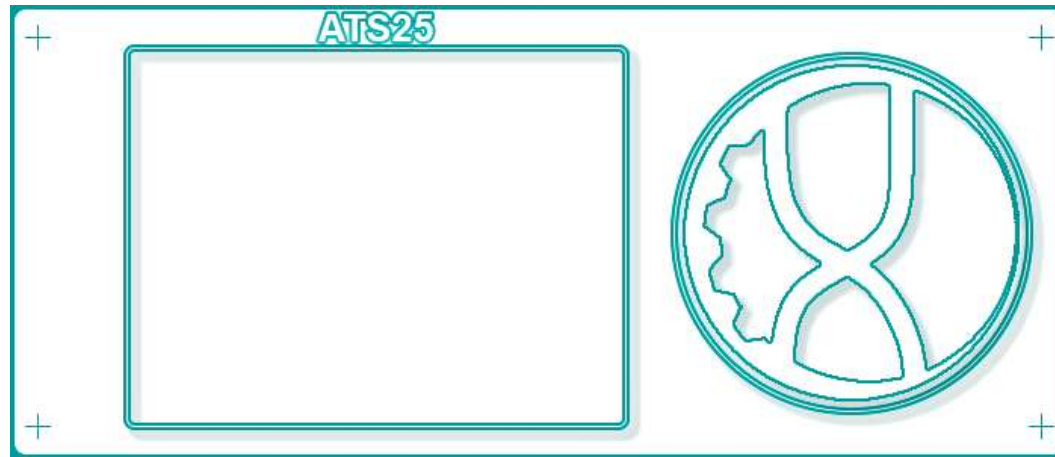
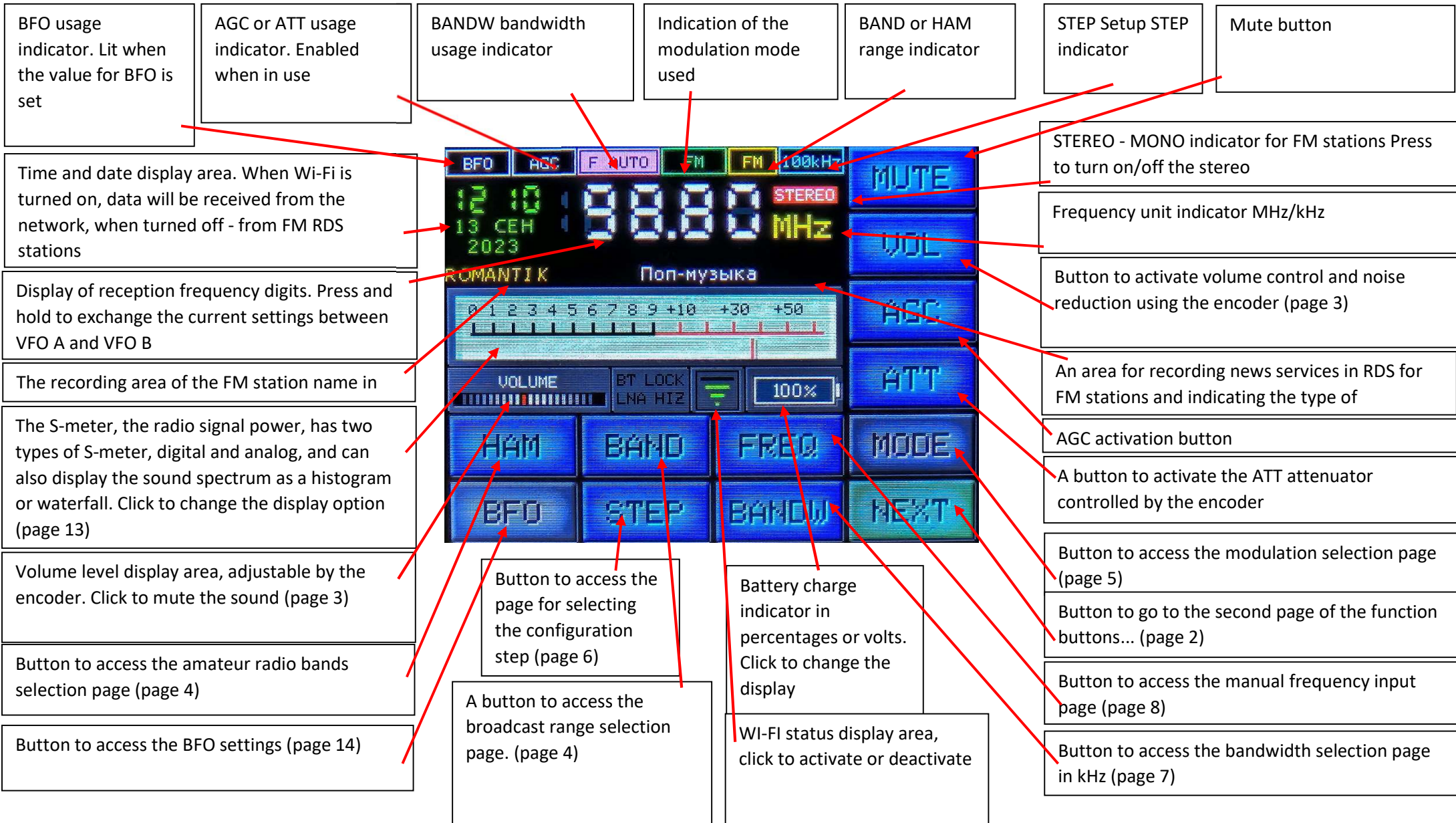


