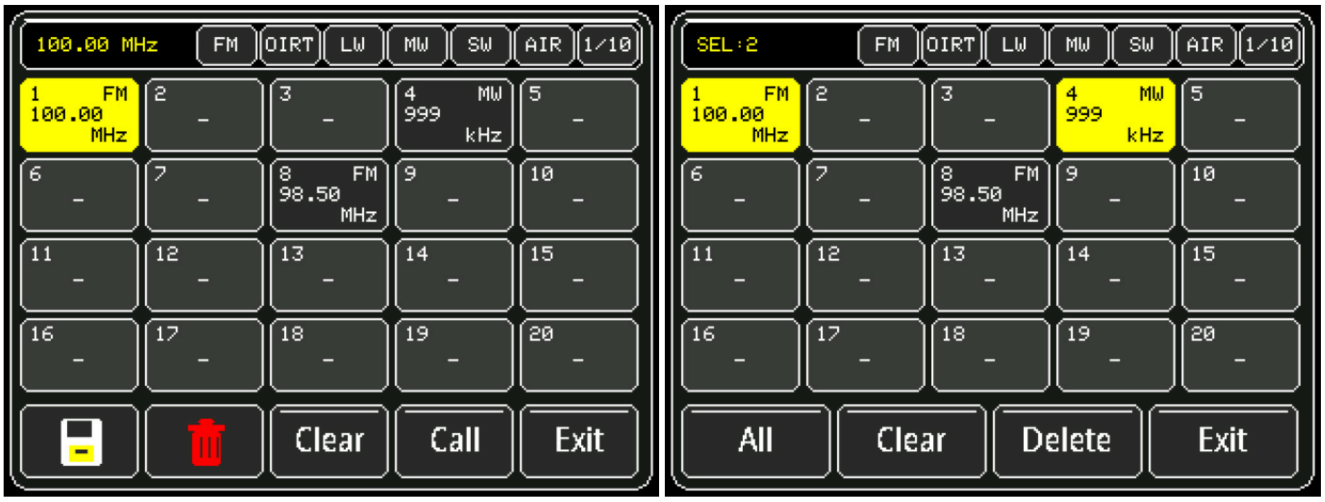
Instructions:

1)Use the left-hand buttons to select FM/OIRT, LW, MW or SW/AIR. Touch FM/OIRT or SW/AIR again to switch within that band pair. Changing bands discards any unconfirmed numeric entry and displays the frequency previously saved for the selected band.

2)Touch the frequency field to focus it; the encoder and numeric keypad then operate on the frequency. The first touch on the preset field only moves focus there. A second touch on a stored slot loads its frequency into the frequency field; press Enter to tune. The top-right icon saves to an empty slot or deletes an occupied one.

3)With the frequency field focused, enter digits using the keypad and use the red X to backspace. Invalid or out-of-range input turns the field red. Press the green Enter button once to complete and confirm the frequency in the current band's units; press Enter a second time to tune and return to the main screen. With the preset field focused, enter a slot number from 1 to 198 and press Enter to confirm the slot, or rotate the encoder to cycle through slots.

4.2 Preset Manager



How to open: long-press the preset field on the frequency-entry screen, or choose Auto memory > Preset management.

Screen layout: the FM/OIRT/LW/MW/SW/AIR filters at the top can be combined to show stored stations. With no filter selected, every slot is shown, including empty slots marked '-'. There are 20 slots per page and 10 pages; the last page contains slots 181–198. Touch the page indicator at top right to advance. Tap a card to select it, or long-press an occupied card to enter multi-select. Rotating the encoder cycles through slots and can advance pages; pressing it does not save, delete or recall.

Save: touch the save icon at the bottom to write the complete valid frequency from the frequency field into the selected slot. An occupied slot may be overwritten.

Delete: select an occupied slot and touch the red trash icon at the bottom to delete it immediately.

Clear: touch Clear once to enter confirmation mode, then touch the same button, now labeled Confirm, to clear all 198 slots. Touching another action cancels confirmation.

Call: touch Call to load the selected station into the frequency-entry screen, then press Enter to tune. When Preset management was opened from Auto memory, Call tunes immediately instead.

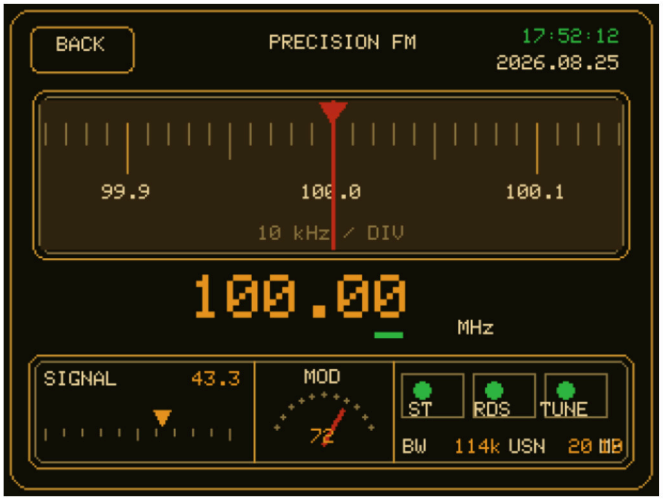
Multi-select and Exit: long-press an occupied card for about 0.7 seconds to enter multi-select; the bottom actions become All, Clear, Delete and Exit. All selects only the current filter results, and deleting the selected slots requires confirmation. Exit retains the selected slot and returns to the frequency-entry screen or the Auto memory menu, depending on how the manager was opened.

