Thank you for purchasing this Yaeau product. This instruction manual explains information related to the “APRS Function”. For information on basic operation of the transceiver, please refer to the enclosed FT1DR instruction manual. Company names and products in this manual are trademarks or registered trademarks of the respective company.
The APRS (Automatic Packet Reporting System) is a system proposed by WB4APR, Bob Bruninga for data communication by acquiring the station location information and sending/receiving messages. Manually inputting position data beforehand will allow location reporting on transmissions without using the GPS function.

Upon receiving an APRS signal from a remote station, information such as direction to the remote station from your station, distance to the remote station, and speed of the remote station appear on the LCD of your transceiver.

### Initial Setup Procedure for APRS Operation

1. **Using the GPS Function** *(See page 3)*
   - Activating the GPS Function *(See page 3)*
   - Setting the clock for the transceiver *(Basic Edition See page 33)*
   - Setting the Position of Your Station *(See page 4)*
   - Setting the Callsign of Your Station *(See page 5)*
     - Set the baud rate for APRS and turn ON APRS. *(See page 7)*
     - Setting the Symbol of Your Station *(See page 8)*
     - Setting the frequency for B band. *(See page 10)*
     - Setting the APRS beacon transmissions according to need *(See page 26)*

2. **Not Using the GPS Function** *(See page 3)*
   - Deactivating the GPS Function *(See page 3)*
   - Setting the clock for the transceiver *(Basic Edition See page 33)*
   - Setting the Position of Your Station *(See page 4)*

---

*Note: The image contains a flowchart illustrating the steps mentioned above.*
Operating APRS using the GPS function.

When the GPS function of the transceiver is used, your transceiver’s internal clock and position are automatically set by the obtained GPS information. If you use APRS with your transceiver while walking or traveling, the use of the GPS function is recommended.

1. Press \( \text{SET} \) over 1 second.
   Enters the Set mode.
2. Turn \( \text{SET} \) to select [9 APRS].
3. Press \( \text{ENT} \).
4. Turn \( \text{SET} \) to select [20 GPS POWER].
5. Press \( \text{ENT} \).
6. Turn \( \text{SET} \) to select “ON”.
   ON: GPS can be used.
   OFF: GPS cannot be used.
   **Tip** Default: ON
7. Press \( \text{SET} \).
8. Press \( \text{SET} \).
   Exits from the Set mode.

When operating APRS, the position information obtained from GPS can be used for your transceiver’s position information. Select [9 APRS] → [24 MY POSITION] and set [24 MY POSITION] to [GPS]. If you set the Lat/Lon or P1 to P10 to other than [GPS], the GPS data is nullified even if it is obtained. The position information designated by this setting, such as Lat/Lon or P1 to P10, is transmitted.

**Tip**
- Your own station position information obtained from GPS can be registered to 10 memory channels (P1 to P10). The registered position information may then be used to transmit the position of your own station (See page 63).
- To use the GPS function for APRS operation, select [9 APRS] → [24 MY POSITION] and then set [24 MY POSITION] to [GPS] in the Set mode.
- Using the GPS function increases the consumption current by approximately 30mA. As a result, the battery life is reduced by about 20% compared to when the GPS function is not used.
- If dual reception is used while APRS is active, weak signals may be inaudible due to noise produced by the APRS unit.

Operating APRS without using the GPS function.

In order to operate APRS without using the GPS function, set the clock and position information manually by performing the following steps.

**Setting the clock.**

If the internal clock is set, it will be reflected in the time display on the APRS screen. For details, refer to “Setting clock time” (Basic Operation See page 33).
### Initial Settings for APRS®

1. Press SET over 1 second.
   Enters the Set mode.
2. Turn DIAL to select [9 APRS].
3. Press ENT.
4. Turn DIAL to select [21 GPS TIME SET].
5. Press ENT.
6. Turn DIAL to select [MANUAL].
7. Press ENT.
   GPS TIME SET is set to MANUAL.
8. Press ENT.
   Exits from the Set mode.

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SET</td>
<td>Enter Set mode</td>
</tr>
<tr>
<td>ENT</td>
<td>Enter selection</td>
</tr>
<tr>
<td>DIAL</td>
<td>Select options</td>
</tr>
</tbody>
</table>

**Tip**
- I-GATE and Digipeater through connection to a PC cannot be operated.
- You can change the unit of APRS data by selecting [9 APRS] → [11 GPS UNIT].
- Even if the internal clock is set to MANUAL, if the GPS function is used, time data will be obtained from GPS and the precise time will be displayed. This function can be set to OFF (MANUAL) by selecting [9 APRS] → [21 GPS TIME SET].

### Position Information Setting (Datum: WGS-84)
Manually enter the position information of your station.

1. Press SET over 1 second.
   Enters the Set mode.
2. Turn DIAL to select [9 APRS].
3. Press ENT.
4. Turn DIAL to select [24 MY POSITION].
5. Press ENT.
   GPS setting items appear on the LCD.

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SET</td>
<td>Enter Set mode</td>
</tr>
<tr>
<td>ENT</td>
<td>Enter selection</td>
</tr>
<tr>
<td>DIAL</td>
<td>Select options</td>
</tr>
</tbody>
</table>

**Tip** Default: GPS

6. Turn DIAL to select [Lat].
7. Press ENT.
   The cursor moves to setting item for latitude.

**Tip** Pressing ENT returns the cursor to the previous item.
8. Turn DIAL to set [N (north latitude)] or [S (south latitude)].
9. Press ENT.
   The cursor moves to the setting items for [Degree].

**Tip** Pressing ENT returns the cursor to the previous item.
10. Turn DIAL to set [Degree].
11. Press ENT.
   The cursor moves the setting item for [Minute].

**Tip** Pressing ENT returns the cursor to the previous item.
Initial Settings for APRS®

12 Turn \( \text{DIAL} \) to enter [Minute].
13 Press \( \text{ENT} \).

The cursor moves to the setting item for [1/100 minute].

Tip Pressing \( \text{ENT} \) returns the cursor to the previous item.

14 Turn \( \text{DIAL} \) to enter [1/100 Minute].

Seconds will be displayed in parentheses.

15 Press \( \text{ENT} \).

The cursor moves to Lat.

Tip Pressing \( \text{ENT} \) returns the cursor to the previous item.

16 Turn \( \text{DIAL} \) to select [Lon].

17 Press \( \text{ENT} \).

The cursor moves to setting item for longitude.

Tip Pressing \( \text{ENT} \) returns the cursor to the previous item.

18 Turn \( \text{DIAL} \) to set [E (east longitude)] and [W (west longitude)].

19 Press \( \text{ENT} \).

The cursor moves to the next setting item.

Tip Pressing \( \text{ENT} \) returns the cursor to the previous item.

20 Enter [Degree], [Minute], and [1/100 Minute] by following steps 9 through 13.

21 Press \( \text{DISP} \).

The position information is set.

22 Press \( \text{ESC} \).

Exits from the Set mode.

### Setting the Callsign of Your Station

Register the callsign of your transceiver for transmitting beacons or transmitting and receiving messages using APRS. Enter the callsign such as [JA1ZRL-7]. The [–7] of the callsign represents SSID (Secondary Station Identifier). There are 16 types including no SSID. Generally, the SSID descriptions shown below are used for APRS.

<table>
<thead>
<tr>
<th>SSID</th>
<th>Description</th>
<th>SSID</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Fixed station capable of exchanging messages</td>
<td>–8</td>
<td>Maritime mobile station, Land mobile station</td>
</tr>
<tr>
<td>–1</td>
<td>1200bps narrow intermediate band digipeater</td>
<td>–9</td>
<td>Operating on a mobile device such as FTM-350 transceiver</td>
</tr>
<tr>
<td>–2</td>
<td>9600bps digipeater</td>
<td>–10</td>
<td>I-Gate station, Internet connection station</td>
</tr>
<tr>
<td>–3</td>
<td>1200bps wide band digipeater</td>
<td>–11</td>
<td>Flying balloon, airplane, spacecraft, etc.</td>
</tr>
<tr>
<td>–4</td>
<td>Digipeater, mobile station, weather station, etc.</td>
<td>–12</td>
<td>1-way Tracker (station incapable of exchanging message)</td>
</tr>
<tr>
<td>–5</td>
<td>Operating station such as mobile device (smartphone)</td>
<td>–13</td>
<td>Weather Station</td>
</tr>
</tbody>
</table>
Initial Settings for APRS®

<table>
<thead>
<tr>
<th>SSID</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-6</td>
<td>Operating station such as for satellite communication and event management</td>
</tr>
<tr>
<td>-7</td>
<td>Handy type operating station such as FT1DR transceiver</td>
</tr>
<tr>
<td>-14</td>
<td>Truck mobile station</td>
</tr>
<tr>
<td>-15</td>
<td>digipeater, mobile station, weather station, etc.</td>
</tr>
</tbody>
</table>

1. Press SET over 1 second.
   Enters the Set mode.
2. Turn DIAL to select [9 APRS].
3. Press ENT.
4. Turn DIAL to select [23 CALLSIGN(APRS)].
5. Press ENT.
6. Enter call sign using numeric keys.
   Enter a call sign using numeric keys with reference to the following table.

<table>
<thead>
<tr>
<th>Numeric key</th>
<th>TX PRM</th>
<th>A, 0(Alphanumeric)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>SCAN</td>
<td>2</td>
<td>ABC2</td>
</tr>
<tr>
<td>P. S.EW</td>
<td>3</td>
<td>DEF3</td>
</tr>
<tr>
<td>HOME</td>
<td>4</td>
<td>GHI4</td>
</tr>
<tr>
<td>REV</td>
<td>5</td>
<td>JKL5</td>
</tr>
<tr>
<td>AC D.I.M</td>
<td>6</td>
<td>MNO6</td>
</tr>
<tr>
<td>LOG</td>
<td>7</td>
<td>PQRS7</td>
</tr>
<tr>
<td>D.I.M</td>
<td>8</td>
<td>TUV8</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>WXYZ9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Numeric key</th>
<th>LIST APRS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

**Tip**
- When F is pressed, a character is deleted and the cursor moves to the left.
- Pressing H moves the cursor to the right.

7. Press ENT to move the cursor.
8. Repeat steps 5 through 7 to enter the call sign.
   Up to 6 digits can be entered for the call sign.

**[Setting call sign without SSID]**
To set an SSID, go to step 11.

9. Press SET.
   Call sign is registered.
10. Press SET.
    Exits from the Set mode.
Initial Settings for APRS®

[Setting call sign with SSID]

11 Press \texttt{ENT}.

12 Turn \texttt{DIAL} to set SSID.
SSID is displayed in \texttt{[ – ]} after the call sign. It is recommended to select \texttt{[7]} with this transceiver.

13 Press \texttt{SET} to register SSID.

14 Press \texttt{EXIT}.
Exits from the Set mode.

Setting APRS baud rate

Set the baud rate for APRS. If the baud rate is set to 1200bps/9600bps, the APRS function is activated.

If the baud rate is set to OFF, the APRS functions is deactivated.

Setting the baud rate to 1200bps, the APRS can be operated on AFSK 1200bps packets.

Setting the baud rate to 9600bps, the APRS can be operated on GMSK 9600bps packets.

1 Press \texttt{SET} over 1 second.
Enters the Set mode.

2 Turn \texttt{DIAL} to select \texttt{[9 APRS]}.

3 Press \texttt{ENT}.

4 Turn \texttt{DIAL} to select \texttt{[4 APRS MODEM]}.

5 Press \texttt{ENT}.

6 Turn \texttt{DIAL} to set APRS baud rate.
The APRS baud rate can be selected form the following 3 types.

[OFF] [1200bps] [9600bps]

Remark Default: OFF

7 Press \texttt{EXIT} to set the APRS baud rate and exit from the Set mode.

Caution

If APRS is not to be operated, select [OFF] by following step 6, shown above.
Initial Settings for APRS®

Tip

• If the baud rate is set to 1200bps/9600bps, the reception save function is automatically deactivated.
• If you set [8 APRS MUTE] to [ON] after selecting [9 APRS] → [8 APRS MUTE], [B] band reception volume (such as beacon and sound) will be muted and [A12] or [A96] will blink.

Setting the Symbol of Your Station

Set the symbol for your station to transmit. The symbol can be selected from 45 types. The default setting symbol is [A].

1 Press SET over 1 second.
   Enters the Set mode.
2 Turn DIAL to select [9 APRS].
3 Press ENT.
4 Turn DIAL to select [25 MY SYMBOL].
5 Press ENT.
   MY SYMBOL 1 appears on the LCD.
6 Turn DIAL to select a symbol.
   Select between 4 types: [MY SYMBOL 1], [MY SYMBOL 2], [MY SYMBOL 3], or [MY SYMBOL 4].
   The symbol for [MY SYMBOL 4] can be directly entered with characters.
   For instructions on how to enter a symbol, see the next page.
   Pressing ENT changes the number portion of MY SYMBOL from [1-4] to [▶], and can be changed to often used symbols (selectable from the frame above).
Remark
Default value of each symbol is as follows.

<table>
<thead>
<tr>
<th>MY SYMBOL</th>
<th>Code</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>[ / ]</td>
<td>Human/Person</td>
</tr>
<tr>
<td>2</td>
<td>[ /b ]</td>
<td>Bicycle</td>
</tr>
<tr>
<td>3</td>
<td>[ /&gt; ]</td>
<td>Car</td>
</tr>
<tr>
<td>4</td>
<td>[ YY ]</td>
<td>Yaesu Radios</td>
</tr>
</tbody>
</table>

7 Press \(\text{SET}\).
To set the symbol of your station

8 Press \(\text{DISP}\).
Exits from the Set mode.

Directly entering symbol characters.
If you do not find any desired symbols, symbol characters can be directly entered.

1 Press \(\text{DISP}\) over 1 second.
Enters the Set mode.

2 Turn \(\text{DIAL}\) to select [9 APRS].

3 Press \(\text{ENT}\).

4 Turn \(\text{DIAL}\) to select [25 MY SYMBOL].

5 Press \(\text{ENT}\).

6 Turn \(\text{DIAL}\) to select [MY SYMBOL 4].

7 Press \(\text{ENT}\).
\[\text{[ [ ]} \text{ changes to [ [ ]} \text{]}\]
Pressing \(\text{F}\) returns \([ [ ]} \text{] to [ [ ]} \text{].}

8 Press \(\text{ENT}\).
The cursor moves to Symbol Table ID.
Pressing \(\text{F}\) returns the cursor back to \([ [ ]} \text{].}

9 Turn \(\text{DIAL}\) to enter characters.

10 Press \(\text{ENT}\).
The cursor moves to the setting items for Symbol Code.
Pressing \(\text{F}\) moves the cursor back to [Symbol Table ID].