Receiver ATS25



USER MANUAL
H-RADIO v4.16 AIR

H-RADIO 4.16 Air Firmware User Manual for ATS25 Receiver



H-RADIO 4.16 Air Firmware User Manual for ATS25 Receiver

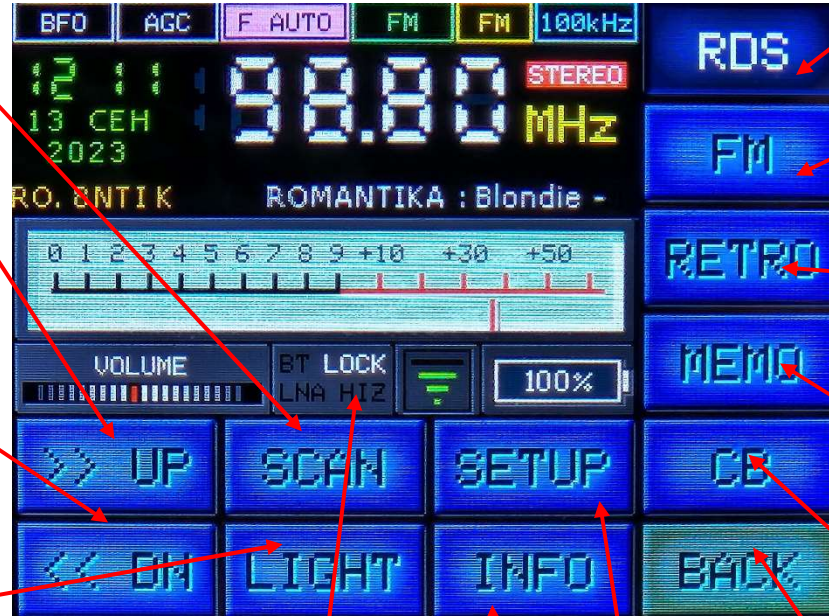
Button to access the frequency scan page for the current range (page 10)

Button to activate automatic station search in ascending direction

Button to activate automatic station search in descending direction

Button to activate the screen brightness adjustment function using the encoder (page 13)

Bluetooth module status indicator for connecting a wireless speaker or headphones, built-in antenna amplifier (LNA) and antenna input impedance (Hi-Z or 50 ohms). As well as the lock screen and encoder indicator. Click to change the options.



On/off button for receiving RDS data broadcast by FM stations

Button for viewing FM stations stored in memory (preset.csv file) (p. 12-13)

The button for enabling the "retro scale" display mode of tube radios (p. 17)

Button to select the station memory bank page (page 12)

Button to access the CB band channel reception mode (from grid channel 1 -A [23.815 MHz] to grid channel 29 +D [29.995 MHz]) (page 9)

Button to return to the first page of the function buttons (page 1)

A button to access the system functions settings page. (page 19)

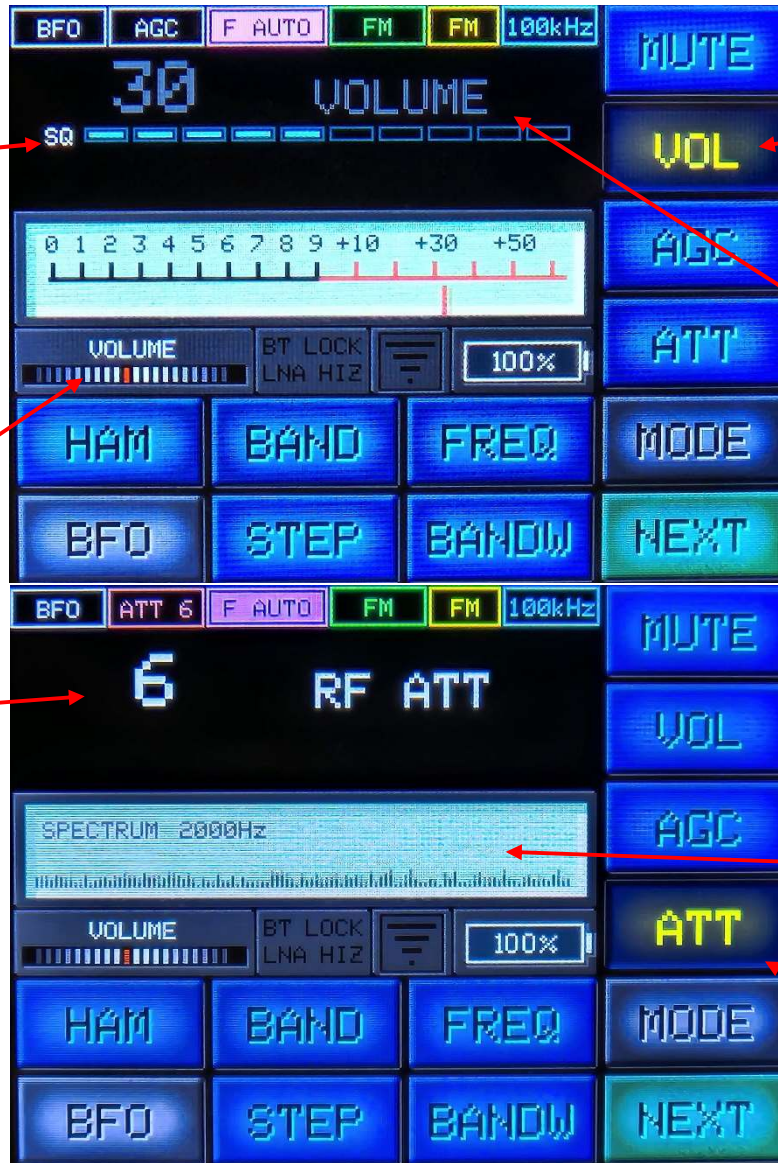
A button for accessing pages of information about the status of various system settings and the propagation of HF radio waves in real time (data received from the Internet if Wi-Fi is enabled) (p. 21)