4.3 Bandwidth Selection



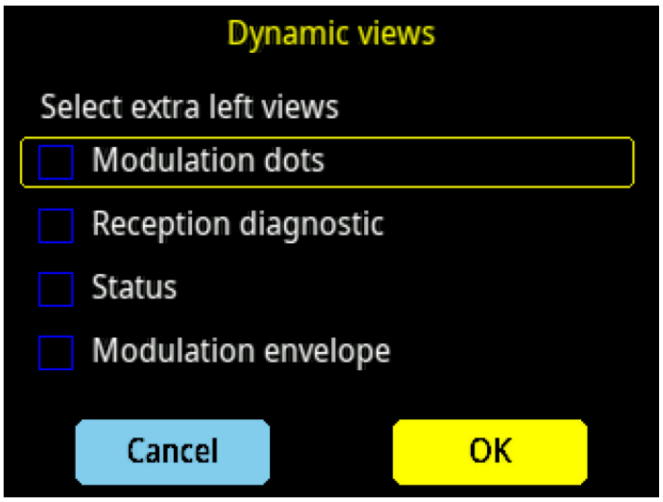
How to open: Short-press BW, or touch the bandwidth value at the top of the main screen. Touch a fixed-bandwidth button to apply it directly. After selecting AUTO BW, the device automatically adjusts the bandwidth according to reception conditions. On the FM page, you can also touch the iMS and EQ switches. Rotate the encoder to move through the options and press the encoder to confirm. Short-press MODE or touch the return area to exit. The available bandwidth settings vary by band; if you are unfamiliar with these parameters, AUTO BW is recommended.

4.4 Classic FM Interface and Dynamic Views

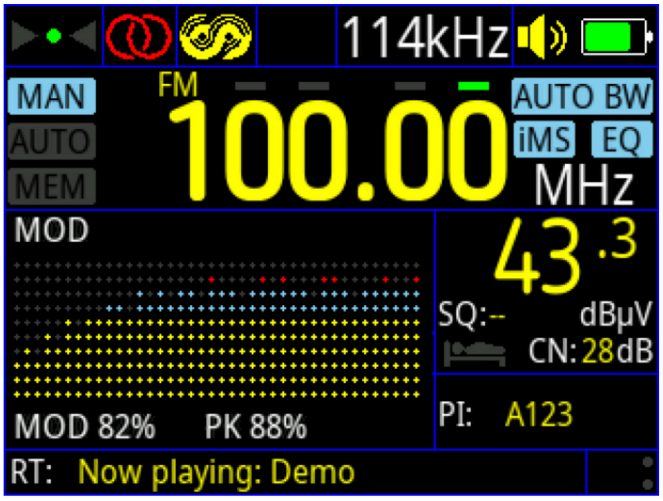


The Classic FM interface is available only for the standard FM band. It displays the time, date, scrolling scale, center pointer, frequency, tuning-step underline, signal, modulation, and ST/RDS/TUNE status. Dynamic views include Modulation dots, Reception diagnostic, Status, and Modulation envelope.

