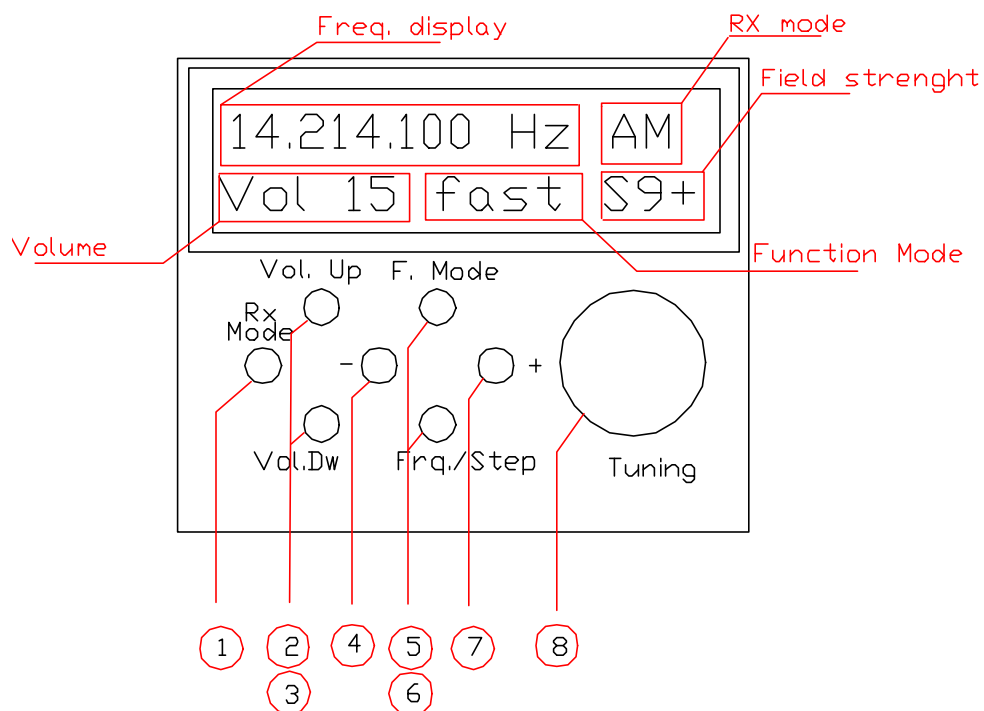


Ten Tec RX320
Control Panel

Operation Manual (V1)

RX320 Control Panel Keyboard



Key functions:

1. Rx Mode key to select LSB, USB, CW, AM
2. Volume UP
3. Volume DOWN
4. Decreasing Key (for the selected function)
5. Function Mode (see Table 1)
6. Frequency/Tuning step toggle
7. Increasing Key (for the selected function)
8. Frequency tuning knob with mechanical encoder

Description for the N5 key (Function mode)

Mnemonic on LCD	Description
AGC	Automatic Gain Control: key 4 and 7 perform Agc Slow,Med. & Fast
AUT	Automode: if ON, to any RX mode, is joined the typical selectivity, frequency band, and tuning step value. Keys 4 and 7 perform ON and OFF
FLT	Selectivity Filter: Keys 4 and 7 select selectivity: 300 Hz – 8 KHz
MER	Memory Read: Use Keys 4 (down) and 7 (up) for selecting the memory location from channels 1 to 20 (any location stores Freq. Filter, RX Mode and Tuning Step)
MEW	Memory Write: Key 7 selects memory location 1 to 20; Key 4 stores the channel received
Sc1	Scanning Mode 1: The receiver scans from F1 to F2 frequency. Key 7 stores F1 (F1s on LCD) and F2 (F2s on LCD). Key 4 starts and stops scanning. If field exceeds S7 scanning stops.
Sc2 ScM	Scanning Mode 2: as Sc1 mode but without stop for Field strength Scanning Memory: the receiver scan from channels memory location 1 to 20 ; Key 4 starts and stops scanning. If field strength exceeds S7 scanning stops.
BFO	+ / - 3000 Hz (0-255 on LCD) Frequency tuning for CW mode only

Scan function

The frequency scanning function works in two modes:

- Sc1: Scans with stop on channel busy
- Sc2: Scans without stop on channel busy

Scanning mode 1 (Sc1 on LCD)

To set up scanning proceed as follows:

1. Tune the first frequency (F1) with normal key for tuning
2. With function mode Key (key 5) select Sc1
3. With Key N7 store this frequency; LCD displays “F1s”. Press the key only once
4. With encoder or with Key 6 (frequency/step) and Keys 4/7 select a new frequency (F2) (F2 must be higher than F1)
5. With function mode key 5 return to Sc1 mode
6. With key N7 store this new frequency; LCD displays “F2s”. Press the key only once
7. To start scanning press key 4; LCD displays “Stop”
8. To stop scanning press key 4; LCD displays “Str”
9. When scanning stops you can change frequency up and down with the encoder

Scanning stops if a carrier overcomes a field strength $> S7$.