H-RADIO 4.16 Air Firmware User Manual for ATS25 Receiver

The noise reduction indication band, adjustable by the encoder. Click to activate. Works only for FM and AM modulation

Graphical digital or analog indication of the volume level (press to mute/turn on the sound)

The display area of the attenuation value of the signal regulated by the encoder. The attenuator is active only for FM and AM modulation



The VOL button is active to change the volume. You can also change the volume by pressing the encoder

Volume level display area (from 0 to 63), adjustable by encoder

Visualization of the sound spectrum in the form of a histogram

The ATT button is active. You can change the attenuation value using the encoder

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A screen for selecting the broadcast range, with an indication at the top of the currently used frequency.

Click the button to use the range indicated on it.

Press the ANT FM switch to select the antenna input connection. If automatic antenna switching is enabled in the settings, then the switch is not active.

A screen for selecting an amateur radio band.

Click the button to use the range indicated on it.

To exit without changes, click on the frequency.

H-RADIO 4.16 Air Firmware User Manual for ATS25 Receiver



A screen for selecting the types of modulation used only for amateur radio bands.

Press the button to use the mode indicated on it.

A screen for selecting the types of modulation used for broadcast bands, with the exception of the FM band.

Press the button to use the mode indicated on it.

The screen received after pressing the DIGI key to select the digital signal decoding modes.

Press the button to use the mode indicated on it.

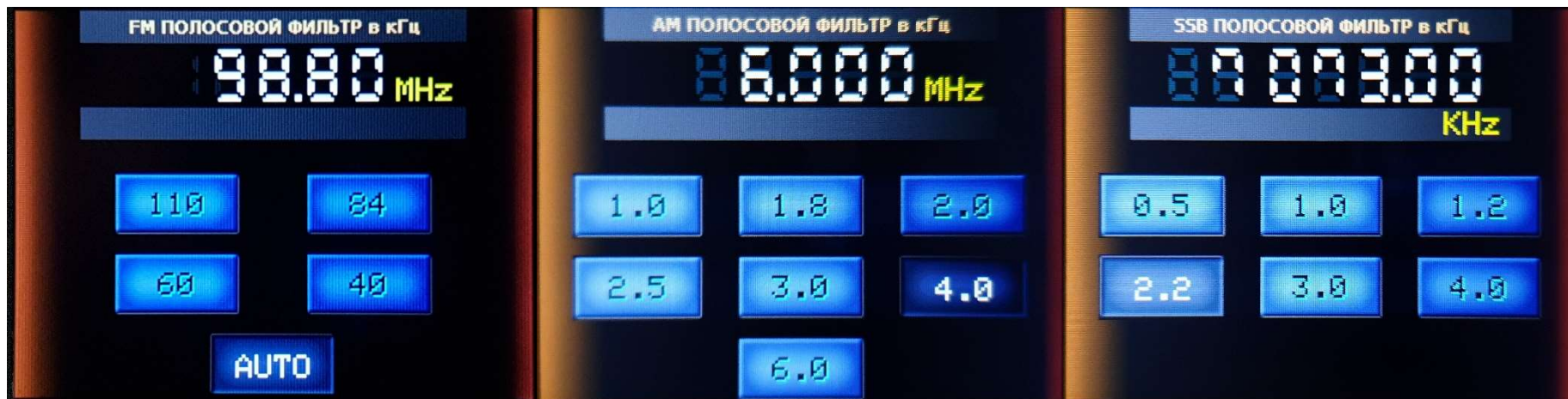
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Setup step selection screens for FM - AM - SSB bands.

Click the button to use the configuration step indicated on it.

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Screens for selecting the bandwidth used (bandpass filter) for FM – AM – SSB with an indication of the current filter.

Click the button to use the filter specified on it.

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The screen is accessed using the **FREQ** key for direct manual frequency input.

