

RJ-9000

Instruction Manual (APRS Edition)

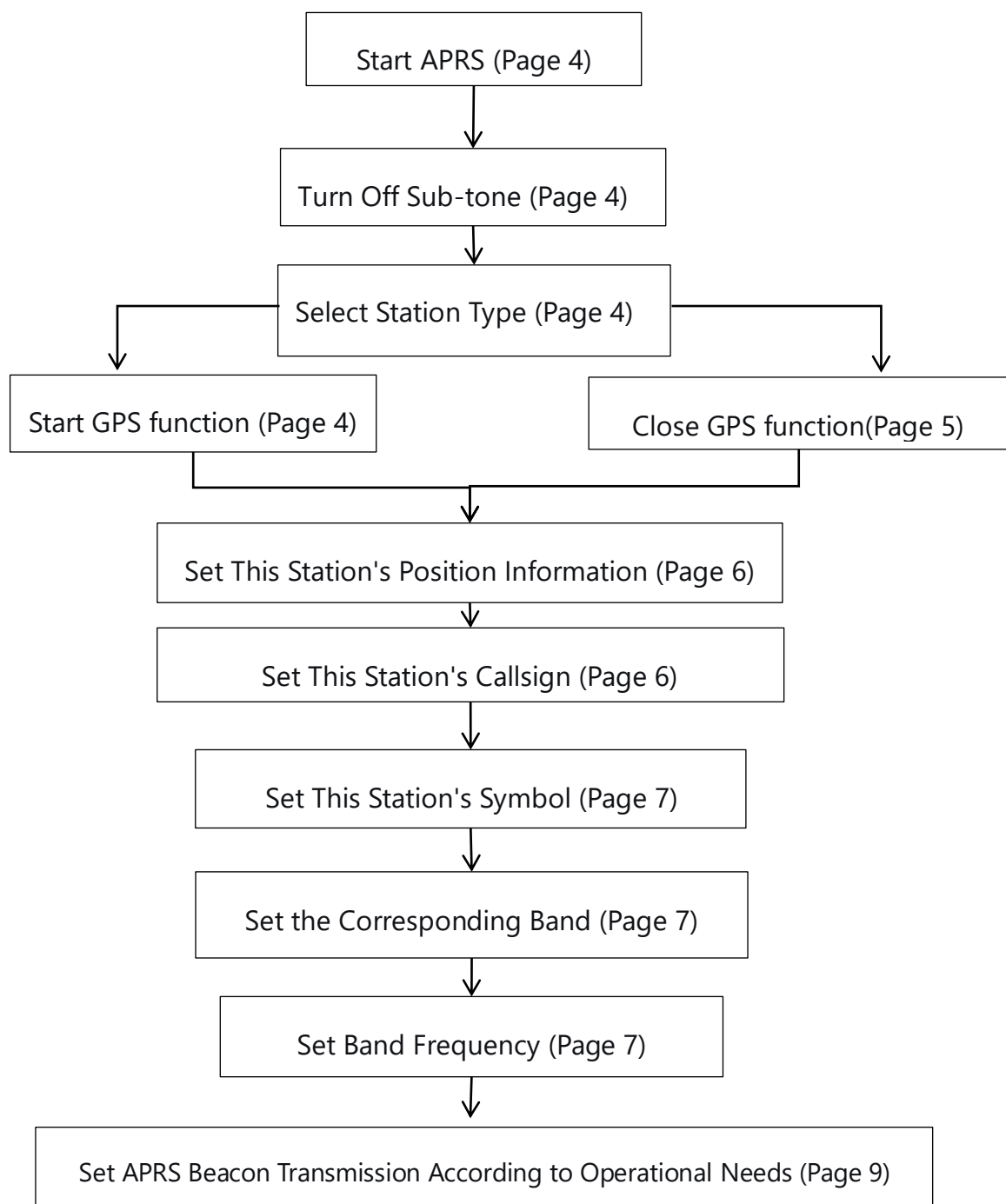
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APRS Initial Setup

APRS (Automatic Packet Reporting System) is a communication system that exchanges GPS position data and packet data messages. Position data can be entered manually or acquired automatically from the built-in GPS satellite receiver. When an APRS signal is received from another station, the direction, distance, etc., of that station relative to this station will be displayed on the radio's screen.