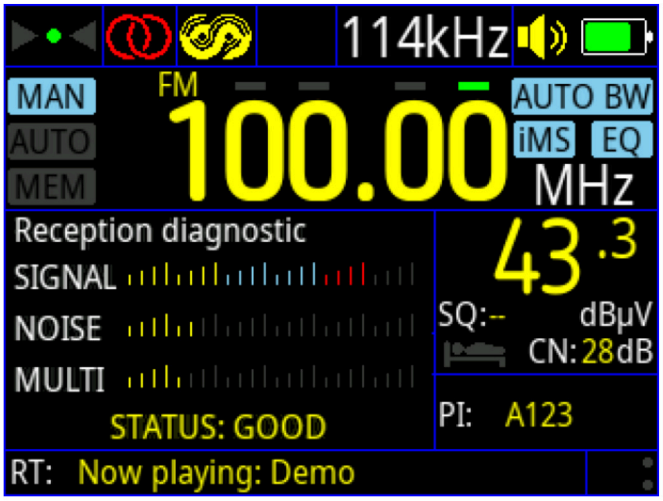
4.5 Dynamic Views



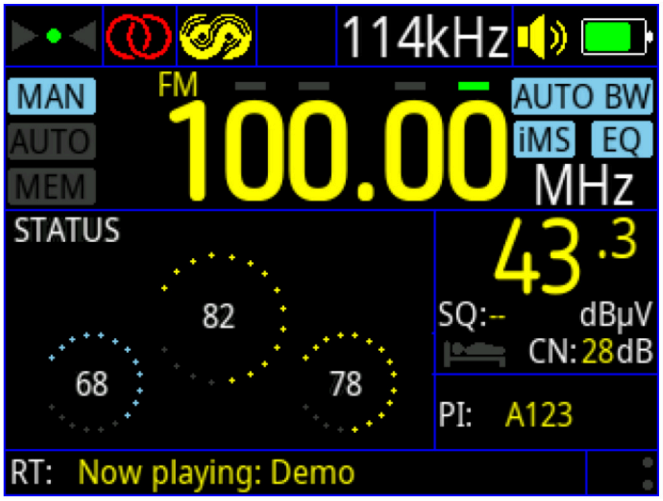
Setup: Press and hold MODE to open the main menu, then open “Display settings → Dynamic view selection.” Touch the checkboxes to select the views to include in the cycle. You can also rotate the encoder to move the focus, then press the encoder to select or clear a checkbox. Touch “OK” to save or “Cancel” to discard the changes. After returning to the main interface, touch the left information area containing the S/modulation meters, PTY, and PS to cycle between the standard interface and the selected dynamic views. Unselected views are excluded from the cycle.



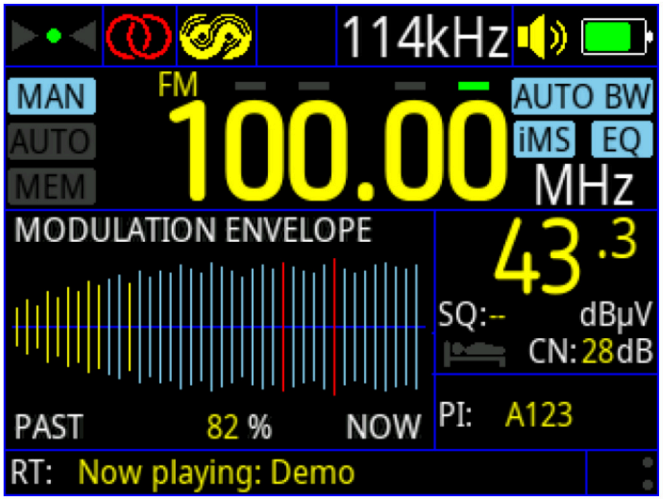
Modulation dots: Plots a dot pattern from real-time modulation and displays the current and peak values.



Reception diagnostic: Displays actual reception metrics for the current band, including signal, noise, multipath, and co-channel interference.

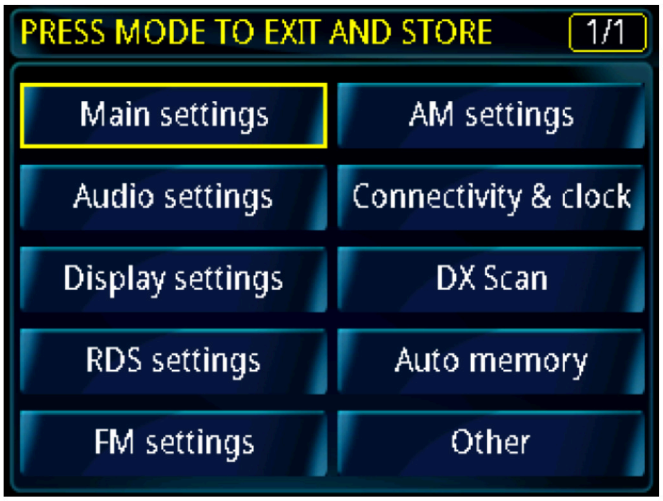


Status: Displays the current signal, modulation, CN, and other status information as grouped level indicators and numerical values.



Modulation envelope: Displays a historical envelope of the current station’s modulation over time.

5 Menu Reference



Main settings: configure the hardware interface, sleep timer, squelch, AGC, and available bands.

Audio settings: set the volume, output, stereo, high cut, and FM deemphasis.

Display settings: set the language, screen display, theme, touch operation, and frequency display.

RDS settings: configure the RDS region, error display, AF, PS, and RT.

FM settings: adjust FM band reception limits, weak-signal handling, and tuning steps.

AM settings: adjust AM reception, antenna, tracking, and medium-wave tuning steps.