Current frequency indication

Indication of the entered frequency. Use a dot to split MHz for the FM band

Numeric keypad for frequency input



Cancel button to save the current frequency

The button for completely deleting the entered frequency

Button to delete the last entered digit

The button for entering the entered frequency in the VFO

Megahertz dividing point in the FM band

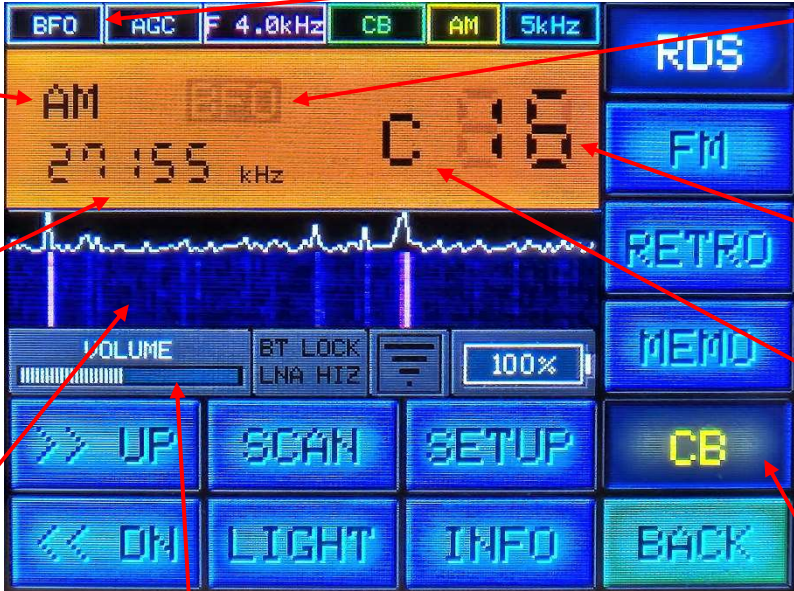
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Citizen Band Reception - press the CB button

Indication of the modulation used. Press to switch between AM, USB or LSB. Press and hold to turn on the BFO adjustment mode.

Indication of the frequency of the tuned CB channel. Press to change the last digit of the frequency to 0 or 5 kHz.

An indicator of the sound spectrum in the form of a waterfall. Click to change the appearance.



Displaying the BFO value when activating the BFO setting.

Digital indication of the tuned CB channel (from channel 1 to channel 40)

Indication of the channel range from range -A to range +D according to ITU. Click on it to switch between the available ranges

Displaying the volume indicator digitally

The CB button is activated

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Indication of the current frequency at the cursor position

Indication of current reception parameters

Information about found stations

The area of the graph depending on the frequency (x-axis) and the level of the received signal (y-axis)

Graphical scale step indicator

Indication of the quality of the received signal at the cursor position

Indication of the initial and final scanning frequency of the range

Indication of the scale of the graph display

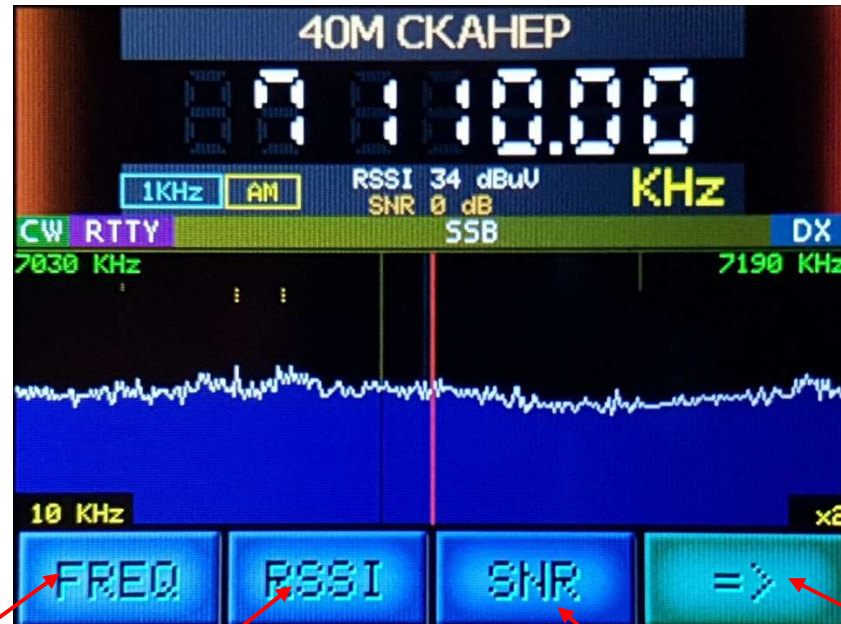
Button to change the frequency setting step by the encoder

The button to exit the scanner mode

A button to change the scale of the graph. Toggles a set of buttons. (page 11)

A button for temporarily interrupting the scan. Click to resume scanning. Scanning is also paused after the encoder is rotated. You can move the cursor by touching the screen

H-RADIO 4.16 Air Firmware User Manual for ATS25 Receiver



A button to change the scale of the graph in the frequency domain (X-axis). Adjustment using an encoder

A button to change the amplitude of the graph (Y axis). Adjustment using an encoder

A button to change the contrast of the received signals. Adjustment using an encoder

Click to return to the previous page

H-RADIO 4.16 Air Firmware User Manual for ATS25 Receiver

Current frequency indication

The display area of the name that is assigned to the memory cell.

Specifies the city for which the current station will be saved

Displaying a memory cell with various parameters. Scroll through the list using the encoder

A button for selecting a city and editing a list of cities.

Button to exit the memory bank

A button to switch to the mode of adding or removing stations, as well as changing the station name and linking to the city.