Initial Setup Steps for APRS Operation



Starting APRS

1. Press the [OK] key to enter the menu, find APRS Settings, 1 APRS Switch.
2. Select "ON" or "OFF".
ON: Turn APRS on.
OFF: Turn APRS off.
3. Press the [Back] key to return to the operation screen.

Turning Off Sub-tone

1. Press the [OK] key to enter the menu, find Sub-tone Settings.
2. Set 1 Rx Analog Squelch, 2 Rx Digital Squelch, 3 Tx Analog Squelch, 4 Tx Digital Squelch to OFF.
3. Press the [Back] key to return to the operation screen.

Selecting Station Type

1. Press the [OK] key to enter the menu, find APRS Settings, 3 Beacon Settings, 5 Station Type.
2. Select the corresponding coordinate type:
Fixed Coordinates ----- Operate APRS without using GPS function.
GPS Coordinates ----- Operate APRS using GPS function.

Operating APRS with GPS Function

When the GPS function is activated, the internal clock settings and position coordinates of this station are automatically acquired from GPS satellite signals. Using the GPS function is recommended for mobile operation.

- 1 Press the [OK] key to enter the menu, find APRS Settings, 2 GPS Settings, 1 GPS Positioning.
- 2 Use the navigation keys to select "ON".
ON: Use GPS function.
OFF: Do not use GPS function.
- 3 Wait for the GPS icon in the upper left corner to turn green, indicating a successful connection.
- 4 Press the [Back] key to exit setup mode and return to the operation screen.

GPS Function Settings

Latitude/Longitude Format Setting

- 1 Press the [OK] key to enter the menu, find APRS Settings, 2 GPS Settings, 2 Lat/Lon Format.
- 2 Use the Up/Down keys to select the latitude/longitude format: Degrees, Degrees/Minutes, Degrees/Minutes/Seconds.
- 3 Press the [Back] key to exit setup mode and return to the operation screen.

Time Zone Setting

- 1 Press the [OK] key to enter the menu, find APRS Settings, 2 GPS Settings, 3 Time Zone Adjustment.
- 2 Use the Up/Down keys to select the time zone that matches your location.
UTC-13 UTC-12 UTC-11 UTC-10 UTC-9 UTC-8 UTC-7 UTC-6 UTC-5 UTC-4 UTC-3 UTC-2 UTC-1 UTC-0
UTC+1 UTC+2 UTC+3 UTC+4 UTC+5 UTC+6 UTC+7 UTC+8 UTC+9 UTC+10 UTC+11 UTC+12 UTC+13
- 3 Press the [Back] key to exit setup mode and return to the operation screen.

Distance Unit Setting

- 1 Press the [OK] key to enter the menu, find APRS Settings, 2 GPS Settings, 4 Distance Unit.
- 2 Use the Up/Down keys to select the distance unit: Kilometers, Nautical Miles, Miles.
- 3 Press the [Back] key to exit setup mode and return to the operation screen.

Altitude Unit Setting

- 1 Press the [OK] key to enter the menu, find APRS Settings, 2 GPS Settings, 5 Altitude Unit.
- 2 Use the Up/Down keys to select the altitude unit: Meters, Feet.
- 3 Press the [Back] key to exit setup mode and return to the operation screen.

Speed Unit Setting

- 1 Press the [OK] key to enter the menu, find APRS Settings, 2 GPS Settings, 6 Speed Unit.
- 2 Use the Up/Down keys to select the speed unit: km/h, knots, mph.
- 3 Press the [Back] key to exit setup mode and return to the operation screen.

Operating APRS without GPS Function

When operating APRS without using the GPS function, manually set the position information according to the following steps.

- 1 Press the [OK] key to enter the menu, find APRS Settings, 2 GPS Settings, 1 GPS Positioning.
- 2 Use the navigation keys to select "OFF".
ON: Use GPS function.
OFF: Do not use GPS function.
- 3 Press the [Back] key to exit setup mode and return to the operation screen.

Setting Position Information

Manually input this station's position information.