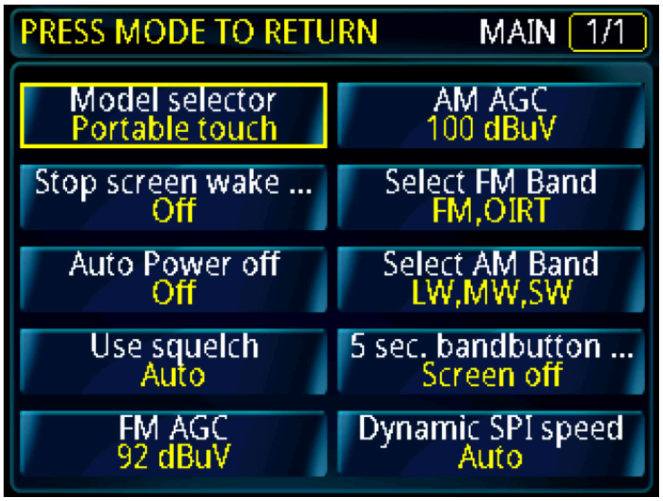
Connectivity & clock: set USB, Wi-Fi, network services, and time synchronization.

DX Scan: perform a DX scan of unstored frequencies or memory channels.

Auto memory: search by band, range, and quality criteria, then store stations in memory channels.

Other: view firmware information or select factory reset by category.

5.1 Main Settings



Model selector: select the Base, Portable, or Portable touch interface that matches the actual unit; regular users should not change this setting casually.

Stop screen wake on tune: when enabled, rotating the tuning knob while the screen is off still tunes without waking the screen; when disabled, the first rotation wakes the screen.

Auto Power off: set a sleep countdown from 0 to 255 minutes; 0 disables it. Once the sleep timer is enabled, any operation restarts the countdown, and the unit enters sleep when it expires.

Use squelch: select Auto, On, or Off. Auto applies squelch according to reception quality; On uses the squelch threshold; Off does not mute according to that threshold.

FM AGC: set the FM automatic gain-control threshold from 84 to 92 dBμV; changes take effect immediately.

AM AGC: set the AM automatic gain-control threshold from 94 to 102 dBμV; it is set separately from FM and takes effect immediately.

Select FM Band: choose whether the BAND-button cycle includes FM, OIRT, both, or neither.

Select AM Band: choose the combination of LW, MW, and SW included in the BAND-button cycle; firmware supporting AIR also allows AIR to be selected.

5 sec. bandbutton press: choose Power off, Screen off, or Disabled after a long press of BAND. The on-screen button says “5 sec.”, but the current firmware triggers after approximately 2.5 seconds; its label does not match the actual duration.

Dynamic SPI speed: displayed only in builds with dynamic SPI speed enabled; select a fixed speed or Auto, and normally keep the existing setting.

5.2 Audio Settings



Set volume: adjust the software volume offset from -10 to +10 dB; changes take effect immediately.

Beep at band edge: turn the beep on or off when tuning reaches a band limit.

Audio output: select Stereo or MPX audio output according to the intended use of the connected equipment.

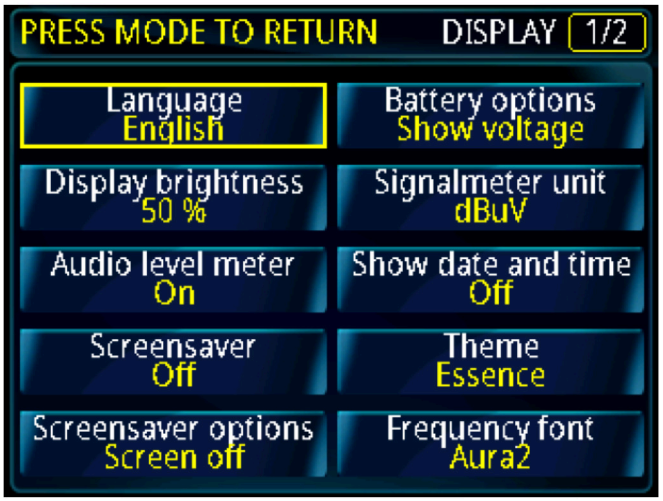
Stereo separation threshold: set the FM stereo-enable threshold to Off or 30–60 dBµV.

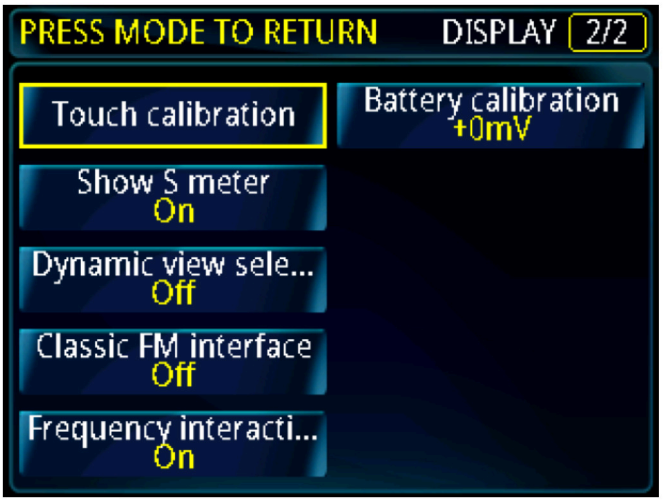
High cut corner frequency: set the cutoff frequency at which high cut takes effect, from 1500 to 7000 Hz in 100 Hz steps.