The button for selecting the current cell and setting it in the VFO

Cell No.	Name	Frequency	Mode	Mode	Mode
28	НОВОЕ	98.40 МГц	FM	FM	THIS
29	РОМАНТИКА	98.80 МГц	FM	FM	THIS
30	ОРФЕЙ	99.20 МГц	FM	FM	THIS

H-RADIO 4.16 Air Firmware User Manual for ATS25 Receiver



The appearance of the screen with the FM button activated. You can switch the FM band stations stored in the memory bank for the current city with the encoder.

The on-screen encoder is activated by dragging from the bottom up at the bottom of the screen. To close, swipe down from the center of the screen. Available in all modes.

The appearance of the screen with the LIGHT button activated and the display brightness indication adjustable by the encoder.

Also shown here is the S-meter in digital display mode.

H-RADIO 4.16 Air Firmware User Manual for ATS25 Receiver

Amateur radio reception screen

BFO Frequency Setting Screen



Indication of the types of communication CW-DIGI-SSB-DX on the sections of the used range from the label.csv file

The cursor indicates the setting step in SSB mode, when you click on the digits 1kHz, 100Hz, 10Hz, the cursor moves under the corresponding digit

The BFO button is activated

BFO frequency indication

Button to change the BFO setting step (1 Hz, 10 Hz, 25 Hz)

Indication of the BFO setup step

H-RADIO 4.16 Air Firmware User Manual for ATS25 Receiver



Reception in HF bands with a color indication of the conditions of propagation of radio waves in the range used:

- green - the range with open propagation;
- yellow is a range with a medium open spread;
- red color is a range with a closed propagation.

RF propagation data is obtained directly from the Internet, so they are displayed when a Wi-Fi connection is active.

Decoding of digital signals and Morse code



The FELD-HELL digital mode decoding screen ("Minifax"). To shift the image vertically, press SCROLL and rotate the encoder. Press EXIT to exit the decoding mode.

RTTY digital mode decoding screen. Choose RTTY-L or RTTY-U according to the transmitting station. Set one of the three decoding speeds 45.45 / 50 / 75 under by clicking on the speed indicator. The frequency adjustment should be performed on a low sound signal (left on the waterfall).

CW decoding screen. The decoding speed of CW signals is automatic. The intensity of the sound volume affects the correct decoding, adjust the volume according to the signal quality. Focus on the yellow flashing indicator for the correct setting.

FT8/FT4 decoding screen. Connect the receiver to the Internet to synchronize the exact time. Otherwise, decoding cannot be performed. The waterfall field displays the received signals in a fixed frequency band.

There is a red vertical line on the waterfall or histogram, which indicates the audio decoding frequency (800 Hz by default). This line must be aligned with the maximum of the signal. Adjust the frequency accordingly with a minimum step. One signal for CW and Feld-Hell transmissions or two signals for RTTY transmissions.

H-RADIO 4.16 Air Firmware User Manual for ATS25 Receiver

Current frequency indicator

Display area of the current city, time and battery charge

The frequency scale for the selected range. The modulation is set automatically for the current range

Stations stored in the memory bank for the current range and city

A button for selecting settings. Displays CITY | STEP | BFO buttons

Press the retro volume indicator to mute the sound

Displaying the name of a range or sections of ranges from the label.csv file

Setting step selection button

A button for selecting a city or editing a list of cities

Receiver screen in the "retro" style

Volume button. Tap to change the volume

Scroll the scale left and right by swiping on the screen or using the encoder. A short movement on the scale activates automatic scrolling to the next saved station.

The button to exit the RETRO mode

Retro range indicator

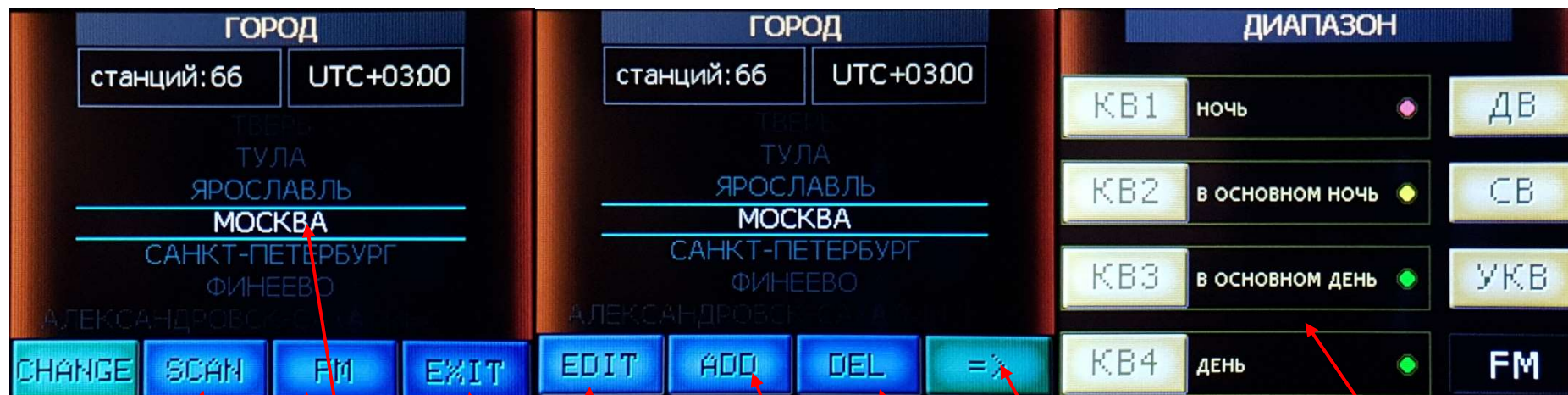
Stereo indicator for FM band

The scale indicator of the scale. Click and move the slider to change.