1 Press the [OK] key to enter the menu, find APRS Settings, 3 Beacon Settings, 6 Fixed Coordinates.

2 Select 1 Set Longitude: Set Degrees, Minutes, Seconds.

3 Select 2 E/W Selection: Set W, E.

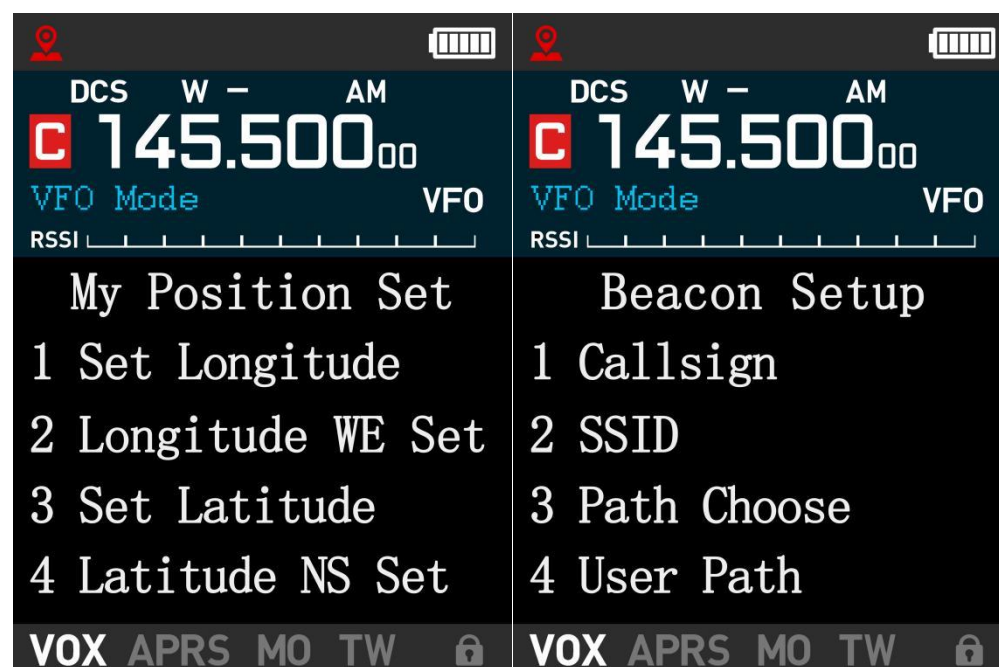
4 Select 3 Set Latitude: Set Degrees, Minutes, Seconds.

5 Select 4 N/S Selection: Set N, S.

6 Select 5 Fixed Altitude: Set altitude value.

Press [#] key to switch positive/negative, use keypad to set height, press [OK] to confirm.

7 Press the [Back] key to exit setup mode and return to the operation screen.



Setting This Station's Callsign

1 Press the [OK] key to enter the menu, find APRS Settings, 3 Beacon Settings, 1 Callsign.

The text input screen will be displayed.

2 Input the callsign using the alphanumeric input screen. The callsign can be up to 6 characters.

. , ? ! ' : 1	A B C 2	D E F 3
G H I 4	J K L 5	M N O 6
P Q R S 7	T U V 8	W X Y Z 9
	() \ * # 空格 0	

3 Press the [Back] key to exit setup mode and return to the operation screen.

Setting SSID

1 Press the [OK] key to enter the menu, find APRS Settings, 3 Beacon Settings, 2 SSID.

2 Select the SSID to set.

SSID can be set from 0 to 15.

3 Press the [Back] key to exit setup mode and return to the operation screen.

Setting This Station's Symbol

1 Press the [OK] key to enter the menu, find APRS Settings, 3 Beacon Settings, 7 Station Symbol.

2 Select one of the following symbols as this station's symbol.

MY SYMBOL	Code	Symbol
1	[/ []	Person
2	[/b]	Bicycle
3	[/>]	Car
4	[/R]	RV
5	[USER User Defined]	

3 Press the [Back] key to exit setup mode and return to the operation screen.

Directly Inputting Symbol Character

If the desired symbol is not provided, the symbol character can be input via the programming software.