11 Turn \(\text{DIAL}\) to enter characters.

12 Press \(\text{DISP}\).
The symbol is set.

13 Press \(\text{SET}\).
Exits from the Set mode.

Tip  For the list of latest symbols, see [http://aprs.org/symbols/symbolsX.txt] or [http://aprs.org/symbols/symbolsnew.txt].
Receiving APRS® beacons

Set the APRS operating frequency before receiving beacons.

Setting the operating frequency for APRS.

The frequency varies between regions and countries.

1 Press \text{MONITAL} [A/B].
   - Set the operating band to B-band.
   - APRS can only operate on B-band.
   - Check that A12 or A96 is displayed in the right edge section of the frequency. (See page 7).

2 Set the operating frequency.
   - \text{Tip} If the baud rate is set to 1200bps/9600bps in [9 APRS] \rightarrow [4 APRS MODEM], the reception save function is automatically deactivated.

Receiving APRS® beacons

- \textbf{Displaying received beacons on the APRS popup screen}
  - If a beacon is received while the frequency display screen is opened, a bell will sound and the APRS popup screen will appear.
  - The [APRS POPUP SCREEN] and the [STATION LIST DESCRIPTION SCREEN] are basically the same.

- \textbf{Displaying received beacons on the STATION LIST screen}
  - Pressing \text{MY} then \text{S-LIST-APRS} in the frequency display screen opens the STATION LIST screen.
  - Pressing \text{S-LIST-APRS} key toggles between STATION LIST and Message LIST screen.
Receiving APRS® beacons

Description of APRS beacon screen and key operation.

Description of STATION LIST screen and key operation.

1. Number: Received beacons (up to 60) are displayed in the order received.
2. Character: The station list character is displayed. For instructions, see the next page.
3. Station name: The call sign of received beacon or Object name/Item name is displayed.
4. Time or date: Time (HH Hours: MM Minute) or Date (MM Month/DD Day) is displayed. The time display will change to the date of the next day.
5. Beacon Automatic/Manual Transmission Icon: Not lit (Manual), if [●] is lit (AUTO) (See page 27), if [●] is lit (SMART) (See page 27)

Tips

- When a beacon with APRS filter set to [ON] in Set mode option [9 APRS] → [3 APRS FILTER] is received it will appear on the LCD.
  If [OFF] is selected, a bell will sound and the beacon is not received.
- When operating on APRS, the received audio (such as beacons and voices) on [B] band, can be muted in Set mode option [9 APRS] → [8 APRS MUTE].
- A bell sound for notifying the reception of an APRS beacon can be set in Set mode option [9 APRS] → [10 APRS RINGER].
  If this option is set to [OFF], the bell will not sound.
Receiving APRS® beacons

**Description of Station List Characters**
This section explains the display examples for the 14 types of station characters. For details on the description screen, see the next pages listed on the table.

<table>
<thead>
<tr>
<th>Display</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>EMic-E: Displayed when a beacon from a MIC encoder station is received.</td>
<td>13</td>
</tr>
<tr>
<td>P</td>
<td>Position: Displayed when a beacon from a Fixed Station (FIXED) or Moving Station (MOVING) is received.</td>
<td>14 to 16</td>
</tr>
<tr>
<td>p</td>
<td>Position: Displayed when a beacon from a Fixed Station (fixed) or Moving Station (moving) is received. (Compressed type)</td>
<td>17</td>
</tr>
<tr>
<td>W</td>
<td>Weather report: Displayed when a beacon from a weather station is received.</td>
<td>18</td>
</tr>
<tr>
<td>w</td>
<td>Weather report: Displayed when a beacon from a weather station is received. (Compressed type)</td>
<td>18</td>
</tr>
<tr>
<td>O</td>
<td>Object: Displayed when a beacon from an object station is received.</td>
<td>19</td>
</tr>
<tr>
<td>o</td>
<td>Object: Displayed when a beacon from an object station is received. (Compressed type)</td>
<td>19</td>
</tr>
<tr>
<td>I</td>
<td>Item: Displayed when a beacon from an item station is received.</td>
<td>19</td>
</tr>
<tr>
<td>i</td>
<td>Item: Displayed when a beacon from an item station is received. (Compressed type)</td>
<td>19</td>
</tr>
<tr>
<td>K</td>
<td>Killed Object/Item: Displayed when a beacon from a deleted object station or item station is received.</td>
<td>19</td>
</tr>
<tr>
<td>k</td>
<td>Killed Object/Item: Displayed when a beacon from a deleted object stations or item station is received. (Compressed type)</td>
<td>19</td>
</tr>
<tr>
<td>S</td>
<td>Status: Displayed when a beacon from a status station is received.</td>
<td>20</td>
</tr>
<tr>
<td>?</td>
<td>Other: Displayed when a beacon from an unknown station is received.</td>
<td>21</td>
</tr>
<tr>
<td>Emg</td>
<td>Displayed when a emergency signal from a Mic-E station is received.</td>
<td>13</td>
</tr>
</tbody>
</table>

**Tips**
- After turning on the power of this transceiver, if the description screen is opened before GPS information is acquired, the directional arrow and distance measure will not appear.
- If positioning cannot be acquired due to obstacles, such as buildings or tunnels, the position information of position that was last measured (directional arrow, longitude/latitude, distance measure) is displayed. Once the transceiver is moved to a position where it can acquire GPS information, it will resume displaying the accurate position.
Pressing \textbf{ENT} and selecting \textbf{Mic-E} station with [E] in the STATION LIST will open the details screen for \textbf{Mic-E}. Though only 4 rows are displayed on screen, scrolling with \textbf{DIAL} reveals the additional information rows.

\begin{itemize}
  \item \textbf{... Scrolls through screen}
  \item \textbf{Press H and then turn O} \textbf{... Switches beacon station}
  \item \textbf{Press O} \textbf{... Moves to STATION LIST screen (See page 11).}
  \item \textbf{Press M} \textbf{... Moves to MESSAGE EDITING SCREEN.}
  \item \textbf{Press over 1 second.} \textbf{... Enters the Set mode (See page 45).}
  \item \textbf{Press} \textbf{B} \textbf{... Moves to RAW Data display screen (See page 25).}
  \item \textbf{9} \textbf{... Manual transmission of beacon (See page 26).}
\end{itemize}

\textbf{Screen Details}

\begin{itemize}
  \item \textbf{Compass (Direction):} Shows the direction to the remote transceiver from your transceiver.
  \item \textbf{Symbol:} Displays the symbol of the received radio station.
  \item \textbf{Callsign:} Displays the received call sign.
  \item \textbf{Display Message:} A mark is displayed when a beacon with STATUS TEXT is received.
  \item \textbf{Type Code:} Displays the type code being used by the remote transceiver (such as Mic-E, McE-Trk, McE-Msg, or model name of the transceiver).
  \item \textbf{Date:} Displays the Time (HH Hours: MM Minute) or Date (MM Month/DD Day).
  \item \textbf{Distance:} Displays the distance between your transceiver and the remote transceiver.
  \item \textbf{Time:} Displays the time (HH Hours: MM Minutes) that the beacon was received.
  \item \textbf{Speed:} Displays the moving speed of the remote transceiver.
  \item \textbf{Direction:} Displays the moving direction of the remote transceiver.
  \item \textbf{Altitude:} Displays the altitude of the remote transceiver.
  \item \textbf{Position Comment:} Displays the position comment from the remote transceiver. If Emergency is received, (Emergency) is displayed on screen and a beep is repeatedly sounded 12 times.
  \item \textbf{Latitude:} The current position is displayed using north (N) or south (S) latitude (DD degree, MM.MM minutes, or DD degree, MM minutes, SS seconds).
  \item \textbf{Longitude:} The current position is displayed using east (E) or west (W) longitude (DDD degree, MM.MM minutes, or DD degrees, MM minutes, SS seconds).
  \item \textbf{STATUS TEXT:} Displays comment information.
\end{itemize}
Receiving APRS® beacons

Explanation of the Detailed Display for Station List of P (Position: Fixed Station) and key operation.

Pressing **ENT** and selecting [P] station with **DIAL** in the STATION LIST screen will open the detail screen for P (Position).

Though only 4 rows are displayed on the screen, scrolling with **DIAL** will reveal the additional rows of information.

... Scrolls trough screen
Press **DIAL** after pressing **DIAL** ... Transition of beacon station
Press **SET** ... Moves to STATION LIST screen (See page 11).
Press **SET** ... Moves to MESSAGE EDIT screen.
Press **SET** over 1 second... Enters the Set mode. (See page 45).
Press **SET** ... Moves to RAW Data display screen (See page 25).
Press **DIAL** ... Manual transmission of beacon (See page 26).

Screen Details

1. **Compass (Direction):** Shows the direction to the remote transceiver from your transceiver.
2. **Symbol:** Displays the symbol of the received radio station.
3. **Callsign:** Displays the received call sign.
4. **Remote transceiver information:** Displays information on the fixed station (FIXED).
5. **Date:** Displays the Time (HH Hours: MM Minute) or Date (MM Month/DD Day).
6. **Distance:** Displays the distance between your transceiver and the remote transceiver.
7. **Time:** Displays the time (HH Hours: MM Minutes) that beacon was received.
8. **Latitude:** The current position is displayed using north (N) or south (S) latitude (DD degree, MM.MM minutes, or DD degree, MM minutes, SS seconds).
9. **Longitude:** The current position is displayed using east (E) or west (S) longitude (DD D degree, MM.MM minutes, or DD degree, MM minutes, SS seconds).
10. **STATUS TEXT:** Displays comment information.
Receiving APRS® beacons

Explanation of Display details and key operations for Station List of P (Position: Fixed Station).

Pressing **ENT** and selecting [P] station with **DIAL** in the STATION LIST will open the detail screen for P (Position). Position may contain detailed information called PHG code in some cases.

Though only 4 rows are displayed on screen, scrolling with **DIAL** will reveal the additional rows of information.

- **DIAL** … Scroll through screen
- Press **ENT** after pressing **DIAL** … Switches beacon station
- Press **SET** … Moves to STATION LIST screen (See page 11).
- Press **DIAL** … Moves to MESSAGE EDIT screen.
- Press **DIAL** over 1 second… Enters the Set mode. (See page 45).
- **DIAL** … Moves to RAW Data display screen (See page 25).
- **DIAL** … Manual transmission of beacon (See page 26).

### Screen Details

#### 1. Compass (Direction):
Shows the direction to the remote transceiver from your transceiver.

#### 2. Symbol:
Displays the symbol of the received radio station.

#### 3. Callsign:
Displays the received call sign.

#### 4. Remote transceiver information:
Displays information on the fixed station (FIXED).

#### 5. Date:
Displays the Time (HH Hours: MM Minute) or Date (MM Month/DD Day).

#### 6. Distance:
Displays the distance between your transceiver and the remote transceiver.

#### 7. Time:
Displays the time (HH Hours: MM Minutes) that beacon was received.

#### 8. Transmission Power:
Displays transmission power of the remote transceiver.

#### 9. Antenna ground clearance:
Displays the antenna ground clearance of the remote transceiver.

#### 10. Antenna gain:
Displays antenna gain of the other station.

#### 11. Antenna direction:
Displays the antenna direction of the remote transceiver.

#### 12. Transmission count:
Displays the number of transmission from the remote transceiver.

#### 13. Latitude:
The current position is displayed using north (N) or south (S) latitude (DD degree, MM.MM minutes, or DD degree, MM minutes, SS seconds).

#### 14. Longitude:
The current position is displayed using east (E) or west (S) longitude (DDD degree, MM.MM minutes, or DD degree, MM minutes, SS seconds).

#### 15. STATUS TEXT:
Displays comment information.
Receiving APRS® beacons

Explanation of Display details and key operations for Station List of P (Position: Fixed Station).

Pressing **ENT** and selecting [P] station with **DIAL** in the STATION LIST will open the detail screen for P (Position). If there is information related to movement (Speed, Course) in data received, it is displayed as shown below. Though only 4 rows are displayed on the screen, scrolling with **DIAL** will reveal the additional rows of information.

- **DIAL** … Scrolls through screen
- Press **ENT** after pressing **DIAL** … Switches beacon station
- Press **DIAL** … Moves to STATION LIST screen (See page 11).
- Press **DIAL** over 1 second … Moves to MESSAGE EDIT screen.
- Press **DIAL** … Moves to RAW Data display screen (See page 25).
- Press **DIAL** … Manual transmission of beacon (See page 26).

Screen Details

1. **Compass (Direction):** Shows the direction to the remote transceiver from your transceiver.
2. **Symbol:** Displays the symbol of the received radio station.
3. **Callsign:** Displays the received call sign.
4. **Remote transceiver information:** Displays information on the fixed station (FIXED).
5. **Date:** Displays the Time (HH Hours: MM Minute) or Date (MM Month/DD Day).
6. **Distance:** Displays the distance between your transceiver and the remote transceiver.
7. **Time:** Displays the time (HH Hours: MM Minutes) that beacon was received.
8. **Speed:** Displays the moving speed of the remote transceiver.
9. **Direction:** Displays the moving direction of the remote transceiver.
10. **Latitude:** The current position is displayed using north (N) or south (S) latitude (DD degree, MM.MM minutes, or DD degree, MM minutes, SS seconds).
11. **Longitude:** The current position is displayed using east (E) or west (W) longitude (DDD degree, MM.MM minutes, or DD degree, MM minutes, SS seconds).
12. **STATUS TEXT:** Displays comment information.
Receiving APRS® beacons

Explanation of the Detailed Display and key operations for Station List of p (Position: Fixed Station).

Pressing \text{ENT} and selecting [p (Position Compressed type)] station with \text{DIAL} in the STATION LIST screen will open the details screen for P (Position).

Though only 4 rows are displayed on screen, scrolling with \text{DIAL} will reveal the additional rows of information.

\text{ … Scrolls trough screen}

Press \text{F} after pressing \text{DIAL} … Switches beacon station

Press \text{M} … Moves to STATION LIST screen (See page 11).

Press \text{SET} … Moves to MESSAGE EDITING SCREEN.

Press \text{M} over 1 second … Enters the Set mode (See page 45).

… Moves to RAW Data display screen (See page 25).

\text{ … Manual transmission of beacon (See page 26)}

<table>
<thead>
<tr>
<th>Screen Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>9</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>11</td>
</tr>
<tr>
<td>12</td>
</tr>
<tr>
<td>13</td>
</tr>
</tbody>
</table>

Tip

Compressed type beacon is a beacon sent in a format where a part of the information is compressed.
Receiving APRS® Beacons

Explanation of the Detailed Display for Station List of W (Weather report: Weather Station) and key operation.

Pressing [ENT] and selecting [W] (Weather report) or [w] (Weather report Compressed type) station with [DIAL] in the STATION LIST screen will open the details screen for W or w (Weather report). Though only 4 rows are displayed on screen, scrolling with [DIAL] shows all the information.

... Scrolls trough screen
Press [DIAL] ... Switches beacon station
Press [SET] ... Moves to STATION LIST screen (See page 11).
Press [DISP] ... Moves to MESSAGE EDITING SCREEN.
Press [M] over 1 second ... Enters the Set mode (See page 45).
... Moves to RAW Data display screen (See page 25).
... Manual transmission of beacon (See page 26).

