YAESU
The radio

FTM-350 SERIES

APRS MANUAL

The **FTM-350** series transceiver is equipped with a 1200/9600bps AX.25 Data Modem to enable APRS® (Automatic Packet Reporting System) operation. The Automatic Packet Reporting System (APRS®) is a software program and registered trademark of Bob Bruninga, WB4APR.

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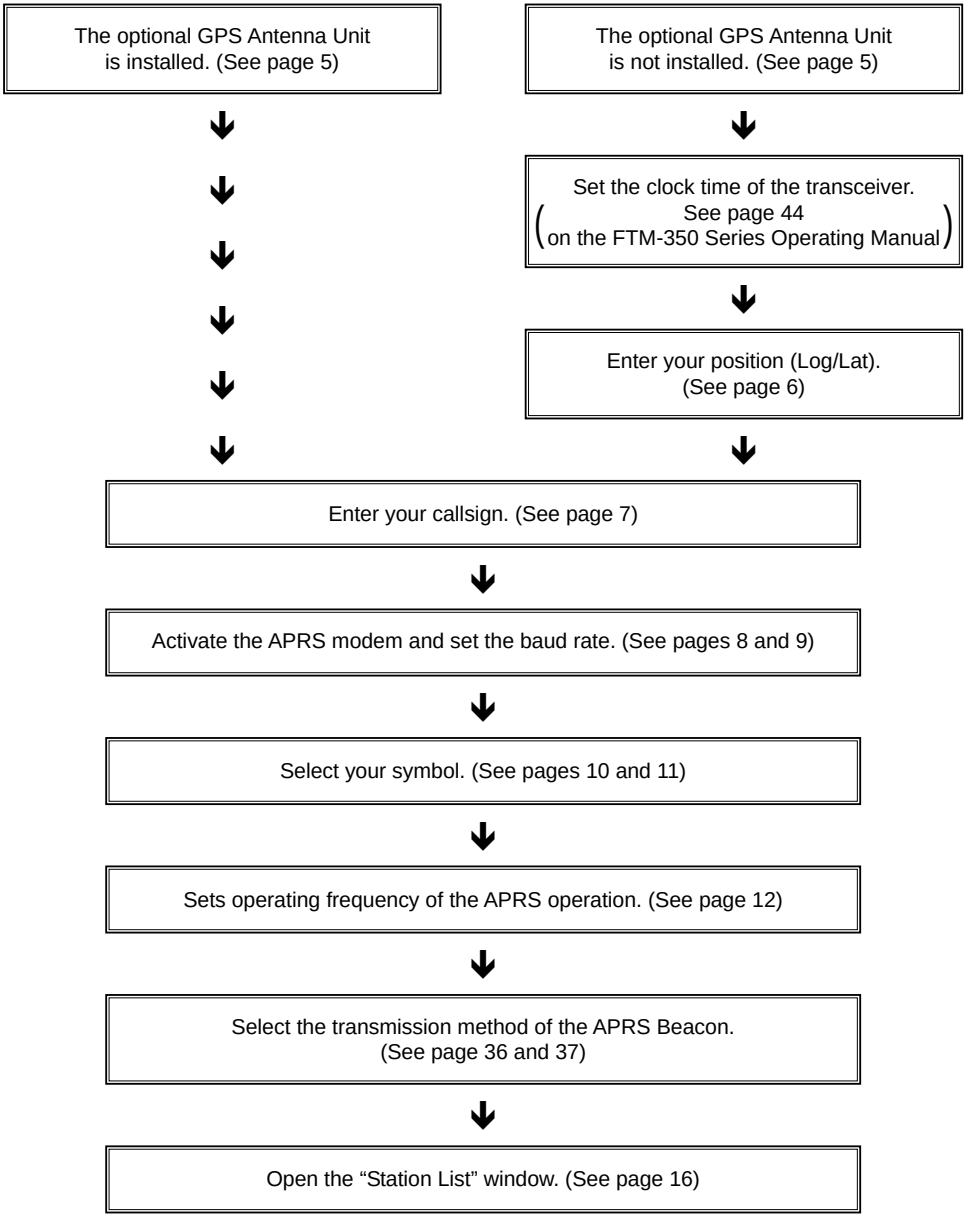


ABOUT THE GPS ANTENNA

TO OPERATE THE APRS WITH THE OPTIONAL GPS ANTENNA UNIT

When the optional **FGPS-1** or **FGPS-2** GPS Antenna Unit is installed in the transceiver, the clock time and your location (Longitude/Latitude) are determined from the satellite data automatically; this data is applied and used for APRS operation. Refer to the "Connection and Setting" manual for the installation of the optional **FGPS-1** or **FGPS-2** GPS Antenna Unit.

ADVICE:

- The **FTM-350** series allows registering up to 16 points into the specific memory channels ("P-LIST" memory channel). The position data of the "P-LIST" memory channel can be applied to the APRS operation.
- Even if the optional **FGPS-1** or **FGPS-2** GPS Antenna Unit acquires the GPS signal, when the Set Mode item "**E31 MY POSITION**" in the "**APRS/PKT**" group is set to "**MANUAL**" or "**P-LIST**", the GPS data becomes invalid.
- You may use an aftermarket GPS receiver instead of the optional **FGPS-1** or **FGPS-2** GPS Antenna Unit. To do this, connect the aftermarket GPS receiver to the **DATA** jack and set the "**3: INPUT**" parameter of the Set Mode item "**E16 COM PORT SETTING**" in the "**APRS/PKT**" group to "**GPS IN**".
- When connecting the optional **FGPS-1** or **FGPS-2** GPS Antenna Unit to the transceiver, confirm that the Set Mode item "**E30 MY POSITION SET**" in the "**APRS/PKT**" group is set to "**GPS**".

TO OPERATE THE APRS WITHOUT THE OPTIONAL GPS ANTENNA UNIT

When you operate the APRS without the optional **FGPS-1** or **FGPS-2** GPS Antenna Unit, manually set the clock of the transceiver. Refer to the 44 page of the **FTM-350** Series Operating manual for setting the clock. Refer to the next page of this manual, and input your location (Longitude/Latitude) manually.