High cut threshold: set the signal threshold for activating high cut to Off or 20–60 dBµV.

FM deemphasis: select Off, 50 µs, or 75 µs according to the local FM broadcasting standard.

5.3 Display Settings





Language: select the interface language; menu text is displayed in the selected language.

Display brightness: adjust the screen backlight from 1% to 100%.

Audio level meter: turn the modulation M meter on the main screen on or off; this does not affect the signal-strength S meter.

Screensaver: select Off or activate the screensaver after 3, 10, 30, or 60 seconds.

Screensaver options: choose the display behavior after the screensaver activates: Screen off, 1% brightness, 25% brightness, or 50% brightness.

Battery options: select no display, voltage, battery percentage, or graphic battery; Wi-Fi status may occupy the corresponding area at the top of the screen.

Signalmeter unit: switch the displayed signal-value unit between dBµV, dBf, and dBm.

Show date and time: switch between Time, Date + time, and Off; when the date and time display is off, this area shows PI information.

Theme: select the interface color theme; the example image shows only the current theme.

Frequency font: select the large-digit typeface for the main frequency, such as Classic, Roubenstil, Motoya, Aura2, Comic, or Modern.

Touch calibration: follow the on-screen instructions to calibrate touch input; calibration data is saved. Do not repeat this on a unit that already operates correctly.

Show S meter: turn the signal-strength S meter on the main screen on or off; this does not affect the modulation M meter.

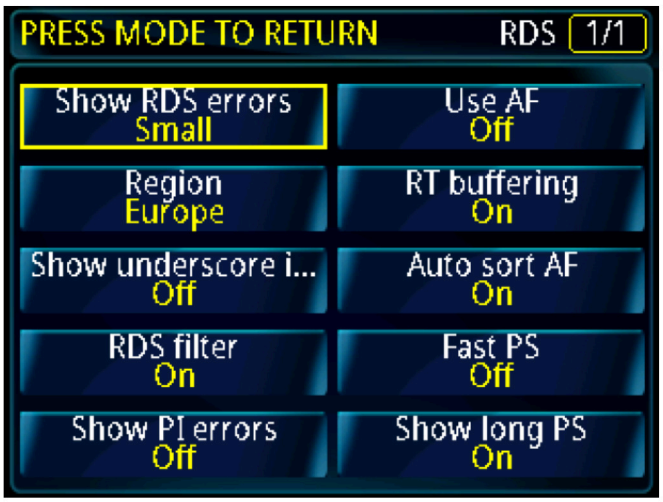
Dynamic view selection: open the Dynamic views selection page, select available views such as Modulation dots, Reception diagnostic, Status, and Modulation envelope, then confirm to save.

Classic FM interface: select Off, Cool, or Warm; when enabled, the Classic FM interface is displayed using the current setting.

Frequency interaction interface: when enabled, touch the main frequency to enter numeric input; when disabled, this touch area performs its original band operation.

Battery calibration: adjust the millivolt calibration offset for battery measurement; keep the current value if no measurement reference is available.

5.4 RDS Settings



Show RDS errors: set the RDS error display to Off, Small, or Large.

Region: select regional rules such as Europe, USA DB, USA, or Canada; RDS interpretations such as PTY vary by region.

Show underscore in RDS: select Off, PS only, or On to control the display of underscores in RDS text.

RDS filter: turn RDS data filtering on or off.

Show PI errors: turn PI error display on or off.

Use AF: configure AF alternative frequencies as Off, or On with REG On or Off selected.

RT buffering: turn RadioText buffering on or off to reduce flicker caused by brief content loss.

Auto sort AF: turn automatic AF-list sorting on or off; this button is independent of “Use AF.”

Fast PS: select Off, Initial, or Always to control fast PS display.

Show long PS: turn long-PS display on or off.

5.5 FM Settings



Converter offset: Set the frequency offset for an external frequency converter; keep it at 0 MHz when no converter is used.

Low band edge: Set the lower limit of the FM tuning range; the displayed value includes the frequency-converter offset.

High band edge: Set the upper limit of the FM tuning range; the displayed value includes the frequency-converter offset.

Level offset: Adjust the displayed FM signal-level offset, from -25 to +15 dB.

Low level threshold: Adjust the weak-signal processing threshold, from -15 to 30 dBµV.