Screen Details

1. Compass (Direction): Shows the direction to the remote transceiver from your transceiver.
2. Symbol: Displays the symbol of the received radio station.
3. Callsign: Displays the received call sign.
4. Remote transceiver information:
   a. Date: Displays the Time (HH Hours: MM Minutes) or Date (MM Month/DD Day).
   b. Distance: Displays the distance between your transceiver and the remote transceiver.
   c. Time: Displays the time (HH Hours: MM Minutes) that beacon was received.
   d. Temperature: Displays temperature information.
   e. Precipitation: Displays information on precipitation per hour.
   f. Precipitation: Displays information on precipitation per 24 hours.
   g. Precipitation: Displays information on precipitation from midnight.
   h. Wind direction: Displays information on wind direction.
   i. Wind speed: Displays information on wind speed.
   j. Maximum wind speed: Displays information on the maximum wind speed.
   k. Atmospheric pressure: Displays information on atmospheric pressure.
   l. Humidity: Displays information on humidity.
   m. Latitude: The current position is displayed using north (N) or south (S) latitude (DD degree, MM.MM minutes, or DD degree, MM minutes, SS seconds).
   n. Longitude: The current position is displayed using east (E) or west (S) longitude (DDD degree, MM.MM minutes, or DD degree, MM minutes, SS seconds).
19. STATUS TEXT: Displays comment information.

Tip

Compressed type beacon is a beacon sent in a format where a part of the information is compressed.
Receiving APRS® beacons

Explanation of the Detailed Display and key operations for Station List of O (Object) or I (Item).

Pressing **[O]** and selecting [O (Object)] station or [I (Item)] station with **[ ]** in the STATION LIST screen will open the details screen for O (Object) or I (Item). Though only 4 rows are displayed on screen, scrolling with **[ ]** will reveal the additional rows of information.

**... Scrolls trough screen**
- Press **[O]** after pressing **[ ]** ... Switches beacon station
- Press ... Moves to STATION LIST screen (See page 11).
- Press **[ ]** ... Moves to MESSAGE EDITING SCREEN.
- Press **[ ]** over 1 second ... Enters the Set mode (See page 45).
- **[ ]** ... Moves to RAW Data display screen (See page 25).
- **[ ]** ... Manual transmission of beacon (See page 26).

Screen Details

1. **Compass (Direction):** Shows the direction to the remote transceiver from your transceiver.
2. **Symbol:** Displays the symbol of the received radio station.
3. **Name:** Displays the name of the Object or Item.
4. **Callsign:** Displays the received call sign.
5. **Remote transceiver information:** Displays information on the fixed station (FIXED).
6. **Date:** Displays the Time (HH Hours: MM Minute) or Date (MM Month/DD Day).
7. **Distance:** Displays the distance between your transceiver and the remote transceiver.
8. **Time:** Displays the time (HH Hours: MM Minutes) that beacon was received.
9. **Latitude:** The current position is displayed using north (N) or south (S) latitude (DD degree, MM.MM minutes, or DD degree, MM minutes, SS seconds).
10. **Longitude:** The current position is displayed using east (E) or west (S) longitude (DDD degree, MM.MM minutes, or DD degree, MM minutes, SS seconds).
11. **STATUS TEXT:** Displays comment information.
Receiving APRS® beacons

Explanation of the Detailed Display and key operations for Station List of S (Status).

Pressing ENT and selecting [S (Status)] station with in the STATION LIST will open the details screen for S (Status).
Though only 4 rows are displayed on screen, scrolling with shows all the information.

- Scrolls trough screen
Press after pressing ... Switches beacon station
Press ... Moves to STATION LIST screen (See page 11).
Press ... Moves to MESSAGE EDITING SCREEN.
Press over 1 second ... Enters the Set mode (See page 45).
... Moves to RAW Data display screen (See page 25).
... Manual transmission of beacon (See page 26).

Screen Details

1. Compass (Direction): Shows the direction to the remote transceiver from your transceiver.
2. Callsign: Displays the received call sign.
3. Remote transceiver information:
   Displays information on the fixed station (FIXED).
4. Date:
   Displays the Time (HH Hours: MM Minute) or Date (MM Month/DD Day).
5. Distance:
   Displays the distance between your transceiver and the remote transceiver.
6. Time:
   Displays the time (HH Hours: MM Minutes) that beacon was received.
7. STATUS TEXT:
   Displays comment information.
Receiving APRS® beacons

Explanation of the Detailed Display and key operations for Station List of ? (Other).

- Pressing \textbf{ENT} and selecting [?] (Other) station with \(\text{\textcolor{red}{}}\) in the STATION LIST will open the details screen for ? (Other).
- This symbol is displayed when a packet that could not be deciphered as an APRS beacon is received.
- Though only 4 rows are displayed on the screen, scrolling with \(\text{\textcolor{red}{}}\) will reveal the additional rows of information.

- \(\text{\textcolor{red}{}}\) ... Scrolls through screen
- Press \(\text{\textcolor{blue}{}}\) after pressing \(\text{\textcolor{red}{}}\) ... Switches beacon station
- Press \(\text{\textcolor{green}{}}\) ... Moves to STATION LIST screen (See page 11).
- Press \(\text{\textcolor{red}{}}\) ... Moves to MESSAGE EDITING SCREEN.
- Press \(\text{\textcolor{red}{}}\) over 1 second ... Enters the Set mode (See page 45).
- ... Moves to RAW Data display screen (See page 25).
- \(\text{\textcolor{red}{}}\) ... Manual transmission of beacon (See page 26).

Screen Details

1. Compass (Direction): Shows the direction to the remote transceiver from your transceiver.
2. Callsign: Displays the received call sign.
3. Remote transceiver information: Displays information on the fixed station (FIXED).
4. Date: Displays the Time (HH Hours: MM Minute) or Date (MM Month/DD Day).
5. Distance: Displays the distance between your transceiver and the remote transceiver.
6. Time: Displays the time (HH Hours: MM Minutes) that beacon was received.
7. DATA TEXT: Displays the packet data that could not be deciphered as APRS beacon.

Notification of beacons or messages with a popup screen.

**APRS POPUP Function**

A popup display can be set to notify the reception of APRS beacons or messages from the remote station.

1. Press \(\text{\textcolor{blue}{}}\) over 1 second.
   - Enters the Set mode.
2. Turn \(\text{\textcolor{red}{}}\) to select [9 APRS].
3. Press \(\text{\textcolor{green}{}}\).
4. Turn \(\text{\textcolor{red}{}}\) to select [9 APRS POPUP].
5. Press \(\text{\textcolor{green}{}}\).
Receiving APRS® beacons

6 Turn  to select setting item.
   For details on each item, refer to Set mode Function List
   (See page 50).
   Mic-E: OFF / ALL2s to ALL60s / ALLCNT / BND2s to
   BND60s / BNDCNT
   POSITION: OFF / ALL2s to ALL60s / ALLCNT / BND2s to
   BND60s / BNDCNT
   WEATHER: OFF / ALL2s ~ ALL60s / ALLCNT / BND2s to
   BND60s / BNDCNT
   OBJECT: OFF / ALL2s to ALL60s / ALLCNT / BND2s to BND60s / BNDCNT
   ITEM: OFF / ALL2s to ALL60s / ALLCNT / BND2s to BND60s / BNDCNT
   STATUS: OFF / ALL2s to ALL60s / ALLCNT / BND2s to BND60s / BNDCNT
   OTHER: OFF / ALL2s to ALL60s / ALLCNT / BND2s to BND60s / BNDCNT
   MY PACKET: OFF / ALL2s ~ ALL60s / ALLCNT / BND2s to BND60s / BNDCNT
   MSG: OFF / ALL2s ~ ALL60s / ALLCNT / BND2s ~ ALL60s / BNDCNT
   GRP: OFF / ALL2s ~ ALL60s / ALLCNT / BND2s ~ BND60s / BNDCNT
   BLN: OFF / ALL2s ~ ALL60s / ALLCNT / BND2s ~ BND60s / BNDCNT
   MY MSG: OFF / BND2s to BND60s / BNDCNT
   DUP.BCN: OFF / BND2s to BND60s / BNDCNT
   DUP.MSG: OFF / BND2s to BND60s / BNDCNT
   ACK.REJ: OFF / BND2s to BND60s / BNDCNT
   OTHER MSG: OFF / BND2s ~ BND60s / BNDCNT

7 Press  .
8 Turn  to select a setting value.
9 Press  .
10 Turn  to select setting item.
   Turn  to select next setting item.
11 Press  .
12 Repeat steps 6 to 11 to set remaining items.
13 Press  .
   Exits from the Set mode.
Screen when BND2s to BND60s is selected

If a beacon or message from the remote station is received when [BND2s to BND60s] is selected for APRS POPUP, a screen like shown below is displayed.

2 alphabetic characters are displayed.

The alphabetic characters displayed next to the callsign of the remote station signifies the following meanings.

**1st character**
- **N** = New: New signal
- **D** = Duplicate: Signal that has already been received
- **A** = ACK: ACK signal of a message (See page 43)
- **R** = Reject: REJ signal of a message (See page 37)

**2nd character**
- **E** = Mic-E: Beacon of a MIC encoder station.
- **P** = Position: Beacon of a Fixed station (FIXED) or a Moving Station (MOVING)
- **W** = Weather report: Beacon of a weather station
- **O** = Object: Beacon of an object station
- **I** = Item: Beacon of an item station
- **K** = Killed Object or Item: Erased object station or item station.
- **S** = Status: Beacon of a status station
- **?** = Other: Beacon that could not be deciphered
Receiving APRS® beacons

Notification of beacon or message reception with a ringer sound.

APRS RINGER Function

A ringer sound can be set to notify the reception of APRS beacons or messages from the remote stations.

1. Press \text{SET} over 1 second.
   Enters the Set mode.

2. Turn \text{OTG} to select [9 APRS].

3. Press \text{ENT}.

4. Turn \text{OTG} to select [10 APRS RINGER].

5. Press \text{ENT}.

6. Turn \text{OTG} to select setting item.
   For details on each item, refer to Set mode Function List (See page 52).

   - Mic-E: ON/OFF
   - POSITION: ON/OFF
   - WEATHER: ON/OFF
   - OBJECT: ON/OFF
   - ITEM: ON/OFF
   - STATUS: ON/OFF
   - OTHER: ON/OFF
   - MY PACKET: ON/OFF
   - MSG: ON/OFF
   - GRP: ON/OFF
   - BLN: ON/OFF
   - MY MSG: ON/OFF
   - DUP.BCN: ON/OFF
   - DUP.MSG: ON/OFF
   - ACK.REJ: ON/OFF
   - OTHER MSG: ON/OFF
   - TX BCN: ON/OFF
   - TX MSG: ON/OFF

7. Press \text{ENT}.

8. Turn \text{OTG} to select [ON] or [OFF].

9. Press \text{SET}.

10. Turn \text{OTG} to select setting item.
    Turn \text{OTG} to select next setting item.

11. Press \text{ENT}.

12. Repeat steps 6 to 11 to set remaining items.

13. Press \text{p}.
    Exits from the Set mode.
Displaying RAW packet data

Display packet data (raw data) received from the remote station on the STATION LIST details screen.

1. Press \( \text{MW} \) and then \( \text{O} \).
   The STATION LIST screen appears.
2. Turn \( \text{DIAL} \) to select a beacon station.
   Select the beacon station to see the RAW packet data received from it.
3. Press \( \text{ENT} \).
   The STATION LIST detail screen is displayed on the LCD.
4. Press \( \text{SET} \).
   RAW packet data is displayed on the LCD.
5. Press \( \text{DISP} \) to scroll the screen display.
   **Tip** After you have pressed \( \text{MW} \), you can change the beacon being displayed by turning \( \text{DIAL} \) while \( \text{F} \) is displayed on the LCD.
6. Press \( \text{SCOPE END} \).
   STATION LIST detail screen appears.

Details of the RAW Packet Data display screen

- **1.** **DEST:** APNU19
- **2.** **DIGI (F):**
  - DIGI (L):
- **3.** **RAW DATA:**
  - !3538. 17NS13942. 34E#
  - PHG73302/W1. Tkn-N. Fi
  - 11-in DIGI MEGURO...

**1.** **Destination Information:** Displays the destination address information of AX.25 packet.

**2.** **Digipeater Information:** Displays the information of repeater station (Digipeater).

**3.** **RAW TEXT:** Displays the text of raw data

**Tip**
- DIGI (First) and DIGI (Last) are not displayed because Digipeater information is not saved for transmission message. ("–" is displayed instead)
- When a 3rd Party Header Beacon (beacon from I-Gate, etc.) is received, the route information included in the 3rd Party Header Beacon is displayed, not that obtained from the AX.25 packet signal.
Receiving APRS® beacons

Deleting beacon stations from the list
Delete unnecessary beacon stations from the STATION LIST by selecting them on the STATION LIST screen.

1. Press \f and then \d. The STATION LIST screen appears.
2. Turn \d to select a call sign to delete. Scroll the screen display and select a call sign to delete.
3. Press \v. The confirmation message [DELETE?] appears on the LCD.
   Tip: Pressing a key other than \ent cancels the deletion.
4. Press \ent. The selected CALLSIGN is deleted from the list.

Transmitting the APRS® beacon

Manually transmitting a beacon

1. Press \f and then \d. (in case of frequency screen)
   Press \b on the STATION LIST and STATION LIST Details screens.
   To transmit beacons automatically, set [AUTO] or [SMART] in the next instruction, “Switching between manual and automatic transmission of beacon”.

Tip

- If [DUP.BCN] is set to ON in [APRS] → [10 APRS RINGER], a bell will sound when your station beacon relayed by a digipeater is received.
- To use the GPS function for APRS operation, check that the Set mode option [9 APRS] → [24 MY POSITION] has been set to [GPS]. Beacon cannot be transmitted if the GPS data cannot be received.

Switching between manual and automatic beacon transmission
Set the APRS beacon for manual or Automatic transmission.

1. Press \f and then \d. The STATION LIST screen appears.
2. Press \b. Pressing the \b key toggles between [MANUAL], [AUTO], and [SMART]. The shortcut key for this operation is [9 APRS] → [16 BEACON TX].
Transmitting the APRS® beacon

Icon is off (MANUAL): APRS beacon of your station is only transmitted when \textit{CON TX} is pressed (default setting).

For transmission on the frequency screen, press \textit{WGX} then \textit{CON TX}.

\textbullet \hspace{1em} \textcircled{1}\hspace{1em} is continually lit (AUTO): APRS beacon of your station is transmitted automatically every 5 minutes.*1

\textbullet \hspace{1em} \textcircled{2}\hspace{1em} is continually lit (SMART): APRS beacon is sent automatically using the SmartBeaconing function.*2

*1: In APRS set mode option [9 APRS] \rightarrow [14 BEACON INTERVAL], the interval for transmission can be set.