ADVICE:

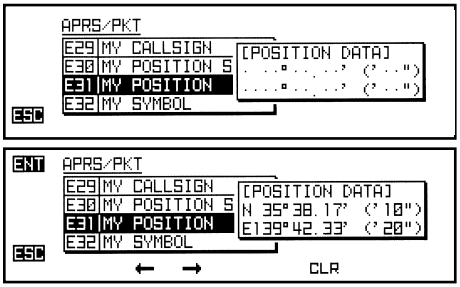
- You may select the unit of the APRS data via the Set Mode item "**E12 APRS UNITS**" in the "**APRS/PKT**" group.
- When the optional **FGPS-1** or **FGPS-2** GPS Antenna Unit is functioning, the transceiver clock is automatically adjusted to the correct time by the GPS data.

PREPARATIONS

POSITION SETTING

This paragraph explains a method to enter your position (Longitude/Latitude) when an optional **FGPS-1** or **FGPS-2** GPS Antenna Unit is not in use.

1. Press the [**SET**] key to enter the Set Mode.
2. Rotate the ***left side*** [**DIAL**] knob to select "**APRS/PKT**" group, then press the ***left side*** [**DIAL**] knob.
3. Rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E31 MY POSITION**".
4. Press the ***left side*** [**DIAL**] knob ***twice***, then enter your position (Longitude/Latitude) in decimal form by using the ***left side*** [**DIAL**] knob to select the number/character. Use the [←] / [→] key to move the cursor. Your position is converted into sexagesimal form automatically, and is displayed in parenthesis.



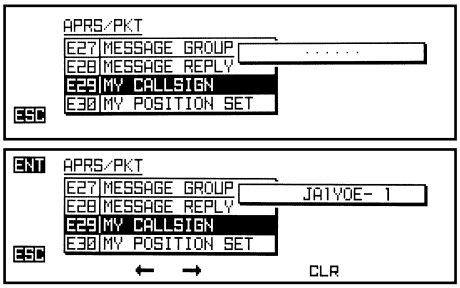
5. When the last digit of your position is entered, the transceiver will emit a beep sound, and save your position.
6. Press the [**ESC**] key to exit from Set Mode item "**E31 MY POSITION**", then rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E30 MY POSITION SET**".
7. Press the ***left side*** [**DIAL**] knob, then rotate the ***left side*** [**DIAL**] knob to select "**MANUAL**".
8. Press the ***left side*** [**DIAL**] knob to save the new setting, then press the [**ESC**] key ***twice*** to exit from Set Mode.

ADVICE:

- You may delete all data after the cursor that may have been previously stored by pressing the [**CLR**] key. You may undo the erased data by pressing the [**ESC**] key just after erasing.
- To determine your position (Longitude/Latitude), use a map with WGS-84 map datum.
- Be careful not to mistake sexagesimal form, and decimal form of the map when inputting your position (Longitude/Latitude). The relations of sexagesimal form, and decimal form are as follows:
  Sexagesimal form x 100 = Decimal form x 60
- You may store the position of up to 16 points (4 memories 4 groups). See page 24 of the **FTM-350** Series Operating Manual for details of storing your position.

CALLSIGN SETTING

1. Press the [**SET**] key to enter the Set Mode.
2. Rotate the ***left side*** [**DIAL**] knob to select "**APRS/PKT**" group, then press the ***left side*** [**DIAL**] knob.
3. Rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E29 MY CALLSIGN**".
4. Press the ***left side*** [**DIAL**] knob ***twice***, then enter your callsign by using the ***left side*** [**DIAL**] knob to select the number/character. Use the [⬅] / [➡] key to move the cursor.
5. When you have completed entering your callsign, press the [➡] key to move to the SSID slot.



6. Rotate the ***left side*** [**DIAL**] knob to select the SSID, then press the [➡] key to save the new setting.
7. Press the [**ESC**] key to exit from Set Mode item "**E29 MY CALLSIGN**", then press the [**ESC**] key ***twice*** to exit from Set Mode.

ADVICE:

- We recommend that you select an SSID of "-9".
- You may also select the number/character of your callsign using the buttons on the microphone keypad.
- You may delete all data after the cursor that may have been previously stored, by pressing the [**CLR**] key. You may undo the erased data by pressing the [**ESC**] key just after erasing the data.
- Visit http://aprs.org/aprs11/SSIDs.txt to examine the latest SSID list.

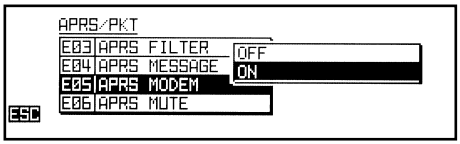
SSID LIST

SSID	DETAILS
Non	Your primary station is usually fixed and message capable
-1	Generic additional station, digi, mobile, wx, etc
-2	Generic additional station, digi, mobile, wx, etc
-3	Generic additional station, digi, mobile, wx, etc
-4	Generic additional station, digi, mobile, wx, etc
-5	Other network sources (Dstar, Iphones, Blackberry's etc)
-6	Special activity, Satellite ops, camping or 6 meters, etc
-7	Walkie talkies, HT's or other human portable, such as VX-8 Series
-8	Boats, sailboats, RV's or second main mobile
-9	Primary Mobile, such as FTM-350 Series (usually message capable)
-10	Internet, Igates, echolink, winlink, AVRS, APRN, etc
-11	Balloons, aircraft, spacecraft, etc
-12	APRStt, DTMF, RFID, devices, one-way trackers, etc
-13	Weather stations
-14	Truckers or generally full time drivers
-15	Generic additional station, digi, mobile, wx, etc

As of October, 2010

ACTIVATE THE APRS FUNCTION

1. Press the [**SET**] key to enter the Set Mode.
2. Rotate the ***left side*** [**DIAL**] knob to select "**APRS/PKT**" group, then press the ***left side*** [**DIAL**] knob.
3. Rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E05 APRS MODEM**".
4. Press the ***left side*** [**DIAL**] knob, then rotate the ***left side*** [**DIAL**] knob to select "**ON**".

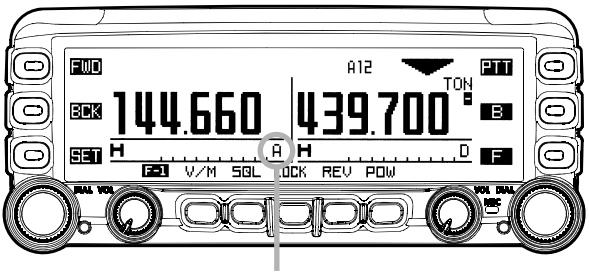


5. Press the ***left side*** [**DIAL**] knob to save the new setting, then press the [**ESC**] key ***twice*** to exit from Set Mode.

To disable the APRS function, select "**OFF**" in step 4 above.

ADVICE:

- When the APRS function is activated, a small "**A**" icon appears at the right side of the S-meter on the "Sub" band frequency display.