The BFO adjustment button is active for amateur radio bands. Set the required value using the encoder

Button to return to the previous screen

H-RADIO 4.16 Air Firmware User Manual for ATS25 Receiver



A button for scanning and saving FM stations in the selected city

FM button to view the list of FM stations in the current city

Scroll through the list using the encoder and tap on the screen or the encoder to select a city.

Use the CHANGE key to go to the next screen to edit the list.

Button to exit CITY mode

A button for editing city names and setting the time zone of your region. To set the UTC time in an already saved city, rename the city, and then adjust the time. Saved in the city.csv file

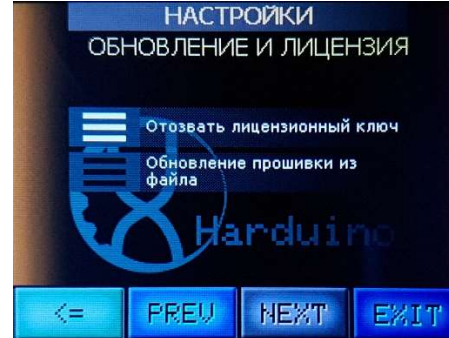
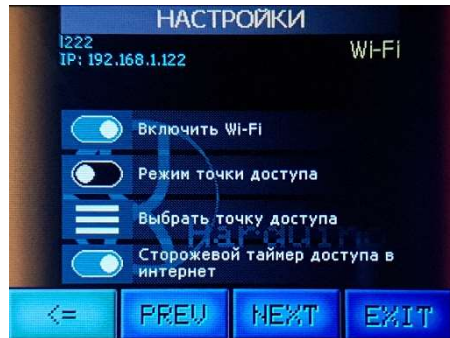
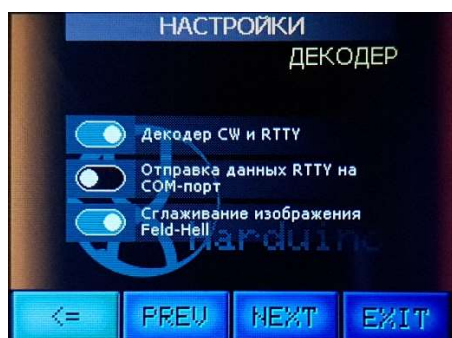
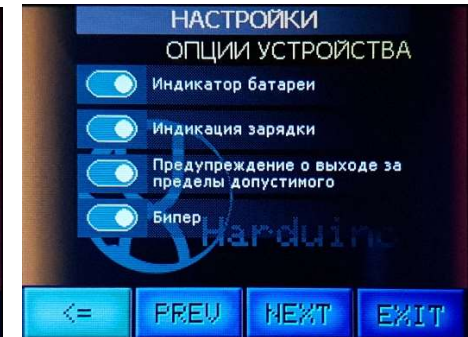
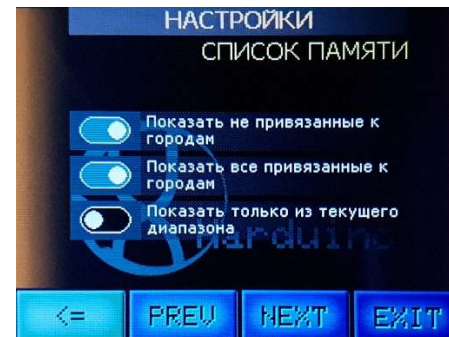
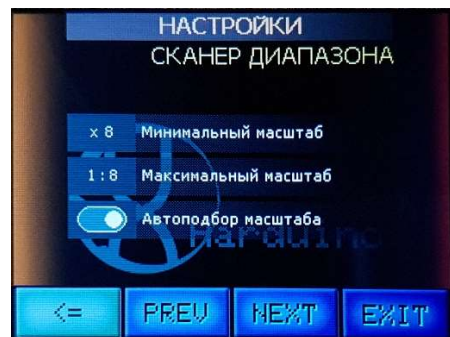
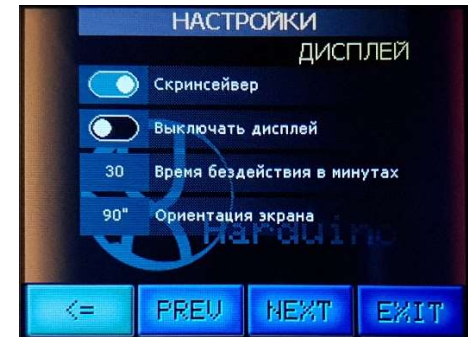
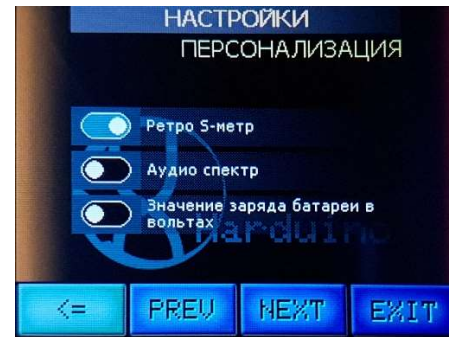
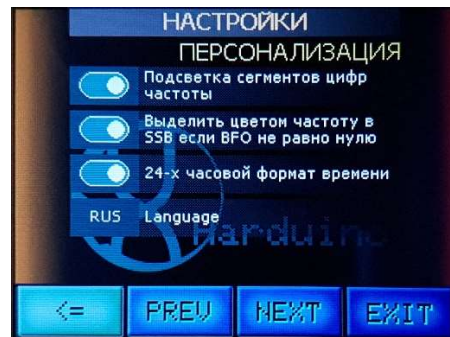
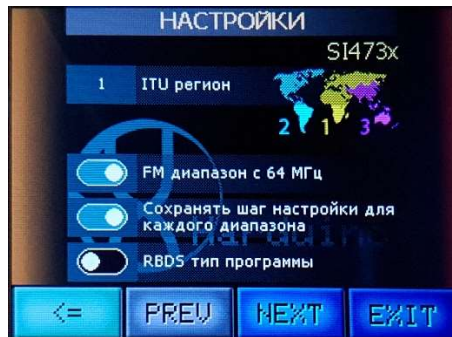
Button to add a city to the list