*2: • For details on the SmartBeaconing function, see page 28.

• This setting can only be selected if: STATUS setting in [9 APRS] \rightarrow [27 SmartBeaconing] is set between Type 1 and Type 3, and [9 APRS] \rightarrow [24 MY POSITION] is set to GPS.

\textbf{Tip}

In Set mode option [9 APRS] \rightarrow [12 APRS TX DELAY], the data transmission delay time can be changed.

\textbf{Set the automatic transmission interval for sending a beacon}

Set the time interval for automatically transmitting the APRS beacon.

1. Press \textit{SET} over 1 second.

   Enters the Set mode.

2. Turn \textit{DIAL} to select [9 APRS].

3. Press \textit{ENT}.

4. Turn \textit{DIAL} to select [14 BEACON INTERVAL].

5. Press \textit{ENT}.

6. Turn \textit{DIAL} to select the automatic transmission interval.

   Select an automatic transmit interval from the following:
   30sec/1min/2min/3min/5min/10min/15min/20min/
   30min/60min

   \textbf{Tip} Default: 5 minutes

7. Press \textit{SET}.

   The automatic beacon transmit interval is set.

8. Press \textit{OFF}.

   Exits from the Set mode.
Transmitting the APRS® beacon

Tip

• When the APRS beacon transmit is changed to [AUTO], the timer for the automatic beacon transmit interval is reset, and the count for the automatic beacon interval begins. When the set time is reached, the initial beacon will be transmitted.

• Even in automatic (AUTO) beacon transmit, transmission of the beacon can be forced by pressing [F] then [9] while operating with the frequency screen displayed. (Press [MCNTX] while the STATION LIST screen or the STATION LIST Details screen is displayed to force a beacon transmission).

A forced beacon transmission will reset the automatic transmit timer.

• If the set time is reached during automatic beacon transmit, but the squelch is active, the beacon transmission is withheld. When the squelch is deactivated, the beacon is transmitted.

Setting SmartBeaconing™

The SmartBeaconing function efficiently transmits/beacons the position information of your station, based on data obtained from the GPS unit.

This transceiver can support automatic beacon information with the SmartBeaconing function.

The SmartBeaconing function on this transceiver has 3 different settings (TYPE 1 to TYPE 3) and has preset initial values postulated to be used in the following operations.

  TYPE1: High speed movement, such as by vehicle.
  TYPE2: Medium speed movement, such as by bicycle.
  TYPE3: Low speed movement, such as by walking.

TYPE 2 and TYPE 3 settings (particularly TYPE 3) transmit many beacons in a short period of time, even if movement is comparatively slow. Because of this, using these setting during high speed movement, such as by vehicle, causes many beacons to be transmitted, and may cause signal congestion on the frequency.

Be sure to use TYPE1 settings when in high-speed movement.

If SmartBeaconing is to be operated at different timings, parameters of settings TYPE1 to TYPE3 can be changed. When changing parameters, be sure to adjust parameters of SmartBeaconing and DIGI PATH settings for appropriate beacon transmission intervals to avoid signal congestion on the APRS frequency.

1 Press [SET] over 1 second.

   Enters the Set mode.

2 Turn [DIAL] to select [9 APRS].

3 Press [ENT].

4 Turn [DIAL] to select [27 SmartBeaconing].

5 Press [ENT].
Transmitting the APRS® beacon

6 Press \texttt{ENT} again and select TYPE by turning \texttt{DIAL}.
Select a TYPE from the following:
OFF: Deactivates the SmartBeaconing function
TYPE1: Settings recommended for high-speed movement such as by vehicle.
TYPE2: Settings recommended for medium speed movement such as by bicycle.
TYPE3: Settings recommended for low speed movement such as walking.

7 Press \texttt{SET}. The selected TYPE is set.

8 Press \texttt{M}. Exits from the Set mode.

9 Press \texttt{MIN} and then \texttt{D}. The STATION LIST screen appears.

10 Press \texttt{SCOPe ON} twice. \texttt{O} is lit on the top-left of the LCD.
This is the shortcut to \texttt{[9 APRS] \rightarrow [16 BEACON TX]}. SmartBeaconing is set when \texttt{O} is lit on the top-left of the LCD.

\textbf{Tip}
- If SMART is selected in \texttt{[9 APRS] \rightarrow [16 BEACON TX]}, settings for BEACON INTERVAL are ignored.
- This function can only be selected if: STATUS setting in \texttt{[9 APRS] \rightarrow [27 SmartBeaconing]} is set between Type 1 and Type 3, and \texttt{[9 APRS] \rightarrow [24 MY POSITION]} is set to GPS.

\textbf{* SmartBeaconing is provided by HamHUD Nichetronix, LLC.}

\textbf{Status Text Register}
5 different status texts of up to 60 characters can be registered.

1 Press \texttt{SET} over 1 second. Enters the Set mode.

2 Turn \texttt{DIAL} to select \texttt{[9 APRS]}. 

3 Press \texttt{ENT}. 

4 Turn \texttt{DIAL} to select \texttt{[15 BEACON STATS TXT]}. 

5 Press \texttt{ENT}. 

6 Turn \texttt{DIAL} to select \texttt{[S.TXT]}. 

7 Press \texttt{ENT}. 

8 Turn \texttt{DIAL} to select ON/OFF. Turn status text ON or OFF. 

9 Press \texttt{SET}. 

10 Turn \texttt{DIAL} to select \texttt{[TX RATE]}. 

\begin{center}
\begin{tabular}{|c|c|}
\hline
\textbf{SET: 9 APRS} & \\
\hline
10 SD CARD & \\
11 OPTION & \\
12 CALLSIGN & \\
\hline
\end{tabular}
\end{center}

\begin{center}
\begin{tabular}{|c|c|}
\hline
\textbf{15 BEACON STATS TXT} & \\
\hline
16 BEACON TX & \\
17 COM PORT SETTING & \\
18 DIGITAL PATH & \\
\hline
\end{tabular}
\end{center}

\begin{center}
\begin{tabular}{|c|c|}
\hline
\textbf{15 BEACON STATS TXT} & \\
\hline
\texttt{S.TXT} : ON & \\
\texttt{TX RATE} : 1/1 & \\
1 & \\
\hline
\end{tabular}
\end{center}
Transmitting the APRS® beacon

11 Press **ENT**.

   TX RATE is for setting how frequently status texts are sent when APRS beacons are transmitted.

12 Turn **DIAL** to select [TX RATE].

   Select between 1/1 (every time) to 1/8 (once every 8 times)

13 Press **SET**.

14 Turn **DIAL** to select the number for status text.

15 Press **ENT**.

16 Turn **DIAL** to select the number for registering status text.

   If there is already a text registered to that number, the first 16 characters of that text will be displayed.

17 Press **ENT**.

   The text editing screen appears. Press **SET** to go back to the previous screen.

18 Enter the characters using keypad keys.

   Enter STATUS TEXT using keypad keys, referring to the following table.

<table>
<thead>
<tr>
<th>Numeric key</th>
<th>A, 0 (Alphanumeric)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TX PWR</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>SCAN</strong></td>
<td>abc2ABC</td>
</tr>
<tr>
<td><strong>R.SCN</strong></td>
<td>def3DEF</td>
</tr>
<tr>
<td><strong>HOME</strong></td>
<td>ghi4GHI</td>
</tr>
<tr>
<td><strong>REV</strong></td>
<td>jkl5JKL</td>
</tr>
<tr>
<td><strong>AF DIAL</strong></td>
<td>mno6MNO</td>
</tr>
<tr>
<td><strong>LOG</strong></td>
<td>pqr7PQRS</td>
</tr>
<tr>
<td><strong>8TUV</strong></td>
<td>tvu8TUV</td>
</tr>
<tr>
<td><strong>BCON TX-</strong></td>
<td>wxyz9WXYZ</td>
</tr>
<tr>
<td><strong>LIST-APRS</strong></td>
<td>0</td>
</tr>
</tbody>
</table>

   **Tip**

   • When **W** is pressed, a character is deleted and the cursor moves to the left.
   
   • Pressing **ENT** moves the cursor to the right.
   
   • Single Characters can also be entered by turning **DIAL**.
   
   • To delete all characters to the right of the cursor, Select [CLR] by pressing **MONOPHONIC A/B**, then **V/M**.
   
   • To insert a single character into the text. select [INSERT] by pressing **MONOPHONIC A/B**, then **V/M**.
   
   • To delete all characters, select [CLRALL] by pressing **MONOPHONIC A/B**, then **V/M**.
   
   • To delete the character where the cursor is positioned, select [DELETE] by pressing **MONOPHONIC A/B**, then **V/M**.

19 Repeat steps 17 and 18 to enter the STATUS TEXT.

20 Press **DISP**.

   The characters are entered.
Transmitting the APRS® beacon

21 Press \( \text{PTT} \).

Exits from the Set mode.

The status text registered last is transmitted.

When entering the status text, a : (colon) appears on the 21st character, the 29 character, and the 43rd character. If text exceeding the position a : (colon) appears, some transceivers may not be able to display the entire message upon reception. Try to enter a text shorter than where : (colons) appear if possible.

Select a Position Comment

Select the position comment (standard message) incorporated into beacons of your station.

1 Press \( \text{SET} \) over 1 second.

Enters the Set mode.

2 Turn \( \text{DIAL} \) to select [9 APRS].

3 Press \( \text{ENT} \).

4 Turn \( \text{DIAL} \) to select [26 POSITION COMMENT].

5 Press \( \text{ENT} \).

6 Turn \( \text{DIAL} \) to select a position comment.

Select a position comment from the following.

Off Duty/En Route/In Service/Returning/Committed/Special/Priority/Custom 0 to Custom 6/EMERGENCY!

Remark Default: Off Duty

Tip

• Only when [EMERGENCY!] is selected in step 6, a confirmation message: [OK?] appears when \( \text{SET} \) is pressed and a bell will sound three times upon confirmation.

• To cancel the position comment, turn \( \text{DIAL} \) and select a different comment.

7 Press \( \text{SET} \) to register a position comment.

8 Press \( \text{PTT} \).

Exits from the Set mode.

Caution

Unless there is a serious emergency such as an accident or natural disaster, do not select [EMERGENCY!].
Transmitting the APRS® beacon

Setting the Digipter Route

A station that relays transmissions such as beacons is called a digipeater. In order to use a digipeater, register the callsign or ALIAS of the digipeater to your transceiver.

This transceiver is preset to [WIDE1-1] (relay setting for 1 position) and [WIDE1-1, WIDE2-1] (relay setting for 2 positions). In [WIDE1-1, WIDE2-1], a transmission is relayed to the first digipeater station specified as WIDE1-1, then to the second digipeater station specified as WIDE2-1.

In this setting, transmission is relayed by digipeaters in 2 positions.

As of January 2013, digipeater stations used by APRS are recommended to be operated using *New-N Paradigm.

The initial values set to this transceiver are those premised on the NEW-N Paradigm method for digipeater station operation.

In order to use other methods of relaying messages, select between P4 and P8 and enter the CALLSIGN or ALIAS of the relay station (enter these by following the steps below).

* For information on the New-N Paradigm method, see the website below for details. http://aprs.org/fix14439.html (as of January 2013)

Caution

If too many relay nodes are set, a beacon sent by one station is repeatedly relayed and can cause communications channel congestion.

Try to operate DIGI PATH without changing settings unless necessary.

1. Press SET over 1 second. Enters the Set mode.
2. Turn DIAL to select [9 APRS].
3. Press ENT.
4. Turn DIAL to select [18 DIGI PATH].
5. Press ENT.
6. Turn DIAL to select [DIGI PATH].
   Select a DIGI PATH from between P1 to P8.
   P1 (OFF), P2 (WIDE1-1) and P3 (1: WIDE1-1/2: WIDE2-1) are fixed values.
   Relay methods can be entered into P4 to P8.
   For setting P1 to P3, go to step 12. For setting P4 to P8, go to step 7.
7. Press ENT.
   The cursor moves to the next item.
   Pressing moves the cursor back to the previous position.
8 Turn DIAL to select the address.
   Select address (1 or 2).
   Only in P8, up to 8 addresses can be set.

9 Press ENT.
   The cursor moves to the next item.
   Pressing MW moves the cursor back to the previous item.

10 Enter the CALLSIGN using keypad keys.
   Enter a CALLSIGN using keypad keys referring to the following table.

<table>
<thead>
<tr>
<th>Numeric key</th>
<th>A, 0 (Alphabetic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TX_PWR</td>
<td>1</td>
</tr>
<tr>
<td>SCAN</td>
<td>ABC2</td>
</tr>
<tr>
<td>P.MODE</td>
<td>DEF3</td>
</tr>
<tr>
<td>HOME</td>
<td>GHI4</td>
</tr>
<tr>
<td>NAV</td>
<td>JKL5</td>
</tr>
<tr>
<td>AF DUAL</td>
<td>MNO6</td>
</tr>
<tr>
<td>LOG</td>
<td>PQRS7</td>
</tr>
<tr>
<td>8TUV</td>
<td>TUV8</td>
</tr>
<tr>
<td>BCONTX-PR</td>
<td>WXYZ9</td>
</tr>
<tr>
<td>SUB-APRS</td>
<td>0</td>
</tr>
</tbody>
</table>

  Tip • Pressing MW deletes a character and moves the cursor to the left.
       • Pressing ENT moves the cursor to the right.

11 Repeat steps 9 to 10 and enter characters (CALLSIGN), and enter SSID by turning DIAL.

  Tip To enter the following address
   Repeat steps 5 through 11 and enter the following ADDRESS.

12 Press DISP to set the Digipeater Route.

13 Press SET.
   Exits from the Set mode.
Description of APRS message screen and key operation

Pressing [F], then 0 twice in the frequency display screen opens the APRS MESSAGE LIST screen. Pressing 0 toggles between the APRS STATION LIST screen and APRS MESSAGE LIST screen.

On the APRS MESSAGE LIST screen, up to 60 sent and received messages can be stored to Memory, and displayed. The newest message appears at the top of the list.

1. **Number:** The number of received or transmitted message is displayed.

2. **Reception/Transmission:**
   - An icon like the following is displayed during reception or transmission.
   - Received message (Unread)
   - Received message (Read)
   - Transmitted Message (ACK Received)
   - Transmitted Message (ACK Not Received)
   - Transmitted Message (Transmission Incomplete)
   * This value represents the remaining number of transmissions

3. **Callsign:** Transmitted and received CALLSIGNS are displayed.

4. **Time or date:** Time (HH Hours: MM Minute) or Date (MM Month/DD Day) that message was transmitted or received is displayed.

5. **Beacon Automatic/Manual Reception Icon:**
   - If icon does not appear, the beacon is manually transmitted.
   - If icon appears, the beacon is automatically transmitted. If icon is displayed, the beacon is automatically transmitted with SmartBeaconing.