SELECT THE BAUD RATE OF THE APRS FUNCTION

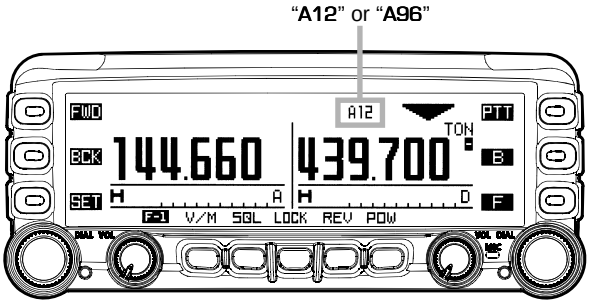
This paragraph selects the baud rate of the APRS function. When selecting a baud rate of "1200 bps", you may operate APRS using AFSK 1200 bps packet. When selecting a baud rate of "9600 bps", you may operate APRS using GMSK 9600 bps packet.

1. Press the [**SET**] key to enter the Set Mode.
2. Rotate the ***left side*** [**DIAL**] knob to select "**APRS/PKT**" group, then press the ***left side*** [**DIAL**] knob.
3. Rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E18 DATA SPEED**".
4. Press the ***left side*** [**DIAL**] knob, then rotate the ***left side*** [**DIAL**] knob to select "**1: APRS**".

5. Press the ***left side*** [**DIAL**] knob, then rotate the ***left side*** [**DIAL**] knob to select the desired baud rate ("**1200 bps**" or "**9600 bps**").
6. Press the ***left side*** [**DIAL**] knob to save the new setting, then press the [**ESC**] key ***three times*** to exit from Set Mode.

ADVICE:

- An "**A12**" icon (for 1200 bps packet) or "**A96**" icon (for 9600 bps packet) appears on the display in accordance with the baud rate of the APRS which you select.
- When the Set Mode item "**E06 APRS MUTE**" is set to "**ON**", the audio output of the "**APRS Operation Band**" is muted and the "**A12**" or "**A96**" icon will blink, during APRS operation.



SELECT YOUR ICON

This paragraph selects the icon which will be displayed to identify your station on the monitors of other APRS stations. You may choose the icon from the 46 symbols (see below).

1. Press the [**SET**] key to enter the Set Mode.
2. Rotate the ***left side*** [**DIAL**] knob to select "**APRS/PKT**" group, then press the ***left side*** [**DIAL**] knob.
3. Rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E32 MY SYMBOL**".
4. Press the ***left side*** [**DIAL**] knob, then select the desired preset symbol by pressing one of the [**ICON1**] ~ [**ICON3**] or [**USER**] keys.

5. To choose another icon, rotate the ***left side*** [**DIAL**] knob to select the desired symbol after having pressed either key. You may choose 1 of 46 different symbols.
   Note: To select a different icon for the [**USER**] key, see next page.
6. Press the ***left side*** [**DIAL**] knob to save the new setting, then press the [**ESC**] key ***twice*** to exit from Set Mode.

DEFAULT SYMBOLS

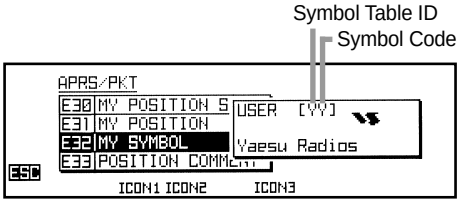
KEY	CODE	SYMBOL
[ICON1]	[/>]	: CAR
[ICON2]	[/R]	: REC. VEHICLE
[ICON3]	[/–]	: HOUSE QTH (VHF)
[USER]	[YY]	: YAESU RADIO

AVAILABLE SYMBOLS

SELECT YOUR ICON (USER MODE)

When there is not an objective symbol in the available symbols, you may enter a symbol directly by the following procedures:

1. Press the [**SET**] key to enter the Set Mode.
2. Rotate the ***left side*** [**DIAL**] knob to select "**APRS/PKT**" group, then press the ***left side*** [**DIAL**] knob.
3. Rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E32 MY SYMBOL**".
4. Press the ***left side*** [**DIAL**] knob, then press the [**USER**] key.
5. Press the ***left side*** [**DIAL**] knob, then rotate the ***left side*** [**DIAL**] knob to select the desired Symbol Table ID (left digits in the parenthesis).



6. Press the ***left side*** [**DIAL**] knob (or [➡] key), then rotate the ***left side*** [**DIAL**] knob to select the desired Symbol Code (right digits in the parenthesis).
   To move the cursor back to the Symbol Table ID, press the [⬅] key.
7. Press the ***left side*** [**DIAL**] knob to save the new setting, then press the [**ESC**] key ***three times*** to exit from Set Mode.

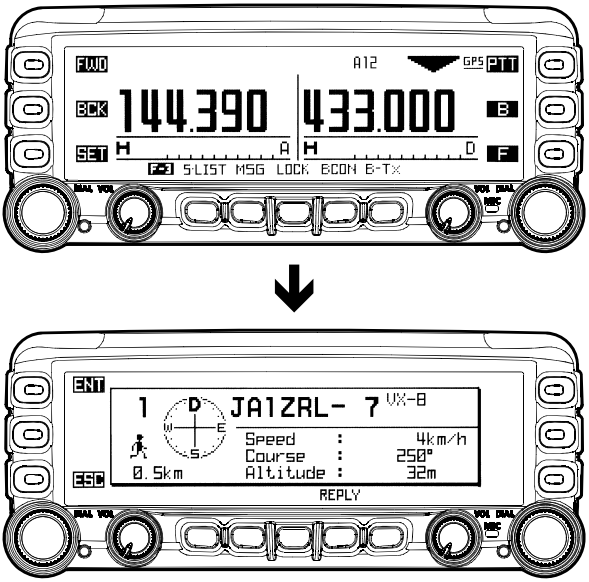
ADVICE:

- Visit http://aprs.org/symbols/symbolsX.txt or http://aprs.org/symbols/symbols-new.txt to examine the latest symbol list.

RECEIVING AN APRS® BEACON

GENERAL

1. Set the "Left" band to the APRS frequency. 144.390MHz is generally used in North America. If you don't know the APRS frequency of your country, ask your dealer.
   Note: The factory default for APRS operation uses the "Left" band (The "**A**" icon will appear at the right side of the "Left" band S/PO meter).
2. When another station's APRS beacon is received, the APRS pop-up window opens and an APRS alert beep is heard. The APRS pop-up window closes automatically after ten seconds.