The button to return to the previous page

Button to remove the selected city from the list

A range selection page displayed in RETRO mode, with buttons for retro ranges and a color indication of wave propagation conditions received via Wi-Fi

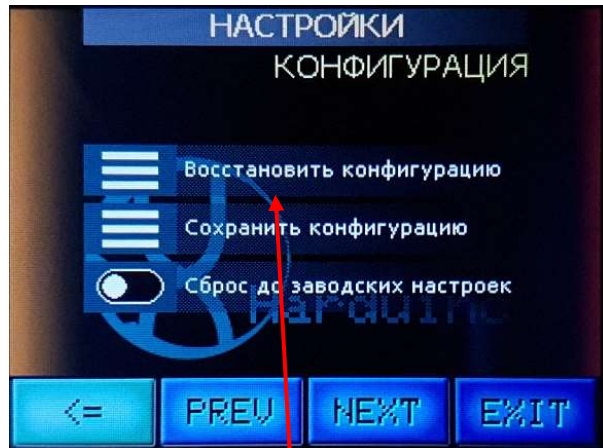
H-RADIO 4.16 Air Firmware User Manual for ATS25 Receiver



Configuration screens available via the SETUP button

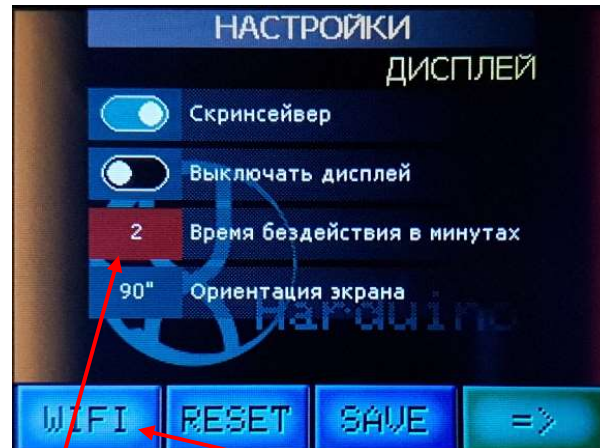
On these pages you set the parameters selected by the user according to your needs.

H-RADIO 4.16 Air Firmware User Manual for ATS25 Receiver

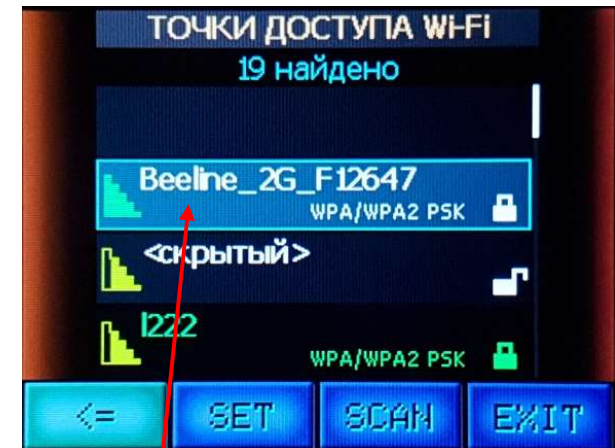


If your receiver does not work properly, you can restore the settings previously saved to the file using the appropriate item in the list, or by pressing the encoder button when the receiver is turned on to reset to factory settings.

If the parameters have been changed, when the EXIT button is pressed, the system will ask you to confirm saving the new settings.



Select, deselect or change the selection of the corresponding item by clicking on it or on the indicator to the left of the description. The changed elements are highlighted in red.



Enter the Wi-Fi settings and select the access point to connect to. Enter the password if you haven't used this access point yet. The list of saved access points is editable by clicking the SAVED button in the additional row of buttons. The information is saved to the ap.csv file. The current connection is displayed in green, the saved connection is blue, yellow — if there is a connection. Re-scan the list of networks using the SCAN button. Scroll through the list with the encoder.