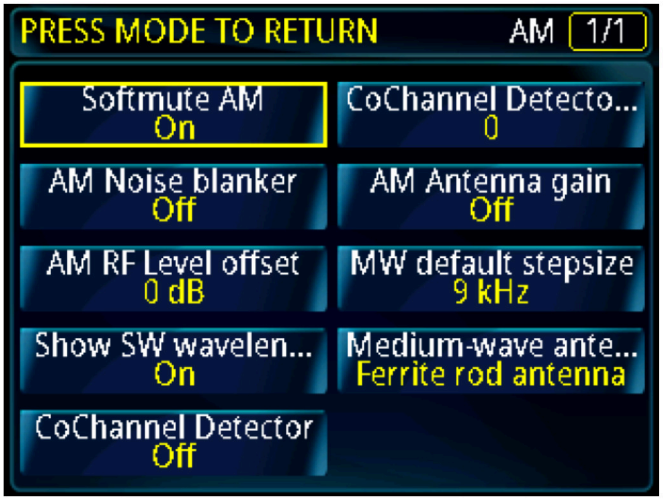
Softmute FM: Turn FM soft mute on or off.

FM Noise blanker: Turn off or set FM noise-blanking strength from 50 to 150%.

FM default stepsize: Select the default FM tuning step: 50, 100, or 200 kHz.

FMSI stereo improvement: This can be turned on or off only on supported models, such as TEF6687/6689; on unsupported models, the button shows "Not supported".

5.6 AM Settings



Softmute AM: Turn AM soft mute on or off.

AM Noise blanker: Turn off or set AM noise-blanking strength from 50 to 150%.

AM RF Level offset: Adjust the displayed AM RF signal-level offset, from -25 to +15 dB.

Show SW wavelength: Turn display of shortwave broadcast meter-band names on or off.

CoChannel Detector: Set AM carrier-tracking sensitivity; turn it off or set it from 50 to 150%.

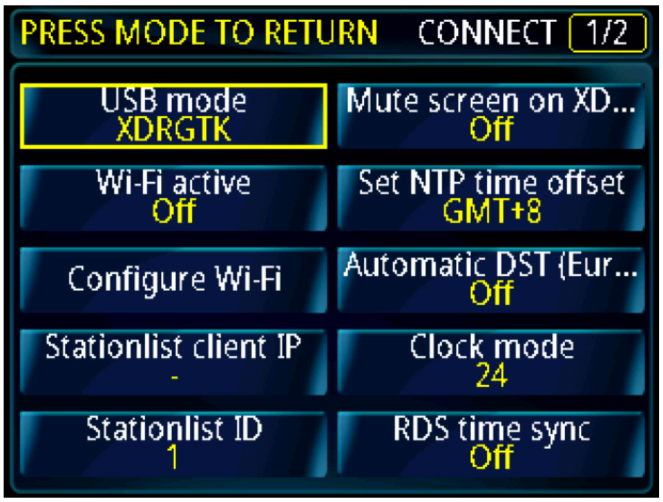
CoChannel Detector threshold: Adjust the AM carrier-tracking level; this is set separately from the tracking-sensitivity setting.

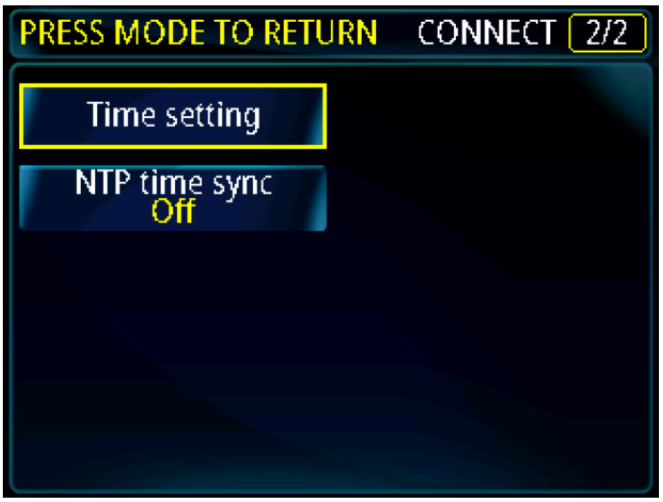
AM Antenna gain: Turn off or set AM antenna gain from 1 to 15 dB.

MW default stepsize: Select a 9 or 10 kHz medium-wave tuning step; the medium-wave frequency limits are adjusted accordingly.

Medium-wave antenna: Select the ferrite-rod antenna or SMA antenna; the corresponding icon on the MW main screen can also switch it.

5.7 Connectivity & Clock





USB mode: Select either XDRGTK or RDS Spy as the USB data connection mode.

Wi-Fi active: Turn Wi-Fi on or off; when enabled, the device attempts to connect to a saved network.

Configure Wi-Fi: Open the Wi-Fi network list and configuration page, where saved networks can be selected, modified, or deleted.

Stationlist client IP: Set the Stationlist client IP; it can be edited only while Wi-Fi is enabled.

Stationlist ID: Set the Stationlist ID for the station list; this is independent of the client IP.

Mute screen on XDRGTK connection: When enabled, the display is frozen/turned off while XDRGTK is connected to reduce screen interference.

Set NTP time offset: Set the GMT time-zone offset used by NTP.

Automatic DST (Europe): Turn the European daylight-saving-time rule on or off; leave it off in regions where it does not apply.