Scanning is performed at the frequency step size selected.

Select the appropriate step size for the reception mode selected as follows:

- 100 Hz step for USB, LSB and CW
- 3KHz for AM

When scanning is running it is possible to change other operating modes: the tuning step, the reception mode and so on.

To stop scanning you must always return to Sc1 or Sc2 and press Key 4.

Scanning mode 2 (Sc2 on LCD)

As for Sc1 mode without stop on channel busy. Start and stop scanning are controlled only with Key 4.

Memory scanning (ScM on LCD)

Memory scanning is also possible: the receiver scans from channels memory location 1 to 20; Key 4 starts and stops scanning. If field strength exceeded $S7$ scanning stops.

Description for the Key 6 (Frequency/tuning step toggle)

Key 6 toggles frequency or tuning step. The action of Keys 4 and 7 increases and decreases the frequency or tuning step.

Description for the N8 Knob

The N8 knob performs the frequency tuning with the tuning resolution selected with 6/4/7 key.

Tuning step available: 1, 10, 100, 1000 Hz, 3, 10, 12.5, 25, 100 KHz, 1, 10 MHz

This knob is optional. Keys 4 and 7 can also be used.

The knob uses a mechanical encoder.

The keyboard PCB is assembled on the PIC CPU Printed circuit board.

Cables & Connections

Connect the Control Panel unit to the PCR-1000 receiver with an RS-232 cable male/male pin-to-pin DB9 (not supplied with unit).

Power supply is 8-10v DC no polarity or AC.

The controller is enough quiet so, normally, if you use an external antenna, any RF interference is received. In any case, if necessary, it is possible to put the controller on "Sleep mode". To do this it is necessary to connect to GND Pin 15 of PIC.

The sleep mode is displayed with "zzzz" on the S-meter field.

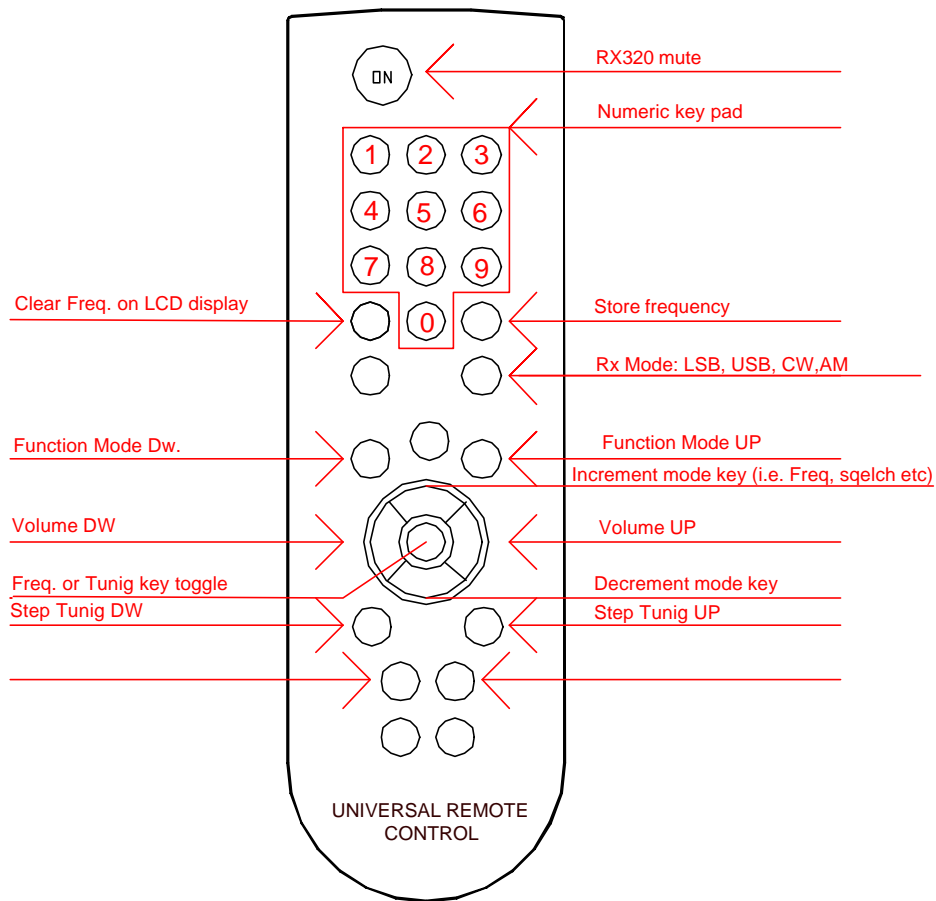
If you remove GND the controller returns to normal functionality.