1 Connect the programming cable and use the computer software for programming settings.

2 Press the [OK] key to enter the menu, find APRS Settings, 3 Beacon Settings, 7 Station Symbol.

3 Select USER User Defined to use your custom station symbol.

Setting the Corresponding Band

1 Press the [OK] key to enter the menu, find APRS Settings, 5 Advanced Settings, 1 APRS Channel.

2 Select the channel for transmission.

3 Press the [Back] key to exit setup mode and return to the operation screen.

Setting Band Frequency

1 Press the Band Switch key to switch to the band where beacons will be transmitted.
e.g., [A/B/C]

2 Set the configured frequency.

3 Press the [Back] key to exit setup mode and return to the operation screen.

Receiving APRS Beacons

Setting APRS Operating Frequency

- 1 Press the Band Switch key to switch to the band where beacons will be received.
e.g., [A/B/C]
- 2 Input the configured frequency.

Receiving Beacons

Displaying Beacons in the APRS Pop-up Screen

When a beacon is received on the corresponding band/frequency, a "beep-beep" sound will chime, and the APRS reception screen will be displayed.

Use the Up/Down keys to view other pages.

Typically shows: Callsign SSID

Notifying Beacon or Message Reception via Pop-up Screen (APRS Pop-up Function)

You can set the radio to display a pop-up notification when an APRS beacon or message is received from another station.

1. Press the [OK] key to enter the menu, find APRS Settings, 5 Advanced Settings, 5 Beacon Rx Pop-up.
2. Select "ON" or "OFF".
 - ON: Display pop-up screen.
 - OFF: Do not display pop-up screen.
3. (Navigate to) 5 Advanced Settings, 7 Pop-up Duration.
- 4 Set the pop-up display duration.
 - 5sec: Pop-up screen displays for 5 seconds.
 - Others similar.
 - Manual: Pop-up screen displays until a key is pressed.
5. Press the [Back] key to exit setup mode and return to the operation screen.

Audible Alert for Beacon or Message Reception (APRS RINGER Function)

You can set the radio to emit an audible alert when receiving APRS beacons from other stations.

1. Press the [OK] key to enter the menu, find APRS Settings, 5 Advanced Settings, 4 APRS Alert Tone.
- 2 Select "ON" or "OFF".
 - ON: Turn alert tone on.
 - OFF: Turn alert tone off.
3. Press the [Back] key to exit setup mode and return to the operation screen.

Deleting a Beacon Station from the List

- 1 Press the [OK] key to enter the menu, find APRS Settings, 5 Advanced Settings, 6 Received Beacon Clear.
- 2 Press the [Back] key to exit setup mode and return to the operation screen.

Transmitting APRS Beacons

Manual Beacon Transmission

- 1 Press the [OK] key to enter the menu, find APRS Settings, 6 Beacon Type, 1 Beacon Type.
- 2 Select Manual Beacon.
- 3 Press the [Back] key to exit setup mode and return to the operation screen.

Setting Side Key for Transmission

- 1 Press the [OK] key to enter the menu, find Key Customization, set the Side Key function.
- 2 Select Beacon Transmission.
- 3 Press the [Back] key to exit setup mode and return to the operation screen.

Transmitting a Beacon

- 1 Switch to the corresponding channel.
- 2 Press the Side Key to transmit.

Automatic Beacon Transmission

This operation sets APRS beacons for automatic transmission.

- 1 Press the [OK] key to enter the menu, find APRS Settings, 6 Beacon Type, 1 Beacon Type.
- 2 Select Timed Beacon.
- 3 Press the [Back] key to exit setup mode and return to the operation screen.

Setting the Automatic Beacon Transmission Time Interval

This operation sets the time interval for automatic APRS beacon transmission.

- 1 Press the [OK] key to enter the menu, find APRS Settings, 6 Beacon Type, 2 Timer Interval.
- 2 Use the Up/Down keys to select the automatic transmission interval.
Select one from the following intervals:
30 sec / 1 min / 2 min / 3 min / 5 min / 10 min / 15 min / 20 min / 30 min / 60 min
- 3 Press the [Back] key to exit setup mode and return to the operation screen.