RECEIVING AN APRS® BEACON

GENERAL

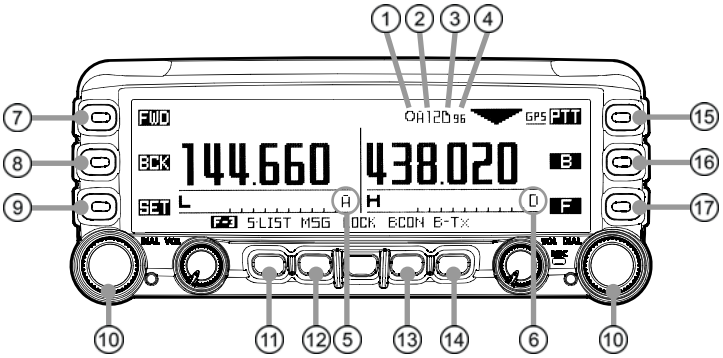
ADVICE:

- You may change the APRS operating band via Set Mode item "**E17 DATA BAND SELECT**" in the "**APRS/PKT**" group.
- You may change the baud rate of the APRS function via Set Mode item "**E18 DATA SPEED**" in the "**APRS/PKT**" group.
- You may specify the types of APRS Beacon data that may be received, via Set Mode item "**E03 APRS FILTER**" in the "**APRS/PKT**" group.
- You may disables audio output of the "APRS Operation Band" during APRS operation via Set Mode item "**E06 APRS MUTE**" in the "**APRS/PKT**" group.
- You may enable/disable the alert ringer when an APRS beacon is received via Set Mode item "**3 RX BEACON**" of the "**E09 APRS RINGER**" in the "**APRS/PKT**" group.
- You may enable to emit an audible alert ringer when received the APRS Beacon from the specified station via Set Mode item "**6 CALL RINGER**" of the "**E09 APRS RINGER**" in the "**APRS/PKT**" group.
- You may enable an audible ringer, to alert when an APRS beacon is received from a station within the designated range. Use Set Mode item "**7 RNG RINGER**" of the "**E09 APRS RINGER**" in the "**APRS/PKT**" group.

RECEIVING AN APRS® BEACON

DISPLAY & SWITCHES (RADIO WINDOW)

Press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key category changes to the "**F-3**" mode, which is assigned to the functions necessary for APRS operation.



DISPLAY ICON

①	BEACON TX	No Icon: Disables the Automatic APRS Beacon Transmission Feature. "◉" Icon: Enables the Automatic APRS Beacon Transmission Feature. "○" Icon: Activates the SmartBeaconing™ Feature.
②	Baud Rate(APRS)	Indicates the Baud Rate of the APRS function. (The indication example is "1200 bps")
③	Unread Message	Indicates that there is an unread message.
④	Baud Rate (DATA)	Indicates the Baud Rate of the DATA jack. (The indication example is "9600 bps")
⑤	APRS Band	Indicates the operating band for the APRS operation.
⑥	DATA Band	Indicates the operating band for the DATA operation.

KEY FUNCTION

⑦	FWD	Press the key: Changes the operating function page. Press and hold the key: Toggle the display between "Dual Band" and "Mono Band".
⑧	BCK	Press the key: Changes the operating function page. Press and hold the key: Toggle the display between "Dual Band" and "Mono Band".
⑨	SET	Access the Set Mode.
⑩	DIAL	Selects the operating frequency.
⑪	S•LIST	Jump to the "Station List" window.
⑫	MSG	Jump to the "Message List" window.
⑬	BCON	Changes the APRS beacon: OFF, ON, or SMART.
⑭	B-TX	Transmit the APRS beacon.
⑮	PTT	Transmit PTT VHF/UHF radio.
⑯	B	Changes the operating band.
⑰	F	Changes the current function of the [SMART FUNCTION] key.

ADVICE:

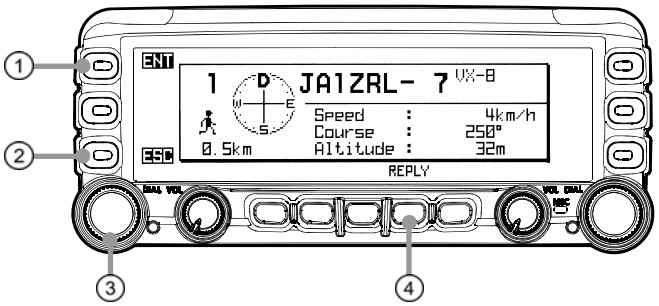
If you select the cross band operation of the APRS or Data operation via Set Mode item "**E17 DATA BAND SELECT**" in the "**APRS/PKT**" group, the "APRS Band" icon (⑤) or the "DATA Band" icon (⑥) changes as follows:

Ar: APRS RX Band / **At**: APRS TX Band

Dr: DATA mode RX Band / **Dt**: DATA mode TX Band

DISPLAY & SWITCHES ("APRS BEACON" POP-UP WINDOW)

When another stations APRS beacon is received, the APRS pop-up window opens, and the function of some keys will change as follows:



KEY FUNCTION

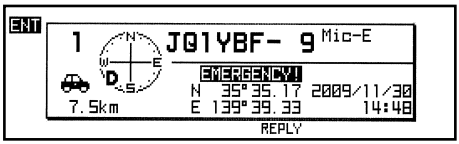
①	ENT	Jump to the "APRS Beacon" Detail Window.
②	ESC	Close the "APRS Beacon" Pop-up Window.
③	DIAL	Rotate this knob to scroll through the received information. Press this knob to jump to the "APRS Beacon" Detail Window.
④	REPLY	Jump to the "TX MESSAGE EDIT" window (reply operation).

ADVICE:

- The APRS pop-up window closes automatically after ten seconds. You may change time when a APRS pop-up window is closed via Set Mode item "**1 BEACON**" of the "**E07 APRS POPUP**" in the "**APRS/PKT**" group.
- You may change the LCD backlight color when an APRS pop-up window opens via Set Mode item "**E08 APRS POPUP COLOR**" in the "**APRS/PKT**" group.