6. **Scroll Screen**
   - ... Move cursor to the top of APRS MESSAGE LIST.
   - ... Move cursor to the top of APRS MESSAGE LIST.
   - ... Delete selected beacon station on the LCD (See page 26).
   - ... Go to MESSAGE Reception/Transmission Details screen (See page 37).
   - ... Go to MESSAGE EDITING screen (See page 40).
   - ... Go to Frequency Display Screen

Press over 1 second ... Set mode (See page 45).
Reception/Transmission Details Screen and Key Operation

On the APRS MESSAGE LIST screen, selecting a station to view details by turning \( \text{DIAL} \) and pressing \( \text{ENT} \) opens the reception/transmission details screen. On the Reception/Transmission Details screen, details of received and transmitted messages on the APRS MESSAGE LIST screen are displayed.

1. RX/TX: [RX] shows details of received messages, and [TX] shows details of transmitted messages.
2. Callsign: Transmitted and received CALLSIGNS are displayed.
3. Date of Reception/Transmission: The date that message was transmitted or received is displayed.
4. Message Number: The number given to a received message by the other station, or the number added when a message edited by your station is displayed.
   - When using bulletin or group messaging, [GRP: (Group)] or [BLN: (Number/Bulletin Name)] is displayed.
5. Message: The content of the received message is displayed.
6. Time of Reception/Transmission: Time (HH Hours: MM Minute) or Date (MM Month/DD Day) of when message was received or transmitted is displayed.

... Scroll Screen
Press \( \text{DIAL} \) after pressing \( \text{DIAL} \) ... Switches between messages.
... Go to APRS MESSAGE SCREEN (See page 37).
... Go to MESSAGE EDITING screen (See page 40).
Press and hold \( \text{DISP} \) for over 1 second ... Set mode (See page 45).
... Go to RAW Data display screen (See page 25).
Message Editing Screen and Key Operation

Pressing [D] on the APRS MESSAGE LIST screen or Reception/Transmission screen opens the Message Edit Screen. Received or transmitted messages can be edited and transmitted on the message editing screen.

1. **Callsign:** The CALLSIGN of the destination is displayed.
2. **Message:** Up to 67 characters can be entered into a message for transmission.

- **Select fixed text**
- **Enter characters**
- **Move cursor to the right**
- **Move cursor to the left**
- **Go to Frequency Display Screen**

Press [DISP] over 1 second (See page 45).

Pressing [D] in the following screens will switch to the Message Editing screen and allow for respective operation.

- **STATION LIST**
  - Resume editing from information saved to editing buffer.

- **APRS MESSAGE**
  - Opens the message edit screen copying only the CALLSIGN.
  - Resume editing from information saved to editing buffer.

- **RX:** JQ1YBG-9
  - Opens the message editing screen copying the CALLSIGN and message.
  - (Reply Function)

- **TX:** JQ1YBG-9
  - Opens the message edit screen copying the CALLSIGN and message.
  - (Re-editing function).

**Tip**

Content on the editing screen is saved to the editing buffer until ALL CLEAR is executed, or the power of the transceiver is turned off.
Receiving Messages

Pressing the \( F \), then \( 0 \) twice in the frequency display screen, opens the APRS MESSAGE LIST screen.
Pressing the \( 0 \) key toggles between STATION LIST screen and APRS MESSAGE LIST screen.

When a message is received, a popup screen appears with a bell sound and strobe (white LED) lighting, then the following screen appears.

1. Turn \( O \) to select the received message.
   Then \( O \) to scroll the screen up or down and select the received message.
2. Press \( H \) to open the reception details screen and check the message.
   Tip Press \( D \) to open the message editing screen.
3. Press \( M \) to return to the APRS MESSAGE LIST screen.

Tip

- If a group/bulletin message is received, a bell will sound and the CALLSIGN, as shown on the right screen, appears.
- If message ACK is received, a bell will sound and \( AM>(\text{CALLSIGN}) \) appears on screen.
- If message REJ (Reject) is received, a bell will sound and \( RM>(\text{CALLSIGN}) \) appears on screen.
- The strobe (white LED) can be changed in settings of Set mode option [9 APRS] → [5 APRS MSG FLASH].
- The display for ACK/REJ can be change in Set mode option [9 APRS] → [9 APRS POPUP].
Receive message filter settings

A group filter can be set for receiving messages or bulletin messages from a specified group (such as ALL, CQ, QST, or YAESU).

1. Press \textit{SET} over 1 second.
   Enters the Set mode.

2. Turn \textit{DIAL} to select [9 APRS].

3. Press \textit{ENT}. [F4]

4. Turn \textit{DIAL} to select [6 APRS MSG GROUP].

5. Press \textit{ENT}. [F4]

6. Turn \textit{DIAL} to set group filter.
   When using a group code, set to [G1 ALL], [G2 CQ], [G3 QST], [G4 YAESU], or [G5 (arbitrary)].
   When using bulletin, set between [B1] to [B3].

7. Press \textit{ENT}. [F4]

8. Enter the characters using keypad keys.

9. Press \textit{ENT}.
   The cursor moves to the next character position.

10. Repeat steps 8 and 9 to enter characters.
    Up to 9 characters can be entered.


12. Press \textit{p}.
    Exits from the Set mode.

When a message from a group or bulletin is received, a screen, like the following appears.
Tip

- Turning [9 APRS] → [1 APRS AF DUAL] to ON in Set mode options prevents radio broadcast reception and radio sound being disrupted, even while APRS is being received on B-band and APRS beacons or messages are received. Received beacon information and APRS messages can be checked by switching to the APRS screen.
- The strobe (white LED) will flash when a message (MSG), group (GRP), or bulletin (BLN) is received if Set mode option [9 APRS] → [5 APRS MSG FLASH] is set.
- The received audio (such as beacons and voices) on [B] band while operating on APRS, can be muted by turning Set mode option [9 APRS] → [8 APRS MUTE] to ON.
- The display method and the time when an APRS BEACON is received can be set in Set mode option [9 APRS] → [9 APRS POPUP]. A bell sound will notify the reception of an APRS self addressed message, group message, bulletin message, if Set mode option [9 APRS] → [10 APRS RINGER] is set to ON. If it is set to OFF, the bell will not sound but instead a notification will appear on the LCD.
- Self addressed transmissions with only a different SSID can also be received. However, ACK data response is only performed when all characters including the SSID are matching.

Deleting messages from the list

Unneeded messages on the APRS MESSAGE screen can be deleted.

1. Press [D] and then [LIST-APRS] twice.
   The APRS MESSAGE LIST screen appears.
2. Turn [DIAL] to select a CALLSIGN.
   Select the message to delete.
3. Press [V/M].
   [DELETE?] appears on the LCD.
   **Tip** To cancel deletion, press any key other than [ENT].
4. Press [ENT] to delete the message.
Transmitting an APRS® Message

Message creation and transmission

There are two methods for creating messages
(1) Individually enter each character.
(2) Create a message using fixed text

● Individually enter each character.

1 Press \text{M} and then \text{D} twice on the frequency display screen.
   Enters APRS MESSAGE LIST screen

2 Press \text{D}.
   Enters APRS MESSAGE Editing screen
   If there are messages that were previously created or edited, these messages appear.
   To edit characters, press \text{M} and individually delete each character.

3 Enter the CALLSIGN using keypad keys.
   Input the destination with the numeric key.

4 Press \text{ENT}.
   The cursor moves to the next character position.

5 Repeat steps 3 and 4 to enter the CALLSIGN.
   Up to 6 characters can be entered for the callsign.

6 Press \text{ENT}.
   The cursor moves to 7th character position.

7 Turn \text{DIAL} to set SSID.
   Enter the SSID of 1 to 15.
   The SSID does not need to be entered if it is unnecessary.

8 Press \text{ENT}.
   The cursor moves to the next character enter column.

9 Enter the characters using keypad keys.

10 Press \text{ENT}.
    The cursor moves to the next character position.
Transmitting an APRS® Message

11 Repeat steps 9 and 10 to enter characters.

Up to 67 characters can be entered.

Tip
- When is pressed, a character is deleted and the cursor moves to left.
- Pressing moves the cursor to the right.
- Characters can also be entered by turning .
- By selecting [CLR] by pressing , then , all characters to the right of the cursor can be deleted.
- By selecting [INSERT] by pressing , then , 1 character can be inserted into the text.
- By selecting [CLRLALL] by pressing , then , all characters can be deleted.
- By selecting [DELETE] by pressing , then , all characters to the right of the cursor can be deleted.

12 Press over 1 second.

The message is transmitted and LCD returns to the frequency display screen.

Tip

Data transmission time can be changed by setting the Set mode option [9 APRS] → [12 APRS TX DELAY].

● Create a message using fixed text

1 Pressing , then twice in the frequency display screen opens the APRS MESSAGE LIST screen.

2 Press .

Enters APRS MESSAGE Edit screen.

If there are messages that were previously created or edited, these messages appear. To edit characters, press and individually delete each character.

3 Use keypad keys to enter the destination CALLSIGN to transmit a message.

4 Press .

The cursor moves to the next column.

5 Repeat steps 3 and 4 to enter the CALLSIGN.

Up to 6 characters can be entered for the callsign.

6 Press .

The cursor moves to the 7th character position.

7 Turn to enter SSID.

Enter the SSID of 1 to 15.

The SSID does not need to be entered if it is unnecessary.

8 Press .

The cursor moves to the next character enter column.

9 Press to select for fixed texts (MSG TXT1 to MSG TXT8) already registered.
Transmitting an APRS® Message

10. Press [V].

Fixed texts can be selected by repeating steps 9 to 10.

**Tip**
- Characters can be added or deleted from the selected fixed text. In addition, characters can be added to the beginning and end of a fixed text.
- When [ENT] is pressed, a character is deleted and the cursor moves to the left.
- Pressing [ENT] moves the cursor to the right.
- Characters can also be entered by turning [O]
- By selecting [CLR] by pressing [V], all characters to the right of the cursor can be deleted.
- By selecting [INSERT] by pressing [V], a single character can be inserted into the text.
- By selecting [CLRALL] by pressing [V], all characters can be deleted.
- By selecting [DELETE] by pressing [V], all characters to the right of the cursor can be deleted.


The message is sent and LCD returns to the APRS MESSAGE LIST screen.

**Using the Response Function**

Stations that sent a APRS Messages can be responded to.

1. Turn [O] to select the other station.
   Select the station to respond to on the APRS MESSAGE LIST screen.

2. Press [ENT].

3. Press [ENT].
   Enters the APRS Editing screen

4. Enter characters.
   Enter characters to the response message by following the steps in [Individually Enter Characters] (See page 40) or [Create Messages using Fixed Texts] (See page 41)

5. Press [ENT].
   Message is sent to the station you are responding to.

**Registering fixed texts**

8 types of fixed text of up to 16 characters can be registered to this transceiver.

1. Press [V] over 1 second.
   Enters the Set mode.

2. Turn [O] to select [9 APRS].

3. Press [ENT].

4. Turn [O] to select [7 APRS MSG TXT].

5. Press [ENT].

6. Turn [O] to select the number to register the fixed message.
Transmitting an APRS® Message

7 Press **ENT**.
    The cursor moves to the 1st character position.

8 Enter the characters using keypad keys.

9 Press **ENT**.
    The cursor moves to the next character position.
    **Tip** When **ENT** is pressed, a character is deleted and the cursor moves to left.

10 Repeat steps 8 and 9 to enter characters.
    Up to 16 characters can be entered.

11 Press **PBT**.
    Registers the fixed text and exits from the Set mode.

---

<table>
<thead>
<tr>
<th>List Table of Enterable Characters to Messages</th>
</tr>
</thead>
<tbody>
<tr>
<td>A B C D E F G H I J K L M N O P Q R S T U</td>
</tr>
<tr>
<td>V W X Y Z [ \ ] ~ _ ` a b c d e f g h i j k l m n o p q r</td>
</tr>
<tr>
<td>s t u v w x y z } (Space) !&quot; #$ % &amp; ' () * + , . / 0 1 2 3</td>
</tr>
<tr>
<td>4 5 6 7 8 9 : ; &lt; = &gt; ? @</td>
</tr>
</tbody>
</table>

**Tip**
When entering characters, press **0** to enter [0], [SPACE], [-], [%], [,], [?], [!], [,], [,], or [#].

● **Message reception verification data (ACK)**
When transmitting messages to another station, ACK (message reception verification data) indicating the message was received is automatically sent back in response. When ACK data is received from the other station, a reception confirmation alarm sounds, and the transmission process is completed.
If ACK data is not sent from the other station after 1 minute, the same message is retransmitted to the other station.
If ACK data is not sent from the other station after 5 attempts, the message is displayed to be TX OUT. The remaining transmission attempts of ACK appear on the LCD as shown below.
The remaining number of attempts can also be checked by pressing **ENT** and switching to the transmission details screen.
Transmitting an APRS® Message

Display example for remaining attempts

Display of remaining transmission attempts.

APRS MESSAGE screen (example of when 4 attempts remain)

APRS MESSAGE Screen (Display of when ACK is being received)

“*” is displayed when ACK is being received.

APRS MESSAGE Screen (Display of when ACK is being received)

“.” displayed when TXT OUT occurs.