APRS Channel Squelch

- 1 Press the [OK] key to enter the menu, find APRS Settings, 5 Advanced Settings, 3

APRS Channel Squelch.

2. Use the Up/Down keys to select:

Enable APRS Channel Squelch / Disable APRS Channel Squelch.

3. Press the [Back] key to exit setup mode and return to the operation screen.

Message Comments

Selecting Position Comment

This operation selects the position comment (status message) to be logged in this station's beacon.

1. Press the [OK] key to enter the menu, find APRS Settings, 3 Beacon Settings, 9 MIC-E Type.

2. Use the Up/Down keys to select the position comment. Select from the following list:

Off Duty / En Route / In Service / Returning / Committed / Special / Priority / EMERGENCY!

Note: Factory default: Off Duty

Reference: To cancel the selected position comment, select another comment using the Up/Down keys.

3. Press the [Back] key to exit setup mode and return to the operation screen.

Custom Message

1 Press the [OK] key to enter the menu, find APRS Settings, 3 Beacon Settings, 10 Custom Message.

2 Select 1 Send Message, use Up/Down keys to set to ON.

ON: Enable sending message. OFF: Disable sending message.

3 Select 2 Message Edit to edit the message to be sent.

4 Press the [Back] key to exit setup mode and return to the operation screen.

Setting Digipeater Path

A digipeater is a station that relays beacon packet data. When using digipeaters, register the digipeater's callsign or alias in the radio. This radio is preset with "WIDE1-1" (1 hop relay setting) and "WIDE1-1, WIDE2-1" (2 hop relay setting). When "WIDE 1-1, WIDE 2-1" is selected, the beacon is first relayed to the digipeater at the first location specified by WIDE 1-1, and then the beacon is relayed to the digipeater at the second location specified by WIDE 2-1. With this setting, the beacon is relayed by digipeaters at two locations.

1 Press the [OK] key to enter the menu, find APRS Settings, 4 Digipeater Settings.

2 You can view DIGI Forwarding Channel, Path Selection, Wait Before Forwarding.

3 Press the [Back] key to exit setup mode and return to the operation screen.

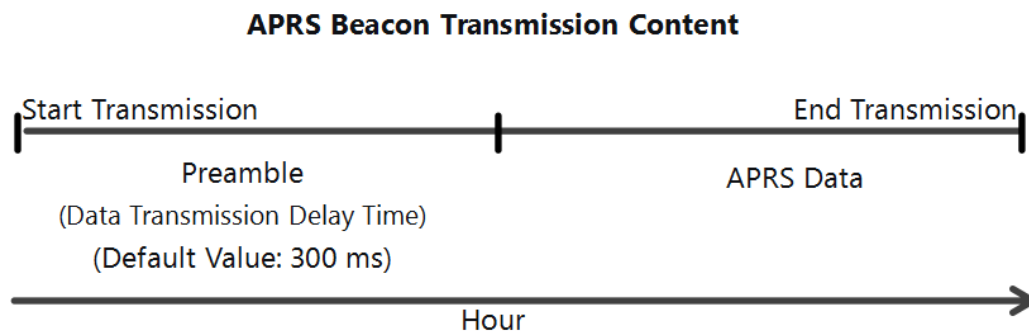
Setting Data Transmission Delay Time

1 Press the [OK] key to enter the menu, find APRS Settings, 5 Advanced Settings, 2 Data Tx Delay.

2 Use the Up/Down keys to select the delay time.

Settings: 100ms / 150ms / 200ms / 250ms / 300ms / 400ms / 500ms / 750ms / 1000ms

Description: You can set the preamble (data transmission delay time) when transmitting APRS data, as shown in the figure.



TNC Data Type

1 Press the [OK] key to enter the menu, find APRS Settings, 5 Advanced Settings, 8 TNC Data Type.

2 Select the TNC data type.

OFF: Turn off. KISS: KISS data type.

3 Press the [Back] key to exit setup mode and return to the operation screen.

Restoring Factory Settings

1 Press the [OK] key to enter the menu, find APRS Settings, 5 Advanced Settings, 9 Factory Reset.

2 Select "Confirm initialization?" to restore factory settings.

3 Press the [Back] key to exit setup mode and return to the operation screen.