H-RADIO 4.16 Air Firmware User Manual for ATS25 Receiver

Information screens on the INFO button.

It shows the parameters used by the receiver, information about the firmware, about the Si473x chip, band boundaries, conditions of propagation of HF waves (received in real time via Wi-Fi) and developers.

ESP32 прошивка

Версия прошивки: 4.15 Air beta
Дата выхода: 02.05.2023
Ключ активации: B7TT-MNMC-...

Финеево UTC+03:00
Дата: 3 МАЯ 2023
Время: 11:38:46
Батарея: 3.76 V
Зарядка: 90 %

Wi-Fi: ВКЛ
MAC: 9C:9C:1F:06:C7:40
SSID: I222
IP: 192.168.1.122
RSSI: -29dBm
WEB клиенты:
AP: H-RADIO pass: harduino / Выкл

ESP32

Модель: ESP32-D0WDQ5
Ревизия: 1
Ядра: 2
SDK: v3.3.5-1-g85c43024c

ЧАСТОТА:
XTAL: 40 МГц
CPU: 240 МГц
Peripherals clock: 80000000 Гц

Температура: 35° C

ПАМЯТЬ Свободн: 70828 байт
Минимум: 17128 байт

EEPROM занято: 172 байт
Свободно: 1844 байт

SI473x

Частота: 98.80 МГц
Диапазон: FM
Модуляция: FM
Шаг настройки: 100 кГц
MW: 9 / AM: 1 / SSB: 1 / FM: 100 кГц
Полоса пропускания: AUTO
SSB: 2.2 / SYNC: 4.0 / AM: 4.0 / FM: AUT
0 Гц / шаг 10 Гц
VFO: ВЫКЛ
S15351 Частота: Не поддерживает
RSSI / SNR: 2 dBuV / 0 dB
Стерео: ВЫКЛ
Громкость: 40
SQL: 0 dB
AGC ВЫКЛ
ATT 1
LNA GAIN index: 0/1
AVC max GAIN: 36
Antenna capacitor: 1 / GPIO1: 0

SI473x прошивка

Part Number (HEX): 0
Firmware Major Revision: 0
Firmware Minor Revision: 0
Patch ID: 00
Component Major Revision: 54
Component Minor Revision: 48
Chip Revision: 1

Список диапазонов

1.	FM	FM	64.00 - 108.00 МГц
2.	LW	AM	153 - 279 кГц
3.	MW	AM	522 - 1701 кГц
4.	NDB	AM	280 - 470 кГц
5.	630M	LSB	472 - 479 кГц
6.	160M	LSB	1810 - 2000 кГц
7.	120M	AM	2300 - 2495 кГц
8.	90M	AM	3200 - 3400 кГц
9.	80M	LSB	3500 - 3800 кГц
10.	75M	AM	3900 - 4000 кГц
11.	60M	AM	4750 - 5060 кГц
12.	60M	USB	5060 - 5450 кГц
13.	49M	AM	5900 - 6200 кГц
14.	40M	LSB	7000 - 7200 кГц
15.	41M	AM	7200 - 7600 кГц
16.	31M	AM	9400 - 9900 кГц

Список диапазонов

17.	30M	USB	10100 - 10150 кГц
18.	25M	AM	11600 - 12200 кГц
19.	22M	AM	13570 - 13870 кГц
20.	20M	USB	14000 - 14350 кГц
21.	19M	AM	15100 - 15800 кГц
22.	16M	AM	17480 - 17900 кГц
23.	17M	USB	18068 - 18168 кГц
24.	15M	AM	18900 - 19020 кГц
25.	15M	USB	21000 - 21450 кГц
26.	13M	AM	21450 - 21850 кГц
27.	12M	USB	24890 - 24990 кГц
28.	11M	AM	25600 - 26100 кГц
29.	CB	AM	26105 - 27985 кГц
30.	10M	USB	28000 - 29700 кГц
31.	LOW	AM	149 - 1700 кГц
32.	5W	AM	1700 - 30000 кГц

Условия приема KB

HAMQSL.COM

80 - 40 M	ДЕНЬ	НОЧЬ
30 - 20 M	ДЕНЬ	НОЧЬ
17 - 15 M	ДЕНЬ	НОЧЬ
12 - 10 M	ДЕНЬ	НОЧЬ

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Gert Baak	PE0MGB
Dimi @dsiberia9s	A-Explorer
Vadim Afonkin	Patch SSB
Dave Zantow	N9EWO
Antonino Russo	IU4ALH
Alexey Krupachev	RA3IAI
Alexandru Puiu	YO2LDK

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HARDUINO

H-RADIO 4.16 Air Firmware User Manual for ATS25 Receiver

ON-SCREEN KEYBOARD.



This on-screen keyboard appears when it is necessary to enter characters and data on the receiver pages, the password of the Wi-Fi access point, the firmware activation key, editing the names of memory stations, cities... and much more. Use the "^" and "123" buttons to activate uppercase/lowercase/numeric/special characters. OK to confirm. ESC to cancel.

SCREENSAVER (delay of switching on and setting in SETUP).



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<http://harduino.ru>