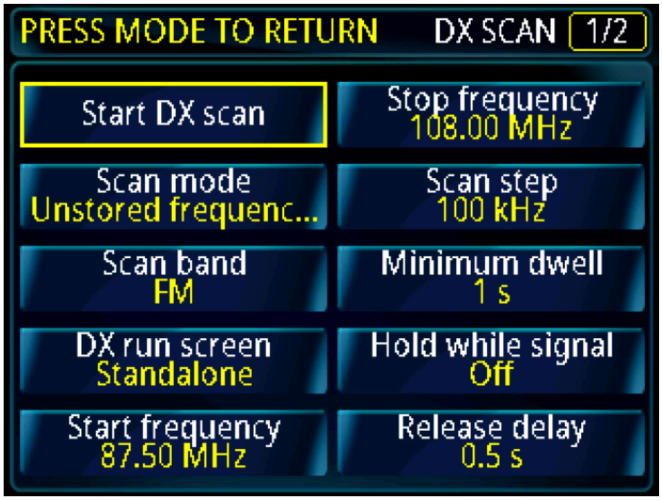
Clock mode: Switch between 12-hour and 24-hour display formats.

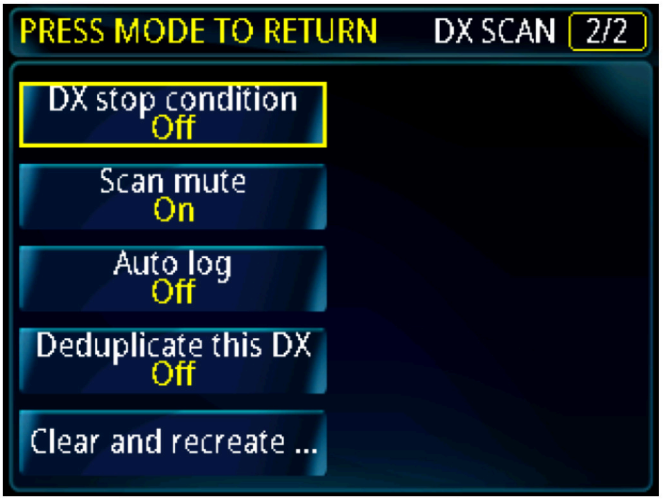
RDS time sync: Turn station RDS time synchronization on or off; after PI is locked, the station's CT can be used to update the time.

Time setting: Open the manual date and time editing page. If NTP time sync or RDS time sync is enabled, a prompt appears before saving; after confirmation, the corresponding synchronization is disabled. When both are off, the settings are saved directly.

NTP time sync: Turn automatic NTP time synchronization on or off; synchronization requires an available Wi-Fi connection.

5.8 DX Scan





Start DX scan: Start a DX scan using the current mode, range, and stop conditions.

Scan mode: Select Unstored frequencies or Memory channels. The former scans between the start and stop frequencies; the latter scans between the start and stop memory channels and does not display "Scan step".

Scan band: For Unstored frequencies, select FM, OIRT, LW, MW, or SW; for Memory channels, All and AIR are also available.

DX run screen: Choose whether to run on the main screen or use the dedicated DX screen; the dedicated screen can pause, listen to the current station, or stop the scan.

Start frequency: In Unstored frequencies mode, set the scan start frequency; in Memory channels mode, this button changes to "Start memory channel".

Stop frequency: In Unstored frequencies mode, set the scan end frequency; in Memory channels mode, this button changes to "Stop memory channel".

Scan step: Set the scan step for the selected band; this button is not shown in Memory channels mode.

Minimum dwell: Select a minimum dwell time of 0.5 seconds or 1 to 30 seconds.

Hold while signal: Control whether scanning remains on a valid signal while it is present.

Release delay: Set the delay before scanning continues after the signal disappears.

DX stop condition: For FM/OIRT, select Off, Correct PI, or Signal found; Correct PI is not available as a stop condition for other bands.

Scan mute: Set whether audio is muted while the scan passes through targets.

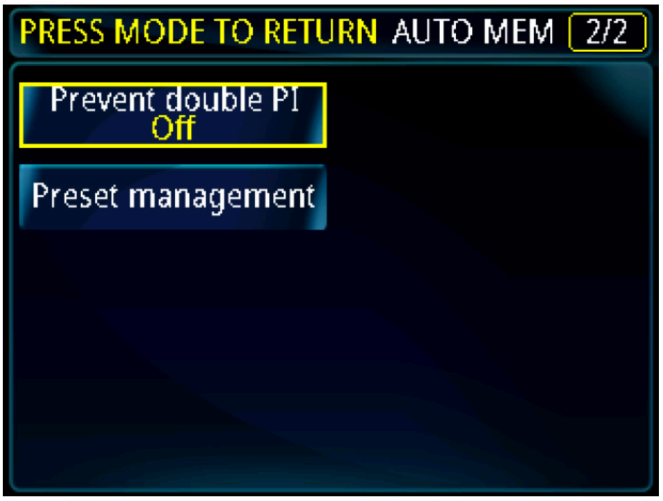
Auto log: Turn automatic scan-log recording on or off.