APRS MESSAGE Screen (Display of when ACK is being received)

Transmission Details screen (example of when 4 attempts remain)

Transmission Details Screen (Display of when ACK is being received)

Transmission Details Screen (Display of when TXT OUT occurs)

Tip

On the APRS MESSAGE LIST screen, up to 60 messages are displayed. However, if the number exceeds 60 messages, the oldest message will be automatically deleted. Because of this, if a new message is received, a message that has not been retransmitted 5 times may be deleted.
<table>
<thead>
<tr>
<th>Set mode item No./Item</th>
<th>Description of function</th>
<th>Selectable Items (Bold letters: Default)</th>
<th>Reference page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 APRS AF DUAL</td>
<td>ON/OFF setting of the sound when AF Dual Reception is enabled while APRS function is active.</td>
<td>ON / OFF</td>
<td>49</td>
</tr>
<tr>
<td>2 APRS DESTINATION</td>
<td>Display of Model Code</td>
<td>APY01D (cannot be edited)</td>
<td>49</td>
</tr>
<tr>
<td>3 APRS FILTER</td>
<td>Selecting filter function</td>
<td>Mic-E: ON / OFF</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td></td>
<td>POSITION: ON / OFF</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WEATHER: ON / OFF</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>OBJECT: ON / OFF</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ITEM: ON / OFF</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STATUS: ON / OFF</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>OTHER: OFF / ON</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ALTNET: OFF / ON</td>
<td></td>
</tr>
<tr>
<td>4 APRS MODEM</td>
<td>Setting the APRS baud rate</td>
<td>OFF / 1200bps / 9600bps</td>
<td>49</td>
</tr>
<tr>
<td>5 APRS MSG FLASH</td>
<td>Setting for the strobes flash when there is an incoming message.</td>
<td>MSG: OFF/2-4-10 (2sec interval) / 20sec / 30sec / 60sec / CONTINUOUS / EVERY 2s-10s (1sec interval) / EVERY 10s-EVERY 50s (10sec interval) / EVERY 1m-EVERY 10m (1min interval)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>GRP: OFF/2-4-10 (2sec interval) / 20sec / 30sec / 60sec / CONTINUOUS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>BLN: OFF/2-4-10 (2sec interval) / 20sec / 30sec / 60sec / CONTINUOUS</td>
<td></td>
</tr>
<tr>
<td>6 APRS MSG GROUP</td>
<td>Group filter message receive settings.</td>
<td>G1 ALL****** / G2 CQ****** / G3 QST****** / G4 YAESU****** / G5 (arbitrary) / B1 BLN****** (arbitrary) / B2 BLN* (arbitrary) / B3 BLN* (arbitrary)</td>
<td>50</td>
</tr>
<tr>
<td>7 APRS MSG TXT</td>
<td>Entering fixed text characters.</td>
<td>8 types of pp to 16 characters can be registered.</td>
<td>51</td>
</tr>
<tr>
<td>8 APRS MUTE</td>
<td>Turn on/off the B-band AF muting function when APRS is set.</td>
<td>ON / OFF</td>
<td>51</td>
</tr>
<tr>
<td>9 APRS POPUP</td>
<td>Setting the type and time of messages to display popup.</td>
<td>Mic-E: OFF / ALL2s ~ ALL60s / ALLCNT / BND2s ~ BND60s / BNDCNT ALL10s</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td></td>
<td>POSITION: OFF / ALL2s ~ ALL60s / ALLCNT / BND2s ~ BND60s / BNDCNT ALL10s</td>
<td></td>
</tr>
</tbody>
</table>
# APRS Set Mode List

<table>
<thead>
<tr>
<th>Set mode item No./Item</th>
<th>Description of function</th>
<th>Selectable Items (Bold letters: Default)</th>
<th>Reference page</th>
</tr>
</thead>
</table>
| 9 APRS POPUP           | Setting the type and time of messages to display popup. | WEATHER:  
OFF / ALL2s ~ ALL60s /  
ALLCNT / BND2s ~ BND60s /  
BNDCNT **ALL10s**  
OBJECT:  
OFF / ALL2s ~ ALL60s /  
ALLCNT / BND2s ~ BND60s /  
BNDCNT **ALL10s**  
ITEM:  
OFF / ALL2s ~ ALL60s /  
ALLCNT / BND2s ~ BND60s /  
BNDCNT **ALL10s**  
STATUS:  
OFF / ALL2s ~ ALL60s /  
ALLCNT / BND2s ~ BND60s /  
BNDCNT **ALL10s**  
OTHER:  
OFF / ALL2s ~ ALL60s /  
ALLCNT / BND2s ~ BND60s /  
BNDCNT **ALL10s**  
MY PACKET:  
OFF / ALL2s ~ ALL60s /  
ALLCNT / BND2s ~ BND60s /  
BNDCNT **ALL10s**  
MSG:  
OFF / ALL2s ~ ALL60s /  
ALLCNT / BND2s ~ BND60s /  
BNDCNT **ALL10s**  
GRP:  
OFF / ALL2s ~ ALL60s /  
ALLCNT / BND2s ~ BND60s /  
BNDCNT **ALL10s**  
BLN:  
OFF / ALL2s ~ ALL60s /  
ALLCNT / BND2s ~ BND60s /  
BNDCNT **ALL10s**  
MY MSG:  
OFF / BND2s ~ BND60s /  
BND10s  
DUP.BCN:  
OFF / BND2s ~ BND60s /  
BND10s  
DUP.MSG:  
OFF / BND2s ~ BND60s /  
BND10s  
ACK.REJ:  
OFF / BND2s ~ BND60s /  
BND10s  
OTHER MSG:  
OFF / BND2s ~ BND60s /  
BND10s | 51 |
<table>
<thead>
<tr>
<th>Set mode item No./Item</th>
<th>Description of function</th>
<th>Selectable Items (Bold letters: Default)</th>
<th>Reference page</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 APRS RINGER</td>
<td>Settings the bell sound when beacon or message is received.</td>
<td>Mic-E: <strong>ON</strong> / <strong>OFF</strong> POSITION: <strong>ON</strong> / <strong>OFF</strong> WEATHER: <strong>ON</strong> / <strong>OFF</strong> OBJECT: <strong>ON</strong> / <strong>OFF</strong> ITEM: <strong>ON</strong> / <strong>OFF</strong> STATUS: <strong>ON</strong> / <strong>OFF</strong> OTHER: <strong>ON</strong> / <strong>OFF</strong> MY PACKET: <strong>ON</strong> / <strong>OFF</strong> MSG: <strong>ON</strong> / <strong>OFF</strong> GRP: <strong>ON</strong> / <strong>OFF</strong> BLN: <strong>ON</strong> / <strong>OFF</strong> MY MSG: <strong>ON</strong> / <strong>OFF</strong> DUP.BCN: <strong>ON</strong> / <strong>OFF</strong> DUP.MSG: <strong>ON</strong> / <strong>OFF</strong> ACK.REJ: <strong>ON</strong> / <strong>OFF</strong> OTHER MSG: <strong>ON</strong> / <strong>OFF</strong> TX BCN: <strong>ON</strong> / <strong>OFF</strong> TX MSG: <strong>ON</strong> / <strong>OFF</strong></td>
<td>54</td>
</tr>
<tr>
<td>11 APRS UNIT</td>
<td>Setting units of the APRS display.</td>
<td>Position: <strong>MM.MM'</strong> / <strong>MM'SS'</strong> Distance: <strong>km</strong> / <strong>mile</strong> Speed: <strong>km/h</strong> / <strong>knot</strong> / <strong>mph</strong> Altitude: <strong>m</strong> / <strong>ft</strong> Temp: <strong>°C</strong> / <strong>°F</strong> Rain: <strong>mm</strong> / <strong>inch</strong> Wind: <strong>m/s</strong> / <strong>mph</strong></td>
<td>56</td>
</tr>
<tr>
<td>12 APRS TX DELAY</td>
<td>Setting the data sending delay time.</td>
<td>100ms / 150ms / 200ms / 250ms / <strong>300ms</strong> / 400ms / 500ms / 750ms / 1000ms</td>
<td>56</td>
</tr>
<tr>
<td>13 BEACON INFO</td>
<td>Setting the transmitting beacon information</td>
<td>AMBIGUITY: <strong>OFF</strong> / 1 dig ~ 4dig SPD / CSE: <strong>ON</strong> / <strong>OFF</strong> ALTITUDE: <strong>ON</strong> / <strong>OFF</strong></td>
<td>57</td>
</tr>
<tr>
<td>14 BEACON INTERVAL</td>
<td>Setting the beacon automatic sending interval.</td>
<td>30sec / 1min / 2min / 3min / <strong>5min</strong> / 10min / 15min / 20min / 30min / 60min</td>
<td>57</td>
</tr>
<tr>
<td>15 BEACON STATS TXT</td>
<td>Input setting the status text</td>
<td>S.TXT: <strong>ON</strong> / <strong>OFF</strong> TX RATE: <strong>1/1</strong> ~ <strong>1/8</strong> 1 to 5 CH</td>
<td>58</td>
</tr>
<tr>
<td>16 BEACON TX</td>
<td>Setting the automatic or manual sending of beacon</td>
<td>AUTO / <strong>MANUAL</strong> / SMART</td>
<td>58</td>
</tr>
<tr>
<td>17 COM PORT SETTING</td>
<td>Setting the COM port.</td>
<td>STATUS: <strong>ON</strong> / <strong>OFF</strong> SPEED: <strong>4800</strong> / <strong>9600</strong> / 19200 / 38400 INPUT: <strong>OFF</strong> / GPS OUTPUT: <strong>OFF</strong> / GPS / WAY.P WAYPOINT: <strong>NMEA9</strong> / NMEA6 / NMEA7 / NMEA8</td>
<td>59</td>
</tr>
</tbody>
</table>
### APRS Set Mode List

<table>
<thead>
<tr>
<th>Set mode item No./Item</th>
<th>Description of function</th>
<th>Selectable Items (Bold letters: Default)</th>
<th>Reference page</th>
</tr>
</thead>
<tbody>
<tr>
<td>17 COM PORT SETTING</td>
<td>Setting the COM port.</td>
<td>Mic-E: <strong>ON</strong> / <strong>OFF</strong></td>
<td>59</td>
</tr>
<tr>
<td></td>
<td></td>
<td>POSIT: <strong>ON</strong> / <strong>OFF</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WEATHER: <strong>ON</strong> / <strong>OFF</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>OBJECT: <strong>ON</strong> / <strong>OFF</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ITEM: <strong>ON</strong> / <strong>OFF</strong></td>
<td></td>
</tr>
<tr>
<td>18 DIGI PATH</td>
<td>Setting the digipeater route.</td>
<td>P1 <strong>OFF</strong></td>
<td>61</td>
</tr>
<tr>
<td></td>
<td></td>
<td>P2 1 WIDE1-1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>P3 1 WIDE1-1 / 2 WIDE2-1</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>P4 1 ······· / 2 ·······</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>P5 1 ······· / 2 ·······</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>P6 1 ······· / 2 ·······</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>P7 1 ······· / 2 ·······</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>P8 1 ······· to 8 ·······</td>
<td></td>
</tr>
<tr>
<td>19 GPS DATUM</td>
<td>Setting the datum used by GPS function</td>
<td><strong>WGS-84</strong> / Tokyo Mean / Tokyo Japan / Tokyo Korea / Tokyo Okinawa</td>
<td>61</td>
</tr>
<tr>
<td>20 GPS POWER</td>
<td>Setting on/off of the GPS function.</td>
<td><strong>GPS ON</strong> / <strong>GPS OFF</strong></td>
<td>62</td>
</tr>
<tr>
<td>21 GPS TIME SET</td>
<td>Setting on/off of the GPS time and date automatic acquisition function.</td>
<td><strong>AUTO</strong> / <strong>MANUAL</strong></td>
<td>62</td>
</tr>
<tr>
<td>22 GPS UNIT</td>
<td>Setting units of the GPS display.</td>
<td>Position: <strong>MMM°</strong> / <strong>SS°</strong></td>
<td>62</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Speed: km/h / Knot / mph</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Altitude: m / ft</td>
<td></td>
</tr>
<tr>
<td>23 CALLSIGN (APRS)</td>
<td>Setting the callsign of your station.</td>
<td><strong>＊＊＊＊＊-NN</strong></td>
<td>62</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>＊</strong>: CALLSIGN</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NN: SSID (number)</td>
<td></td>
</tr>
<tr>
<td>24 MY POSITION</td>
<td>Setting the position for your station.</td>
<td><strong>GPS</strong> / Lat <strong>N</strong>: <strong>°</strong> <strong>.</strong> / <strong>LON</strong>: <strong>°</strong> <strong>.</strong></td>
<td>63</td>
</tr>
<tr>
<td></td>
<td></td>
<td>P1 to P10</td>
<td></td>
</tr>
<tr>
<td>25 MY SYMBOL</td>
<td>Setting the symbol for your station.</td>
<td>45 Icon</td>
<td>64</td>
</tr>
<tr>
<td>26 POSITION COMMENT</td>
<td>Setting the position comment function.</td>
<td><strong>Off Duty</strong> / <strong>En Route</strong> / <strong>In Service</strong> / <strong>Returning</strong> / <strong>Committed</strong> / <strong>Special</strong> / <strong>Priority</strong> / <strong>Custom 0 to 6 / EMERGENCY!</strong></td>
<td>64</td>
</tr>
<tr>
<td>27 SmartBeaconing</td>
<td>Setting the smart beaconing function.</td>
<td><strong>STATUS</strong>: <strong>OFF</strong> / <strong>TYPE1</strong> / <strong>TYPE2</strong> / <strong>TYPE3</strong></td>
<td>64</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>LOW SPD</strong>: 2mph ~ 30mph</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>HIGH SPD</strong>: 31mph ~ 90mph</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>SLOW RATE</strong>: 1min to 100min</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>FAST RATE</strong>: 10sec to 180sec</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>TURN ANGL</strong>: 5° to 90°</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>TURN SLOP</strong>: 1 to 255</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>TURN TIME</strong>: 5sec to 180sec</td>
<td></td>
</tr>
<tr>
<td>28 TIME ZONE</td>
<td>Setting the time zone.</td>
<td><strong>UTC ±13.0 H</strong> / <strong>UTC+0:00</strong></td>
<td>66</td>
</tr>
</tbody>
</table>
APRS Set mode function list

1 APRS AF DUAL
Sound setting for AF Dual Function
Setting Item: ON / OFF
Default: OFF
Explanation:
ON/OFF setting to enable the AF Dual function while APRS function is active.

2 APRS DESTINATION
Model Code Display
Setting Item: [APY01D]
Default: [APY01D]
Explanation:
Displays the model code. This setting cannot be changed.

3 APRS FILTER
Filter function setting
Setting Item: Mic-E / POSITION / WEATHER / OBJECT / ITEM / STATUS / OTHER / ALTNET
Default: Mic-E: ON / POSITION: ON
WEATHER: ON / OBJECT: ON
ITEM: ON / STATUS: ON
OTHER: OFF
ALTNET: OFF
Explanation:
For setting FILTER for obtaining various beacon types.
ON: Obtains beacons
OFF: Does not obtain beacons

Mic-E: Displays the obtained MIC-Encoder beacons
POSITION: Displays the obtained Position of beacons
WEATHER: Displays the obtained Weather beacons
OBJECT: Displays the obtained Object of beacons
ITEM: Displays the obtained item of beacons
STATUS: Displays the obtained Status of beacons
OTHER: Displays the obtained packets other than those used in APRS.
ALTNET: Displays the obtained packets specified by Destination Address in Alternate Nets.

4 APRS MODEM
APRS baud rate settings
Setting Item: OFF / 1200bps / 9600bps
Default: OFF
APRS Set mode function list

Explanation:
OFF: Turn APRS function [OFF].
1200bps: Sets APRS baud rate to 1200bps.
9600bps: Sets APRS baud rate to 9600bps.