EMERGENCY POP-UP WINDOW

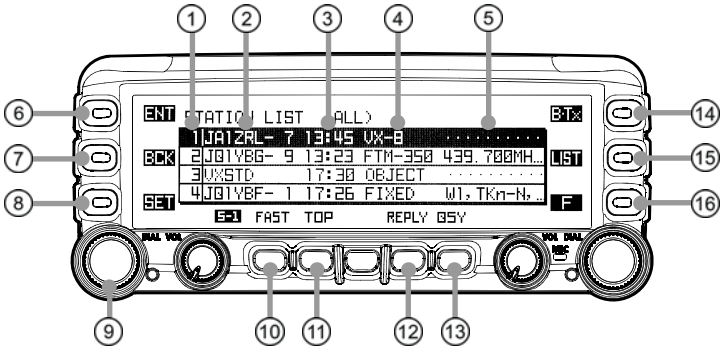
When receiving an "Emergency" beacon form a Mic-E station, the following pop-up window opens.



RECEIVING AN APRS® BEACON

DISPLAY & SWITCHES ("STATION LIST" WINDOW)

If necessary, press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key's category changes to "**F-3**" mode, then press the [**S•LIST**] key to open the "Station List" window. The **FTM-350** Series Transceiver allows you to store up to 100 stations into the "Station" list.



DISPLAY

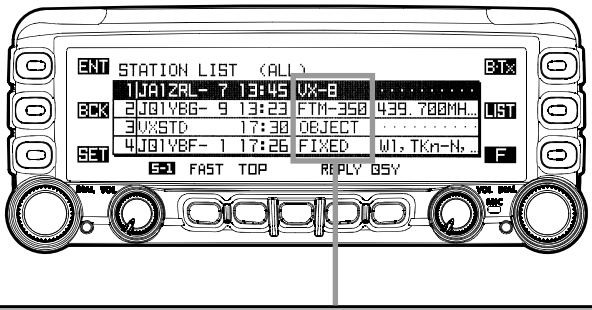
①	List Number	Indicates the list number of the received APRS Beacon.
②	Station Name	Indicates the Callsign (or object name or Item name) of the received APRS beacon.
③	Date	Indicates the time (or date) when the radio received an APRS Beacon. • If a beacon was received on a previous day, the time indication changes to the date. • Indicates the time in 24-hour format regardless of the setting of Set Mode item "I02 DATA & TIME FORMAT" in the "TIMER/CLOCK" group.
④	Beacon Type	Indicates the Beacon type of the received APRS Beacon.
⑤	Comment / Status Text	Indicates the beginning part of the comment (or Status Text) of the received APRS beacon.

KEY FUNCTION

⑥	ENT	Jump to the "APRS Beacon" Detail Window.
⑦	BCK	Close the "Station List" Window.
⑧	SET	Access the Set Mode (APRS/PKT group).
⑨	DIAL	Rotate this knob to scroll through the received information. Press this knob to jump to the "APRS Beacon" Detail Window.
⑩	S-1 FAST	Enables scrolling of the station list using a fast stepping rate (4 rows/click).
	S-2 S•FLT	Jump to the Set Mode item "E35 SORT FILTER" in the "APRS/PKT" group.
⑪	S-1 TOP	Jump to the top column of the Station List.
	S-2 SORT	Initiates sorting of the Station List.
	S-3 P•LIST	Jump to the "Point List Mode" window.
⑫	S-1 REPLY	Jump to the "TX MESSAGE EDIT" window (Reply operation).
	S-2 QUERY	Jump to the "TX MESSAGE EDIT" window with Query command.
	S-3 POINT	Stores the received position data (Lat/Log) to the "Point" memory.
⑬	S-1 QSY	The frequency of the band opposite from the APRS operating band is changed in accordance with the QSY frequency information included in the received APRS Beacon.
	S-2 GPS	Jump to the "GPS Information" page.
	S-3 NAVI	Initiates navigation to the selected APRS Beacon station.
⑭	B•TX	Transmit the APRS beacon.
⑮	S-1 LIST	Toggle the display between the "Station List" and "Message List".
	S-2 DEL	Press the key to delete the selected station (or message) from the List. Press and hold the key to delete the all station (or message) from the List.
	S-3 DEL	Press the key to delete the selected station (or message) from the List. Press and hold the key to delete the all station (or message) from the List.
⑯	F	Changes the [SMART FUNCTION] key's category (S-1, S-2, and S-3).

BEACON TYPE DETAILS

If necessary, press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key's category changes to "**F-3**" mode, then press the [**S•LIST**] key to open the "Station List" window.



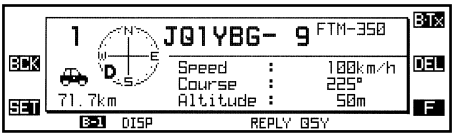
DISPLAY	BEACON TYPE	REF. PAGE
Mic-E	Mic Encoder Station (Some Mic Encoder Stations append the transceiver name (such as the FTM-350, VX-8 etc.) instead of "Mic-E" to the beacon).	18
FIXED	Position "Fixed" Station.	19 ~ 21
fixed	(※Compressed) Position "Fixed" Station.	19 ~ 21
MOVING	Mobile Station.	22
moving	(※Compressed) Mobile Station.	22
WEATHER	Weather Station.	23
weather	(※Compressed) Weather Station.	23
OBJECT	Object Station.	24
object	(※Compressed) Object Station.	24
ITEM	Item Station.	24
item	(※Compressed) Item Station.	24
KILLOBJ	Killed Object Station.	24
KILLITM	Killed Item Station.	24
killobj	Killed (※Compressed) Object Station.	24
killitm	Killed (※Compressed) Item Station.	24
STATUS	Status Station.	25
GGA/GLL	Raw NMEA Data.	26
GPRMC	Raw NMEA Data.	26
OTHER	Station except APRS Station.	27
!!EMG!!	Emergency Beacon from the Mic Encoder Station.	15

(※Compressed) some part of the Beacon message is compressed.

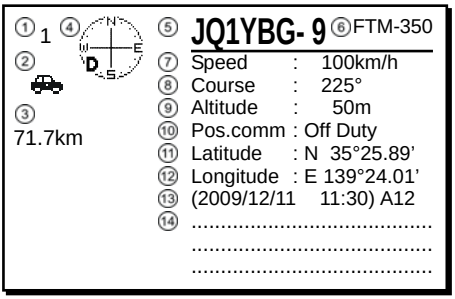
RECEIVING AN APRS® BEACON

"APRS BEACON" DETAIL WINDOW (MIC-E STATION)

When receiving a "Mic-E" Beacon, the LCD displays the following information.