Deduplicate this DX: Control whether duplicate records are excluded when this DX scan writes its log.

Clear and recreate log: Open the confirmation page; the entire log is cleared and recreated only after confirmation again.

5.9 Auto Scan and Store





Start auto memory: Search using the selected band, range, and quality criteria, and write qualifying stations to memory channels.

Scan band: Select FM, OIRT, LW, MW, or SW; AIR is not included. The visible buttons change when the band is changed.

Start frequency: Set the start frequency for this search.

Stop frequency: Set the stop frequency for this search.

Start memory channel: Set the first memory channel that may be written, from 1 to 198.

Stop memory channel: Set the last memory channel that may be written, from 1 to 198.

Scan settings: Select default or user scan settings. The user settings page can adjust sensitivity, sample count, and sample interval; for FM/OIRT, it can also adjust the multipath station-detection upper limit.

Scan step: Select the scan step for the chosen band. FM offers 50/100/200 kHz; each other band has its corresponding choices.

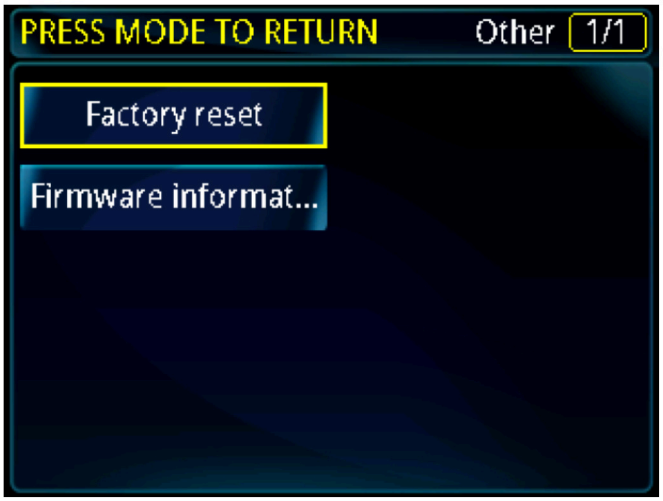
Save mode: Select Overwrite or Add. Overwrite can replace stored stations already in the selected range; Add writes only to empty slots.

Only store with RDS: Shown only for FM/OIRT; when enabled, only stations meeting the RDS condition are saved.

Prevent double PI: Shown only for FM/OIRT; check for duplicate PIs within the specified range or across all memory channels.

Preset management: Open memory channel management to view, filter, recall, and manage stored stations; for LW/MW/SW, this item moves to position 10.

5.10 Other



Factory reset: Open the selective reset page. Radio and menu settings, station storage, network and account data, and time settings are all selected by default; each can be deselected, and confirmation is unavailable when nothing is selected. After confirming again, only the selected categories are reset; touch calibration, hardware identity, authorization, logs, and SPIFFS are retained.

Firmware information: View the current firmware build version, developers/contributors, and project address; the hardware model is not shown here.

6 Firmware Flashing

6.1 Flashing with flash.bat

1. Extract the official RT-880X firmware package and verify that flash.bat, esptool.exe, bootloader.bin, partitions.bin, boot_app0.bin, and firmware.bin are all in the same directory. Connect the device with a USB data cable, then find its COM number under “Device Manager → Ports” in Windows.

2. Double-click flash.bat. The script lists the available serial ports. When prompted to enter the COM port number, enter only the number—for example, enter 8 for COM8—then press Enter. The script first flashes at 921600 baud; if high-speed flashing fails, it automatically retries at 115200. Do not disconnect power or unplug the cable during flashing. When the message indicates that flashing and verification are complete and the device has restarted, press any key to exit. If the port does not exist or flashing fails, check the driver, USB data cable, port usage, and the device’s download mode.

6.2 Flashing with Flash Download Tool

1. Open Espressif Flash Download Tool. Select ESP32 as the chip and Develop as the work mode. Add and select the four files with these addresses: bootloader.bin → 0x1000, partitions.bin → 0x8000, boot_app0.bin → 0xE000, and firmware.bin → 0x10000. Set SPI SPEED to 80MHz, SPI MODE to DIO, and FLASH SIZE to 8MB.

2. Select the correct COM port. For BAUD, try 921600 first; if it is unstable, use 115200. Do not select full-chip erase unless the official upgrade instructions explicitly require it. Click START, wait for the progress to complete and FINISH to appear, then reset or power-cycle the device.

File	Address
bootloader.bin	0x1000
partitions.bin	0x8000
boot_app0.bin	0xE000
firmware.bin	0x10000

6.3 Resources

Open-source firmware project: https://github.com/PE5PVB/TEF6686_ESP32.
Note: Because the hardware has been updated, firmware compiled directly from the open-source project and firmware available elsewhere on the market are not compatible with this unit. Flash only the official firmware.