● 5 APRS MSG FLASH
Setting for strobe flash when there is an incoming message.
Setting Item: MSG: OFF/2-4-10 (2sec interval) / 20sec / 30sec / 60sec / CONTINUOUS / EVERY 2s-10s (1sec interval) / EVERY 10s-EVERY 50s (10sec interval) / EVERY 1m-EVERY 10m (1min interval)
GRP: OFF / 2-4-10 (2sec interval) / 20sec / 30sec / 60sec / CONTINUOUS
BLN: OFF / 2-4-10 (2sec interval) / 20sec / 30sec / 60sec / CONTINUOUS

Default: MSG: 4sec. / GRP: 4sec. / BLN: 4sec

Explanation:
The strobe (white LED) flashes depending on settings in each of the following: [MSG] when a message is received, [GRP] when a group message is received, [BLN] when a bulletin message is received.
Strobe (white LED) flashes continuously when CONTINUOUS is selected.
If EVERY is selected in [MSG], the strobe (white LED) flashes as below:

<table>
<thead>
<tr>
<th>Time Interval</th>
<th>Number of Flashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2sec - 5sec</td>
<td>1 flash</td>
</tr>
<tr>
<td>6sec - 9sec</td>
<td>2 flashes</td>
</tr>
<tr>
<td>10sec - 50sec</td>
<td>3 flashes</td>
</tr>
<tr>
<td>1min - 5min</td>
<td>4 flashes</td>
</tr>
<tr>
<td>6min - 10min</td>
<td>5 flashes</td>
</tr>
</tbody>
</table>

The strobe (white LED) will not flash if [OFF] is selected.
If EVERY is selected for [MSG] and strobe (white LED) is flashing, and a GRP (group) or BLN (bulletin) message is received, the group or bulletin strobe will temporarily flash, then return to the message strobe once reception of the group or bulletin message is complete.

● 6 APRS MSG GROUP
Group filter setting for APRS MSG GROUP reception messages
Setting Items: A filter can be set for receiving messages with a specified group code (ALL or CQ).
G1: ALL******
G2: CQ*******
G3: QST*****
G4: YAESU****
G5:
APRS Set mode function list

B1: BLN******
B2: BLN*
B3: BLN*

Default:
G1: ALL******
G2: CQ******
G3: QST******
G4: YAESU***
G5:
B1: BLN******
B2: BLN*
B3: BLN*

Explanation:
A filter can be set to receive messages with a specified group code (ALL or CQ) (ALL, CQ, QST, and YAESU are selected in default settings).
“*”: Acts as a wild card matching any character received.

● 7 APRS MSG TXT
Entering fixed text characters.
Explanation:
8 types of up to 16 character fixed text can be created, and pasted to messages on the message edit screen.

● 8 APRS MUTE
ON/OFF of AF MUTE for the band set for APRS.
Setting Item: ON / OFF
Default: OFF
Explanation:
If Set mode option [8 APRS] → [3 APRS MODE] is set to 1200bps or 9600bps, received sounds can be muted on the B-band when it is set for APRS.
If this is set to [OFF], received sounds can be heard in accordance to the volume settings of the APRS band (B-band).
9 APRS POP-UP

Setting the popup function for APRS reception

**Setting item:**
- **Mic-E:** OFF / ALL2s to ALL60s / ALLCNT / BND2s to BND60s / BNDCNT
- **POSITION:** OFF / ALL2s to ALL60s / ALLCNT / BND2s to BND60s / BNDCNT
- **WEATHER:** OFF / ALL2s to ALL60s / ALLCNT / BND2s to BND60s / BNDCNT
- **OBJECT:** OFF / ALL2s to ALL60s / ALLCNT / BND2s to BND60s / BNDCNT
- **ITEM:** OFF / ALL2s to ALL60s / ALLCNT / BND2s to BND60s / BNDCNT
- **STATUS:** OFF / ALL2s to ALL60s / ALLCNT / BND2s to BND60s / BNDCNT
- **OTHER:** OFF / ALL2s to ALL60s / ALLCNT / BND2s to BND60s / BNDCNT
- **MY PACKET:** OFF / ALL2s to ALL60s / ALLCNT / BND2s to BND60s / BNDCNT
- **MSG:** OFF / ALL2s to ALL60s / ALLCNT / BND2s to BND60s / BNDCNT
- **GRP:** OFF / ALL2s to ALL60s / ALLCNT / BND2s to BND60s / BNDCNT
- **BLN:** OFF / ALL2s to ALL60s / ALLCNT / BND2s to BND60s / BNDCNT
- **MY MSG:** OFF / BND2s to BND60s
- **DUP.BCN:** OFF / BND2s to BND60s
- **DUP.MSG:** OFF / BND2s to BND60s
- **ACK.REJ:** OFF / BND2s to BND60s
- **OTHER MSG:** OFF / BND2s to BND60s

**[Explanation on Parameters]**
- **ALL2s to ALL60s:** Sets the display time of a popup for 2 to 60 seconds.
- **ALLCNT:** Popup continues to be displayed until a key is operated.
- **BND2s to BND60s:** Content is displayed in 2 alphabetic characters on the band display section on the screen for 2 to 60 seconds. (See page 23).
- **BNDCNT:** Content is displayed in 2 alphabetic characters on the band display section on the screen until a key is operated (See page 23).

**Default:**
- **Mic-E:** ALL10s
- **POSITION:** ALL10s
- **WEATHER:** ALL10s
<table>
<thead>
<tr>
<th>Function</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBJECT:</td>
<td>ALL10s</td>
</tr>
<tr>
<td>STATUS:</td>
<td>ALL10s</td>
</tr>
<tr>
<td>OTHER:</td>
<td>ALL10s</td>
</tr>
<tr>
<td>MY PACKET:</td>
<td>ALL10s</td>
</tr>
<tr>
<td>MSG:</td>
<td>ALL10s</td>
</tr>
<tr>
<td>GRP:</td>
<td>ALL10s</td>
</tr>
<tr>
<td>BLN:</td>
<td>ALL10s</td>
</tr>
<tr>
<td>MY MSG:</td>
<td>BND10s</td>
</tr>
<tr>
<td>DUP.BCN:</td>
<td>BND10s</td>
</tr>
<tr>
<td>DUP.MSG:</td>
<td>BND10s</td>
</tr>
<tr>
<td>ACK.REJ:</td>
<td>BND10s</td>
</tr>
<tr>
<td>OTHER MSG:</td>
<td>BND10s</td>
</tr>
</tbody>
</table>

**Explanation:**

When an APRS BEACON is received, the content is shown in a POPUP. This setting is for the method and time the POPUP is displayed.

- **Mic-E:** Setting for the time a POPUP is displayed when a Mic-Encoder beacon is received.
- **POSITION:** Setting for the time a POPUP is displayed when a position beacon is received.
- **WEATHER:** Setting for the time a POPUP is displayed when a weather beacon is received.
- **OBJECT:** Setting for the time a POPUP is displayed when an object beacon is received.
- **ITEM:** Setting for the time a POPUP is displayed when an item beacon is received.
- **STATUS:** Setting for the time a POPUP is displayed when a status beacon is received.
- **OTHER:** Setting for the time a POPUP is displayed when a beacon other than what is used by APRS is received.
- **MY PACKET:** Setting for the time a POPUP is displayed when a self transmitted beacon (relay wave) is received.
- **MSG:** Setting for the time a POPUP is displayed when a new message is received.
- **GRP:** Setting for the time a POPUP is displayed when a group message is received.
- **BLN:** Setting for the time a POPUP is displayed when a bulletin message is received.
- **MY MSG:** Setting for the time a POPUP is displayed when a self transmitted message (relay wave) is received.
- **DUP BGN:** Setting for the time a POPUP is displayed when an overlapping beacon is received.
- **DUP MSG:** Setting for the time a POPUP is displayed when a message that has already been received, has been received.
**APRS Set mode function list**

**ACK REJ:** Setting for the time a POPUP is displayed when response data of a message sent by your station is received.

**OTHER MSG:** Setting for the time a POPUP is displayed when a message addressed to a different destination is received.

**● 10 APRS RINGER**

Setting the bell sound when a message or beacon is transmitted/received.

**Setting item:**
- Mic-E: ON / OFF
- POSITION: ON / OFF
- WEATHER: ON / OFF
- OBJECT: ON / OFF
- ITEM: ON / OFF
- STATUS: ON / OFF
- OTHER: ON / OFF
- MY PACKET: ON / OFF
- MSG: ON / OFF
- GRP: ON / OFF
- BLN: ON / OFF
- MY MSG: ON / OFF
- DUP.BCN: ON / OFF
- DUP.MSG: ON / OFF
- ACK.REJ: ON / OFF
- OTHER MSG: ON / OFF
- TX BCN: ON / OFF
- TX MSG: ON / OFF

**Default:**
- Mic-E: ON
- POSITION: ON
- WEATHER: ON
- OBJECT: ON
- ITEM: ON
- STATUS: ON
- OTHER: ON
- MY PACKET: ON
- MSG: ON
- GRP: ON
- BLN: ON
- MY MSG: ON
- DUP.BCN: ON
- DUP.MSG: ON
- ACK.REJ: ON
- OTHER MSG: ON
- TX BCN: ON
- TX MSG: ON
Explanation:
Set the bell sound for transmission/reception of APRS beacons and messages and the conditions for when it rings.

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mic-E</td>
<td>Setting for the sound of the bell that rings when a Mic-Encoder beacon is received.</td>
</tr>
<tr>
<td>POSITION</td>
<td>Setting for the sound of the bell that rings when a position beacon is received.</td>
</tr>
<tr>
<td>WEATHER</td>
<td>Setting for the sound of the bell that rings when a weather beacon is received.</td>
</tr>
<tr>
<td>OBJECT</td>
<td>Setting for the sound of the bell that rings when a object beacon is received.</td>
</tr>
<tr>
<td>ITEM</td>
<td>Setting for the sound of the bell that rings when an item beacon is received.</td>
</tr>
<tr>
<td>STATUS</td>
<td>Setting for the sound of the bell that rings when a status beacon is received.</td>
</tr>
<tr>
<td>OTHER</td>
<td>Setting for the sound of the bell that rings when a beacon other than what is used by APRS is received.</td>
</tr>
<tr>
<td>MY PACKET</td>
<td>Setting for the sound of the bell that rings when a self transmitted beacon (relay wave) is received.</td>
</tr>
<tr>
<td>MSG</td>
<td>Setting for the sound of the bell that rings when a new message is received.</td>
</tr>
<tr>
<td>GRP</td>
<td>Setting for the sound of the bell that rings when a group message is received.</td>
</tr>
<tr>
<td>BLN</td>
<td>Setting for the sound of the bell that rings when a bulletin message is received.</td>
</tr>
<tr>
<td>MY MSG</td>
<td>Setting for the sound of the bell that rings when a self transmitted message (relay wave) is received.</td>
</tr>
<tr>
<td>DUP BCN</td>
<td>Setting for the sound of the bell that rings when a overlapping beacon is received.</td>
</tr>
<tr>
<td>DUP MSG</td>
<td>Setting for the sound of the bell that rings when a message that has already been received is received again.</td>
</tr>
<tr>
<td>ACK REJ</td>
<td>Setting for the sound of the bell that rings when response data (ACK, REJ) of a message sent by your station is received.</td>
</tr>
<tr>
<td>OTHER MSG</td>
<td>Setting for the sound of the bell that rings when a message addressed to another destination is received.</td>
</tr>
<tr>
<td>TX BCN</td>
<td>Setting for the sound of the bell that rings when a beacon is being sent from your station.</td>
</tr>
<tr>
<td>TX MSG</td>
<td>Setting for the sound of the bell that rings when a message is being sent from your station.</td>
</tr>
</tbody>
</table>
11 APRS UNIT
Unit setting for APRS display.

Setting item: Position: °mm' / °ss"
Distance: km / mile
Speed: km/h / mph / knot
Altitude: m / ft
Temp: °C / °F
Rain: mm / inch
Wind: m/s / mph

Default: Position: °mm'
Distance: mile
Speed: mph
Altitude: ft
Temp: °F
Rain: inch
Wind: mph

Explanation:
Set the measurement unit for Latitude/Longitude (Position), Distance, Speed, Altitude, Temperature (Temp), Precipitation (Rain), and Wind Speed (Wind).

Position: Unit display of minute of Longitude/Latitude (DD° MM.MM’) can be changed.
    MM’ is displayed in 1/100 minute and SS” in seconds.

Distance: Unit can be set to [km] or [mile].

Speed: Unit can be set to [km] or [mile].

Altitude: Unit can be set to [m] or [feet].

Temp: Units can be set to [°C] or [°F].

Rain: Unit can be set to [mm] or [inch].

Wind: Unit can be set to [m/s] or [mph].

12 APRS TXDELAY
Set the data sending delay time.

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

Default: 300ms

Explanation:
The preamble (data transmission delay time), shown right, for when transmitting APRS data can be set.
13 BEACON INFO

Setting the transmit beacon information

Setting item: AMBIGUITY: OFF / 1digi / 2digi / 3digi / 4digi
SPD/CSE: ON / OFF
ALTITUDE: ON / OFF

Default: AMBIGUITY: OFF
SPD/CSE: ON
ALTITUDE: ON

Explanation:

AMBIGUITY: This function is for masking lower denominations of your position (longitude, latitude) to disambiguate the position of your station. Setting this function to [OFF] disables disambiguation and transmits the precise position information of your station.

<table>
<thead>
<tr>
<th></th>
<th>OFF</th>
<th>1digi</th>
<th>2digi</th>
<th>3digi</th>
<th>4digi</th>
</tr>
</thead>
<tbody>
<tr>
<td>35°38.17'</td>
<td>35°38.1</td>
<td>35°38.</td>
<td>35°38.</td>
<td>35°38.</td>
<td></td>
</tr>
<tr>
<td>139°42.33'</td>
<td>139°42.3</td>
<td>139°42.</td>
<td>139°42.</td>
<td>139°42.</td>
<td></td>
</tr>
</tbody>
</table>

SPD/CSE: (SPEED/COURSE) If function is set to [ON], speed and directional information is transmitted. If this function is set to [OFF], speed and directional information is not transmitted.

ALTITUDE: If this function is set to [ON], altitude information is transmitted. If this function is set to [OFF], altitude information is not transmitted.

14 BEACON INTERVAL

Automatic transmission interval settings for beacon

Setting item: 30sec / 1min / 2min / 3min / 5min / 10min / 15min / 20min / 30min / 60min
Default: 5 minutes

Explanation:

Set the automatic transmission interval for transmission of APRS beacons.

• Set the Set mode option [9 APRS] → [16 BEACON TX] to [AUTO]. The timer for transmission is reset when the automatic transmission interval is set. From this point, the count for interval time begins, and the initial beacon is automatically transmitted when the specified time is reached.

• If squelch is active when the interval for automatic beacon transmission is reached, the transmission is stopped. The beacon is transmitted when squelch is deactivated.

• If SMART is selected in [9 APRS] → [16 BEACON TX], the setting for BEACON INTERVAL is ignored.
●15 BEACON STATS TXT
Entering status text
Setting Item: S.TXT: ON / OFF
  TX RATE: 1/1 1/2 1/3 1/4 1/5 1/6 1/7 1/8
  1: (Not entered)
  2: (Not entered)
  3: (Not entered)
  4: (Not entered)
  5: (Not entered)
  * Up to 60 characters can be entered for status text into TEXT1 to TEXT5.
Default: S.TXT: OFF
  TX RATE: 1/1
  1 to 5: Text not entered.
Explanation:
S.TXT: Select the status text to send when transmitting a beacon.
Selecting OFF transmits the beacon without a status text.
TX RATE: Set how frequent a status text is sent with a APRS beacon. Select from 1/1: every time, 1/2: 2 once every 2 transmissions, to up to 1/8: once every 8 transmissions, a status text is sent with a beacon.