Rotate the left side **DIAL** knob to scroll through the received information



①	List number of the received APRS Station.
②	Symbol of the received APRS Station※1.
③	Distance from the received APRS Station.
④	Direction to the received APRS Station※2.
⑤	Callsign of the received APRS Station.
⑥	Beacon type of the received APRS Station.
⑦	Speed of the received APRS Station.
⑧	Progression direction of the received APRS Station.
⑨	Altitude of the received APRS Station.
⑩	Position comment of the received APRS Station※3.
⑪	Latitude of the received APRS Station.
⑫	Longitude of the received APRS Station.
⑬	Time (or Date) and the baud rate that a radio received an APRS Station.
⑭	Status comment of the received APRS Station.

※1: The "Overlay" symbol appends the "letter" which indicates the station type to the upper left corner of the symbol.

※2: You may toggle the compass display between "North Up" and "Heading Up" by pressing the [DISP] key.

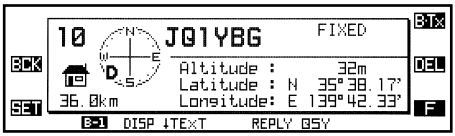
※3: When the Position comment shows "Emergency", the alarm beep sounds 12 times.

KEY FUNCTION

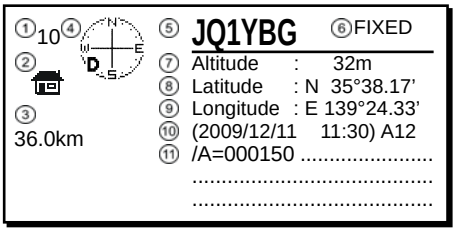
Left Side DIAL	Rotate the *left side* DIAL knob to scroll through the received information (@ small "LIST" icon disappear) or select the received APRS Station (@small "LIST" icon appears). Press the *left* side DIAL knob to toggle the function of the *left* side DIAL knob to "Display Scroll" and "Station Select".
BCK	Jump to the "Station List" window.
SET	Access the Set Mode (APRS/PKT group).
B•TX	Transmit the APRS beacon.
DEL	Deletes the current APRS Station to be displayed.
F	Changes the [SMART FUNCTION] key's category (B-1 and B-2).
B-1 DISP	Toggles the compass display between "North Up" and "Heading Up".
B-1 ↓TEXT ↑TOP	↓TEXT: Jump to the top of the "Status Text Message". ↑TOP: Jump to the top column of the received APRS beacon.
B-1 REPLY	Jump to the "TX MESSAGE EDIT" window (Reply operation).
B-1 QSY	The frequency of the band opposite from the APRS operating band is changed in accordance with the QSY frequency information included in the received APRS Beacon.
B-2 RAW	Displays the "Raw" data of the received APRS Beacon.
B-2 QUERY	Jump to the "TX MESSAGE EDIT" window with Query command.
B-2 GPS	Jump to the "GPS Information" page.

"APRS BEACON" DETAIL WINDOW (POSITION "FIXED" STATION-1)

When receiving a "Position (Fixed)" Beacon, the LCD displays the following information.



Rotate the left side **DIAL** knob to scroll through the received information



①	List number of the received APRS Station.
②	Symbol of the received APRS Station※1.
③	Distance from the received APRS Station.
④	Direction to the received APRS Station※2.
⑤	Callsign of the received APRS Station.
⑥	Beacon type of the received APRS Station※3.
⑦	Altitude of the received APRS Station.
⑧	Latitude of the received APRS Station.
⑨	Longitude of the received APRS Station.
⑩	Time (or Date) and the baud rate that a radio received an APRS Station.
⑪	Status comment of the received APRS Station.

※1: The "Overlay" symbol appends the "letter" which indicates the station type to the upper left corner of the symbol.

※2: You may toggle the compass display between "North Up" and "Heading Up" by pressing the [DISP] key.

※3: Common stations are indicated with a capital letter, and compressed stations (which compresses some parts of the Beacon information) are indicated with a small letter.

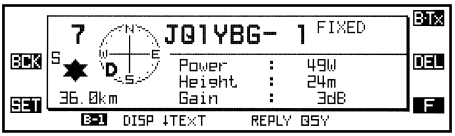
KEY FUNCTION

Left Side DIAL	Rotate the *left side* DIAL knob to scroll through the received information (@ small "LIST" icon disappear) or select the received APRS Station (@small "LIST" icon appears). Press the *left* side DIAL knob to toggle the function of the *left* side DIAL knob to "Display Scroll" and "Station Select".
BCK	Jump to the "Station List" window.
SET	Access the Set Mode (APRS/PKT group).
B•TX	Transmit the APRS beacon.
DEL	Deletes the currently displayed APRS Station.
F	Changes the [SMART FUNCTION] key's category (B-1 and B-2).
B-1 DISP	Toggles the compass display between "North Up" and "Heading Up".
B-1 ↓TEXT ↑TOP	↓TEXT: Jump to the top of the "Status Text Message". ↑TOP: Jump to the top column of the received APRS beacon.
B-1 REPLY	Jump to the "TX MESSAGE EDIT" window (Reply operation).
B-1 QSY	The frequency of the band opposite from the APRS operating band is changed in accordance with the QSY frequency information included in the received APRS Beacon.
B-2 RAW	Displays the "Raw" data of the received APRS Beacon.
B-2 QUERY	Jump to the "TX MESSAGE EDIT" window with Query command.
B-2 GPS	Jump to the "GPS Information" page.

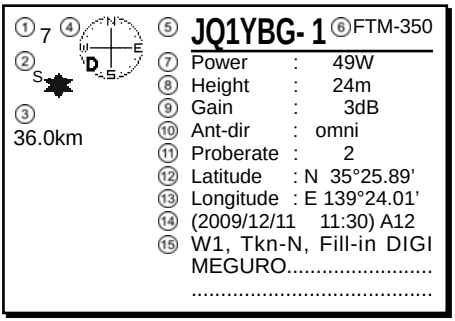
RECEIVING AN APRS® BEACON

"APRS BEACON" DETAIL WINDOW (POSITION "FIXED" STATION-2)

When receiving a "Position (Fixed)" Beacon, the LCD displays the following information.



Rotate the left side **DIAL** knob to scroll through the received information



①	List number of the received APRS Station.
②	Symbol of the received APRS Station※1.
③	Distance from the received APRS Station.
④	Direction to the received APRS Station※2.
⑤	Callsign of the received APRS Station.
⑥	Beacon type of the received APRS Station.
⑦	TX output power of the received APRS Station.
⑧	Antenna height of the received APRS Station.
⑨	Antenna gain of the received APRS Station.
⑩	Antenna directivity of the received APRS Station.
⑪	Probe rate of the received APRS Station.
⑫	Latitude of the received APRS Station.
⑬	Longitude of the received APRS Station.
⑭	Time (or Date) and the baud rate that a radio received an APRS Station.
⑮	Status comment of the received APRS Station.