Field strength meter

The field strength meter uses "S" scale. In the following table there is a correspondence from S units, dBm and μV .

S unit	dBm	μV	note
1	-118	0,28	Faint signal, barely perceptible
2	-112	0,56	Very weak signals
3	-106	1,12	Weak signals
4	-100	2,23	Fair signals
5	-94	4,46	Fairly good signals
6	-88	8,91	Good signals
7	-82	17,7	Moderately strong signals
8	-76	35,5	Strong signals
9	-70	70,7	Extremely strong signals
9+	-60	223	Extremely strong signals
9++	> -50	>700	Extremely strong signals

RX320 REMOTE CONTROL



IR controller used for T.T. RX320

The RX320 works also with an IR remote controller.

If an infrared sensor is wired to pin 14 of PIC board all the functions are available from the remote controller.

The standard 7 keys or the encoder can also be used.

Because the operation is much easier with the remote controller it is also possible not to install the keyboard and/or the tuning encoder.

The main feature is the possibility to set the frequency directly from the numeric keypad.

Function Modes/Buttons on Remote Control

Mnemonic on LCD	Description
AGC	Automatic Gain Control: buttons 4 and 7 perform Agc Fast, Med. Or Slow
AUT	Automode: if ON, in any RX mode the typical selectivity, frequency band, and tuning step value is selected. Buttons 4 and 7 perform ON and OFF
FLT	Selectivity Filter: Buttons 4 and 7 select selectivity: Range 300-8000 Hz
MER	Memory Read: Use buttons 4 (down) and 7 (up) for selecting the memory location from channels 1 to 20 (each location stores Freq. Filter, RX mode and Tuning Step)
MEW	Memory Write: Button 7 selects memory location 1 to 20; button 4 stores the channel received
SQL	Squelch: Buttons 7 and 4 perform up/down from S0 to S9
Sc1	Scanning Mode 1: The receiver scans from F1 to F2 frequency. Button 7 stores F1 (F1s on LCD) and F2 (F2s on LCD). Button 4 starts and stops scanning. If field exceeds S7 scanning stops.
Sc2	Scanning Mode 2: as Sc1 mode but without stop for squelch
ScM	Scanning Memory: the receiver scan from channels memory location 1 to 20 ; Button 4 starts and stops scanning. If field exceeds S7 scanning stops.
BFO	+ / - 3000 Hz (0-255 on LCD) Frequency tuning for CW mode only

Scan function

The frequency scanning function works in two modes:

- Sc1: Scans with stop on channel busy
- Sc2: Scans without stop on channel busy

Scanning mode 1 (Sc1 on LCD)

To set up scanning proceed as follows:

1. Tune the first frequency (F1) with normal key for tuning
2. With function mode (button 5) select Sc1
3. With button 7 store this frequency; LCD displays "F1s". Press the key only once
4. With button 6 (frequency/step) and buttons 4/7 select a new frequency (F2) (F2 must be higher than F1)
5. With function mode button 5 return to Sc1 mode
6. With button 7 store this new frequency; LCD displays "F2s". Press the key only once
7. To start scanning press button 4; LCD displays "Stop"

8. To stop scanning press button **4** ; LCD displays “Str”
9. When scanning stops you can change frequency up and down with Keys **8**

Memory scanning (ScM on LCD)

Memory scanning is also possible: the receiver scans from channels memory location 1 to 20 ; Button 4 starts and stops scanning. If squelch threshold is exceeded scanning stops.

1. to start scanning press button **4** ; LCD displays “Stop”
2. to stop scanning press button **4** ; LCD displays “Str”

Universal remote controller can also be used.

The PHILIPS RC5 standard should be selected.

Be careful to use a controller with the same key dispositions.

A utility help to determine if the controller is set to the correct standard is included.

If the standard is correct the key code is displayed on the LCD (in the S-meter field) and must be verified in the following table.

Function key	Key code
RX320 mute key	12
Numeric key pad 0 to 9	0 to 9
Clear frequency on LCD display	56
Store frequency key	34
RX mode	23
Function mode DOWN	60
Function mode UP	41
Volume DOWN	17
Volume UP	16
Increment mode key UP	32
Increment mode key DOWN	33
Freq. tuning step toggle key	13 or 23
Step tuning DOWN	43
Step tuning UP	46