●16 BEACON TX
Set the beacon automatic transmission interval.
Setting Item: MANUAL / AUTO / SMART
Default: MANUAL
Explanation:
Set the method BEACON is automatically transmitted.
The transmission method can also be change by pressing on the STATION LIST screen.
MANUAL: An APRS BEACON is transmitted by pressing then .
  Press on the STATION LIST and STATION LIST Details screens to transmit an APRS BEACON.
AUTO: An APRS BEACON of your station is transmitted automatically according to BEACON INTERVAL settings.
SMART: A BEACON is automatically transmitted using the SmartBeaconing™ function.
  This setting can only be selected if: STATUS setting in [9 APRS] → [27 SmartBeaconing] is set between Type 1 and Type 3, and [9 APRS] → [24 MY POSITION] is set to GPS.
● 17 COM PORT SETTING

COM Port setting

Setting Item:  
- STATUS:  OFF / ON  
- SPEED:  4800 / 9600 / 19200 / 38400  
- INPUT:  OFF / GPS  
- OUTPUT:  OFF / GPS / WAY.P  
- WAYPOINT:  NMEA9 / NMEA6 / NMEA7 / NMEA8  
- Mic-E:  ON / OFF  
- POSIT:  ON / OFF  
- WEATHER: ON / OFF  
- OBJECT: ON / OFF  
- ITEM: ON / OFF

Default:  
- STATUS:  OFF  
- SPEED:  9600  
- INPUT:  OFF  
- OUTPUT:  OFF  
- WAYPOINT:  NMEA9  
- Mic-E:  ON  
- POSIT:  ON  
- WEATHER: ON  
- OBJECT: ON  
- ITEM: ON

Explanation:

- STATUS:  
  - OFF: Set to OFF when data terminal is not in use.  
  - ON: Set to ON when using data terminal.  
    Various setting items are added when ON is selected.

- SPEED: Set the communication speed for the data terminal.

- INPUT:  
  - OFF: Deactivate the input function of the data terminal (negate function).

- GPS: GPS data is obtained by connecting a commercially sold external GPS device instead of the internal GPS function in this transceiver.  
  In this setting, information obtained from the internal GPS function is negated.

Tip
- If an external GPS device is connected to the data terminal, the time display on the GPS screen appears as shown below.
  
  \[ \text{aa (hour)}: \text{bb (minute)} \]

- The GPS function in this transceiver uses data in $GPRMC in NMEA-0183 format and $GPGGA data.  
  In order to use an external GPS device, the device must able to output data of this type.

- When using an external GPS device, setting the Set mode option [9 APRS] → [20 GPS POWER] to OFF will deactivate the internal GPS function and reduce battery consumption.
APRS Set mode function list

OUTPUT:  OFF:  Deactivate the input function of the data terminal (negate function).
          GPS:  Output GPS data ($GPRMC in NMEA-0183 format or $GPGGA data) obtained by this transceiver.
          WAY.P: Output position information from APRS PACKET received from a BEACON received from another station as WAYPOINT data ($GPWPL in NMEA-0183 format).

WAYPOINT:  Set the number of digits for CALLSIGN information of APRS BEACON stations, attached to various data, when WAYPOINT is selected for OUTPUT.
          NMEA6: CALLSIGN is restricted to 6 digits to the right (example: if JQ1YBG-14 is received, CALLSIGN information appears as [YBG-14]).
          NMEA7: CALLSIGN is restricted to 7 digits to the right (example: if JQ1YBG-14 is received, CALLSIGN information appears as [1YBG-14]).
          NMEA8: CALLSIGN is restricted to 8 digits to the right (example: if JQ1YBG-14 is received, CALLSIGN information appears as [Q1YBG-14]).
          NMEA9: CALLSIGN is restricted to 9 digits to the right (example: if JQ1YBG-14 is received, CALLSIGN information appears as [JQ1YBG-14]).
          Mic-E: ON: Mic-E BEACON information (BEACON displayed as [E] on LIST) is output with WAYPOINT data.
                  OFF: Mic-E BEACON information is not output when set to OFF.
          POSIT: ON: POSITION BEACON information (BEACON displayed as [P] or [p] on LIST) is output with WAYPOINT data.
                  OFF: POSITION BEACON information is not output when set to OFF.
          WEATHER: ON: WEATHER BEACON information (BEACON displayed as [W] or [w] on LIST) is output with WAYPOINT data.
                  OFF: WEATHER BEACON information is not output when set to OFF.

Tip  • Because a Positionless type WEATHER BEACON does not have position information, it is not output with WAYPOINT DATA.

OBJECT: ON: OBJECT BEACON information (BEACON displayed as [O] or [o] on LIST) is output with WAYPOINT data.
          OFF: OBJECT BEACON information is not output when set to OFF.

ITEM: ON: ITEM BEACON information (BEACON displayed as [I] or [i] on LIST) is output with WAYPOINT data.
          OFF: ITEM BEACON information is not output when set to OFF.
Tip

- If you are to connect the transceiver with a PC using SCU-18, the following settings must be applied on the PC.
  - DATA SPEED: 9600bps (the SPEED setting of this transceiver and a PC must correspond).
  - DATA LENGTH: 8bit
  - Parity Bit: None
  - Stop Bit: 1bit

18 DIGI PATH

Setting the digipeater route.

Setting item:

- P1: OFF
- P2: WIDE1-1 (fixed value)
- P3: WIDE1-1, WIDE2-1 (fixed value)
- P4 to P7: Up to 2 addresses can be entered arbitrarily.
- P8: Up to 8 addresses can be entered arbitrarily.

Default: P3 FWIDE1-1 AWIDE2-1 (fixed value)

Explanation:

A station that relays packets, such as beacons, are called a digipeater. Select a CALLSIGN or ALIAS of the digipeater you would like to use.

In this transceiver, [WIDE1-1/WIDE2-1] (setting for 2 relay stations) is set beforehand. In [WIDE1-1, WIDE2-1], a transmission is relayed to the first digipeater station specified as WIDE1-1, then to the second digipeater station specified as WIDE2-1.

As of January 2013, digipeater stations used by APRS are recommended to be operated using *New-Paradigm.

The initial values set to this transceiver are those premised for digipeater stations operating with New-Paradigm, due to most digipeater stations supporting this method. In order to use other relay methods, select one of P4 to P8 and enter the CALLSIGN or ALIAS.

* For information on the New-Paradigm method, refer to the following websites for details.
  - http://aprs.org/fix14439.html

19 GPS DATUM

Select DATUM

Setting Item: WGS-84 / Tokyo Mean / Tokyo Japan / Tokyo Korea / Tokyo Okinawa

Default: WGS-84

Explanation: Because APRS uses the DATUM of WGS-88, this setting is not changed under normal circumstances.
APRS Set mode function list

● 20 GPS POWER
ON/OFF setting for the GPS function.
Setting Item: ON / OFF
Default: ON
Explanation: Turn the GPS function ON or OFF.

● 21 GPS TIME SET
ON/OFF of the GPS time and date automatic acquisition function.
Setting Item: AUTO / MANUAL
Default: AUTO
Explanation:
AUTO: Time data for the internal clock is automatically obtained from the GPS function.
MANUAL: GPS time data is not used, and time set manually to the internal clock of this transceiver is prioritized.

● 22 GPS UNIT
Unit setting for the GPS display.
Setting item:
Position: .MMM’/ ‘ss”
Speed: km/h / knot / mph
Altitude: m / ft
Default: Position: MMM’
            Speed: mph
            Altitude: ft
Explanation:
Set the measurement unit for Altitude, Speed, Longitude and Latitude (Position).
Position: Unit for Longitude/Latitude can be changed.
          MMM is 1/000 minute format. If MMM is SS, unit appear as minute-second format.
Speed: Unit can be set to [km/h], [mph], or [knot].
Altitude: Unit can be set to [m] or [feet].

● 23 CALLSIGN (APRS)
Specify the CALLSIGN of your station.
Explanation:
Register the CALLSIGN of your station which is needed for APRS communication.
APRS data cannot be transmitted if a CALLSIGN for your station is not registered.
Be sure to register a CALLSIGN.
When a CALLSIGN is registered to your station, it is displayed on the LCD when the power of this transceiver is turned on.
Register a CALLSIGN as shown below.

✦✦✦✦✦ – NN
✦: CALLSIGN (Up to 6 characters)
NN: Number (a number between 1 to 15, or no SSID.)

Entering [–7] after the CALLSIGN is recommended in standard mobile use.

● 24 MY POSITION

Setting the station position.

Setting Item: GPS / Lat / Lon / P1 to P10
Default: GPS

Explanation:
Set whether position information for your station is obtained via GPS, or manually entered.

GPS: Acquire the position of your station automatically via GPS.
Lat/Lon: Manually set the position of your station.
P1 to P10: Position information of radio stations, acquired via GPS, can be saved in 10 memories (P1 to P10).

Registered position information can be transmitted as data for the current position of your station with the APRS BEACON.

1 Obtain the position information via GPS.
2 Press \[\text{SET}\] over 1 second.
   Enters the Set mode.
3 Turn \[\text{DIAL}\] to select [9 APRS].
4 Press \[\text{ENT}\].
5 Turn \[\text{DIAL}\] to select [24 MY POSITION].
6 Press \[\text{ENT}\].
7 Select a memory channel from P1 to P10, to register the position information.
8 Press \[\text{ENT}\].
   The position information is registered to the selected memory channel.

In standard operation of APRS, the position of your station is automatically acquired via GPS.

⚠️ Other than when a GPS antenna unit is connected to your station, be sure to have the setting as [GPS].
### 25 MY SYMBOL

*Symbol setting for your station*

**Setting Item:** Symbol

**Default:**
- ICON 1: Human/Person
- ICON 2: Bicycle
- ICON 3: Car
- USER: Yaesu Radios

**Explanation:**
Set the symbol for your station to transmit.
Select your symbol from 45 types.

### 26 POSITION COMMENT

*Set up the position comment function.*

**Setting Item:** Off Duty / En Route / In Service / Returning / Committed / Special / Priority / Custom 0 / Custom 1 / Custom 2 / Custom 3 / Custom 4 / Custom 5 / Custom 6 / Emergency!

**Default:** Off Duty

**Explanation:**
Select the position comment (standard message) incorporated into beacons of your station.

⚠️ **Unless there is a serious emergency, such as an accident or natural disaster, do not select [EMERGENCY]!**

### 27 SmartBeaconing

*Settings for SmartBeaconing*

**Setting Item:**

<table>
<thead>
<tr>
<th>STATUS</th>
<th>TYPE1</th>
<th>TYPE2</th>
<th>TYPE3</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOW SPD</td>
<td>5mph</td>
<td>3mph</td>
<td>2mph</td>
</tr>
<tr>
<td>HIGH SPD</td>
<td>70mph</td>
<td>30mph</td>
<td>12mph</td>
</tr>
<tr>
<td>SLOW RATE</td>
<td>30min</td>
<td>30min</td>
<td>30min</td>
</tr>
<tr>
<td>FAST RATE</td>
<td>120sec</td>
<td>120sec</td>
<td>120sec</td>
</tr>
<tr>
<td>TURN ANGL</td>
<td>28°</td>
<td>28°</td>
<td>28°</td>
</tr>
<tr>
<td>TURN SLOP</td>
<td>26</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>TURN TIME</td>
<td>30sec</td>
<td>30sec</td>
<td>30sec</td>
</tr>
</tbody>
</table>

**Default:** STATUS: OFF
Explanation:
The SmartBeaconing function is a function for efficiently transmitting beacons of position information of your station, based on data obtained from the GPS unit.

Set STATUS to one of TYPE1 to TYPE3, set [9 APRS] → [24 MY POSITION] to [GPS], and [9 APRS] → [16 BEACON TX] to [SMART] (can also be set by pressing twice on the STATION LIST screen) to activate the operation of the SmartBeaconing function. If “○” appears on the top-left corner of the STATION LIST screen, SmartBeaconing™ is in operation.

STATUS: SmartBeaconing™ only operates when STATUS is set to TYPE1, TYPE2, or TYPE3.
Set STATUS to OFF to deactivate SmartBeacon™.

The SmartBeaconing function on this transceiver has 3 different settings (TYPE 1 to TYPE 3) and has preset initial values postulated to be used in the following operation.

- TYPE1: High speed movement, such as by vehicle.
- TYPE2: Medium speed movement, such as by bicycle.
- TYPE3: Low speed movement, such as by walking.

TYPE 2 and TYPE 3 settings (particularly TYPE 3) transmits many beacons in a short period of time even if in comparatively slow movement.
Because of this, using these setting during high speed movement, such as by vehicle, causes many beacons being transmitted and may cause a frequency jam.
Be sure to have settings on TYPE1 when in high speed movement.

LOW SPD: If speed is lower than which is set, BEACONs are transmitted in time intervals set in [SLOW RATE].
The units for speed can be set in Set mode option [9 APRS] → [11 APRS UNIT].

HIGH SPD: If speed is higher than which is set, BEACONs are transmitted in time intervals set in [FAST RATE].
The units for speed can be set in Set mode option [9 APRS] → [11 APRS UNIT].

SLOW RATE: BEACON transmission time interval when speed decreases below the [LOW SPD] setting.
FAST RATE: BEACON transmission time interval when speed increases above the [HIGH SPD] setting.

TURN ANGL: Set the minimal value of changes in angle when the direction of movement changes.
TURN SLOP: Set the coefficient for automatically altering the angle that judges changes in the direction of movement according to speed.
APRS Set mode function list

The higher the coefficient value setting, the greater the judgment angle is when moving at slow speeds.
1 to 255 (X10)°/SPEED
(If the real number for units of rotating tilt is set to 1/10, this is the same as the unit setting used in HamHUD Nichetronix, LLC series transceivers.)

TURN TIME: Set the time limit until the next BEACON can be transmitted, after a BEACON is transmitted upon detection of a change in time (Variable Rate Beaconing) or direction (Corner Pedding).

Caution

● If SmartBeaconing™ is to be operated at different timings, the parameters of settings TYPE1 to TYPE3 can be changed.
   When changing parameters, be sure to adjust parameters of SmartBeaconing and DIGI PATH settings for appropriate beacon transmission intervals to avoid communications channel congestion.

28 TIME ZONE
Set the time zone.
Setting Item: ± 13.0 hours
Default: UTC+0:00 hours
Explanation:
The time zone can be set in units of 30 minutes.
Time data from the GPS function is transmitted from Coordinated Universal Time (UTC). Because time in Japan is 9 hours ahead of UTC, +9 hours is set beforehand.
When using this transceiver in regions other than Japan, modify settings according the time difference from UTC to suite the country or region you are in.