※1: The "Overlay" symbol appends the "letter" which indicates the station type to the upper left corner of the symbol.

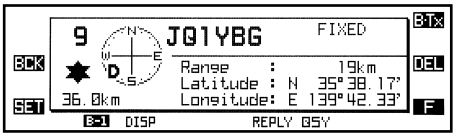
※2: You may toggle the compass display between "North Up" and "Heading Up" by pressing the [DISP] key.

KEY FUNCTION

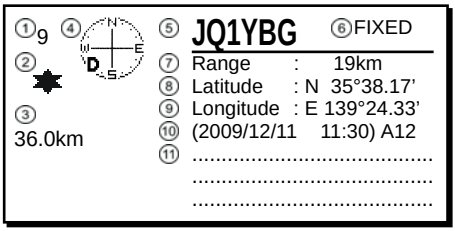
Left Side DIAL	Rotate the *left side* DIAL knob to scroll through the received information (@ small "LIST" icon disappear) or select the received APRS Station (@small "LIST" icon appears). Press the *left* side DIAL knob to toggle the function of the *left* side DIAL knob to "Display Scroll" and "Station Select".
BCK	Jump to the "Station List" window.
SET	Access the Set Mode (APRS/PKT group).
B•TX	Transmit the APRS beacon.
DEL	Deletes the currently displayed APRS Station.
F	Changes the [SMART FUNCTION] key's category (B-1 and B-2).
B-1 DISP	Toggles the compass display between "North Up" and "Heading Up".
B-1 ↓TEXT ↑TOP	↓TEXT: Jump to the top of the "Status Text Message". ↑TOP: Jump to the top column of the received APRS beacon.
B-1 REPLY	Jump to the "TX MESSAGE EDIT" window (Reply operation).
B-1 QSY	The frequency of the band opposite from the APRS operating band is changed in accordance with the QSY frequency information included in the received APRS Beacon.
B-2 RAW	Displays the "Raw" data of the received APRS Beacon.
B-2 QUERY	Jump to the "TX MESSAGE EDIT" window with Query command.
B-2 GPS	Jump to the "GPS Information" page.

"APRS BEACON" DETAIL WINDOW (POSITION "FIXED" STATION-3)

When receiving a "Position (Fixed)" Beacon, the LCD displays the following information.



Rotate the left side **DIAL** knob to scroll through the received information



①	List number of the received APRS Station.
②	Symbol of the received APRS Station※1.
③	Distance from the received APRS Station.
④	Direction to the received APRS Station※2.
⑤	Callsign of the received APRS Station.
⑥	Baecon type of the received APRS Station.
⑦	Communication range of the received APRS Station.
⑧	Latitude of the received APRS Station.
⑨	Longitude of the received APRS Station.
⑩	Time (or Date) and the baud rate that a radio received an APRS Station.
⑪	Status comment of the received APRS Station.

※1: The "Overlay" symbol appends the "letter" which indicates the station type to the upper left corner of the symbol.

※2: You may toggle the compass display between "North Up" and "Heading Up" by pressing the [DISP] key.

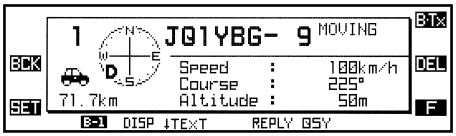
KEY FUNCTION

Left Side DIAL	Rotate the *left side* DIAL knob to scroll through the received information (@ small "LIST" icon disappear) or select the received APRS Station (@small "LIST" icon appears). Press the *left* side DIAL knob to toggle the function of the *left* side DIAL knob to "Display Scroll" and "Station Select".
BCK	Jump to the "Station List" window.
SET	Access the Set Mode (APRS/PKT group).
B•TX	Transmit the APRS beacon.
DEL	Deletes the currently displayed APRS Station.
F	Changes the [SMART FUNCTION] key's category (B-1 and B-2).
B-1 DISP	Toggles the compass display between "North Up" and "Heading Up".
B-1 ↓TEXT	↓TEXT: Jump to the top of the "Status Text Message".
↑TOP	↑TOP: Jump to the top column of the received APRS beacon.
B-1 REPLY	Jump to the "TX MESSAGE EDIT" window (Reply operation).
B-1 QSY	The frequency of the band opposite from the APRS operating band is changed in accordance with the QSY frequency information included in the received APRS Beacon.
B-2 RAW	Displays the "Raw" data of the received APRS Beacon.
B-2 QUERY	Jump to the "TX MESSAGE EDIT" window with Query command.
B-2 GPS	Jump to the "GPS Information" page.

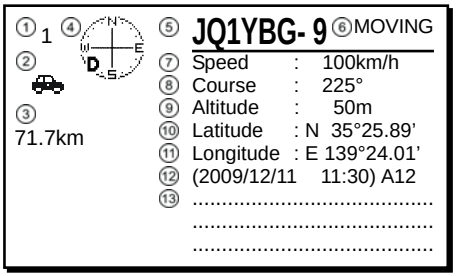
RECEIVING AN APRS® BEACON

"APRS BEACON" DETAIL WINDOW (POSITION "MOVING" STATION)

When receiving a "Position (Moving)" Beacon, the LCD displays the following information.



Rotate the left side **DIAL** knob to scroll through the received information



①	List number of the received APRS Station.
②	Symbol of the received APRS Station※1.
③	Distance from the received APRS Station.
④	Direction to the received APRS Station※2.
⑤	Callsign of the received APRS Station.
⑥	Beacon type of the received APRS Station※3.
⑦	Speed of the received APRS Station.
⑧	Progression direction of the received APRS Station.
⑨	Altitude of the received APRS Station.
⑩	Latitude of the received APRS Station.
⑪	Longitude of the received APRS Station.
⑫	Time (or Date) and the baud rate that a radio received an APRS Station.
⑬	Status comment of the received APRS Station.

※1: The "Overlay" symbol appends the "letter" which indicates the station type to the upper left corner of the symbol.

※2: You may toggle the compass display between "North Up" and "Heading Up" by pressing the [DISP] key.

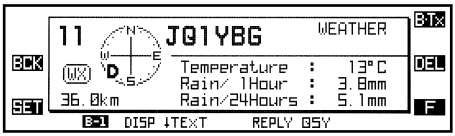
※3: Common stations are indicated with a capital letter, and compressed stations (which compresses some parts of the Beacon information) are indicated with a small letter.

KEY FUNCTION

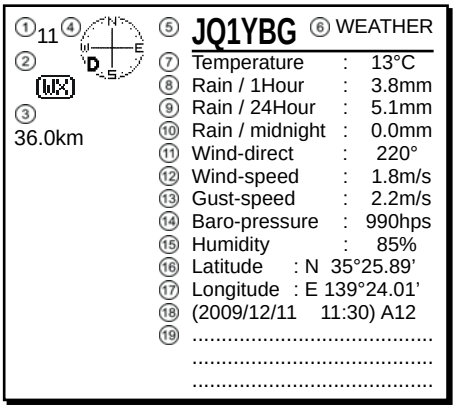
Left Side DIAL	Rotate the *left side* DIAL knob to scroll through the received information (@ small "LIST" icon disappear) or select the received APRS Station (@small "LIST" icon appears). Press the *left* side DIAL knob to toggle the function of the *left* side DIAL knob to "Display Scroll" and "Station Select".
BCK	Jump to the "Station List" window.
SET	Access the Set Mode (APRS/PKT group).
B•TX	Transmit the APRS beacon.
DEL	Deletes the currently displayed APRS Station.
F	Changes the [SMART FUNCTION] key's category (B-1 and B-2).
B-1 DISP	Toggles the compass display between "North Up" and "Heading Up".
B-1 ↓TEXT ↑TOP	↓TEXT: Jump to the top of the "Status Text Message". ↑TOP: Jump to the top column of the received APRS beacon.
B-1 REPLY	Jump to the "TX MESSAGE EDIT" window (Reply operation).
B-1 QSY	The frequency of the band opposite from the APRS operating band is changed in accordance with the QSY frequency information included in the received APRS Beacon.
B-2 RAW	Displays the "Raw" data of the received APRS Beacon.
B-2 QUERY	Jump to the "TX MESSAGE EDIT" window with Query command.
B-2 GPS	Jump to the "GPS Information" page.

"APRS BEACON" DETAIL WINDOW (WEATHER STATION)

When receiving a "Weather Report" Beacon, the LCD displays the following information.



Rotate the left side **DIAL** knob to scroll through the received information



①	List number of the received APRS Station.
②	Symbol of the received APRS Station※1.
③	Distance from the received APRS Station.
④	Direction to the received APRS Station※2.
⑤	Callsign of the received APRS Station.
⑥	Beacon type of the received APRS Station※3.
⑦	Temperature.
⑧	Rainfall per hour.
⑨	Rainfall per 24-hours.
⑩	Rainfall at night time.
⑪	Wind direction.
⑫	Sustained one-minute wind speed.
⑬	Gust (peak) wind speed.
⑭	Barometric pressure.
⑮	Humidity
⑯	Latitude of the received APRS Station.
⑰	Longitude of the received APRS Station.
⑱	Time (or Date) and the baud rate that a radio received an APRS Station.
⑲	Status comment of the received APRS Station.

※1: The "Overlay" symbol appends the "letter" which indicates the station type to the upper left corner of the symbol.

※2: You may toggle the compass display between "North Up" and "Heading Up" by pressing the [DISP] key.

※3: Common stations are indicated with a capital letter, and compressed stations (which compresses some parts of the Beacon information) are indicated with a small letter.

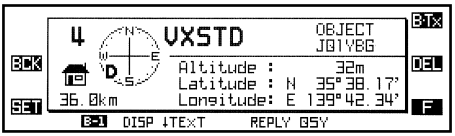
KEY FUNCTION

Left Side DIAL	Rotate the *left side* DIAL knob to scroll through the received information (@ small "LIST" icon disappear) or select the received APRS Station (@small "LIST" icon appears). Press the *left* side DIAL knob to toggle the function of the *left* side DIAL knob to "Display Scroll" and "Station Select".
BCK	Jump to the "Station List" window.
SET	Access the Set Mode (APRS/PKT group).
B•TX	Transmit the APRS beacon.
DEL	Deletes the currently displayed APRS Station.
F	Changes the [SMART FUNCTION] key's category (B-1 and B-2).
B-1 DISP	Toggles the compass display between "North Up" and "Heading Up".
B-1 ↓TEXT ↑TOP	↓TEXT: Jump to the top of the "Status Text Message". ↑TOP: Jump to the top column of the received APRS beacon.
B-1 REPLY	Jump to the "TX MESSAGE EDIT" window (Reply operation).
B-1 QSY	The frequency of the band opposite from the APRS operating band is changed in accordance with the QSY frequency information included in the received APRS Beacon.
B-2 RAW	Displays the "Raw" data of the received APRS Beacon.
B-2 QUERY	Jump to the "TX MESSAGE EDIT" window with Query command.
B-2 GPS	Jump to the "GPS Information" page.

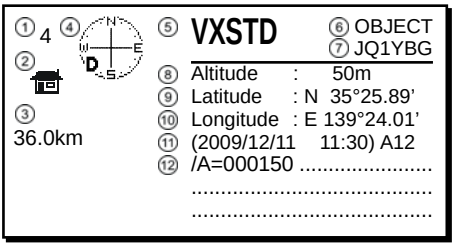
RECEIVING AN APRS® BEACON

"APRS BEACON" DETAIL WINDOW (OBJECT OR ITEM STATIONS)

When receiving an "Object" or "Item" Beacon, the LCD displays the following information.



Rotate the left side **DIAL** knob to scroll through the received information



①	List number of the received APRS Station.
②	Symbol of the received APRS Station※1.
③	Distance from the received APRS Station.
④	Direction to the received APRS Station※2.
⑤	Object name or Item name.
⑥	Beacon type of the received APRS Station※3.
⑦	Callsign of the received APRS Station.
⑧	Altitude of the received APRS Station.
⑨	Latitude of the received APRS Station.
⑩	Longitude of the received APRS Station.
⑪	Time (or Date) and the baud rate that a radio received an APRS Station.
⑫	Status comment of the received APRS Station.

※1: The "Overlay" symbol appends the "letter" which indicate the station type to the upper left corner of the symbol.

※2: You may toggle the compass display between "North Up" and "Heading Up" by pressing the [DISP] key.

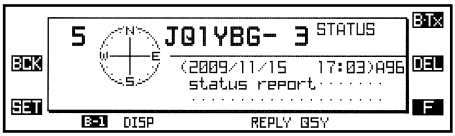
※3: Common stations are indicated with a capital letter, and compressed stations (which compresses some parts of the Beacon information) are indicated with a small letter.

KEY FUNCTION

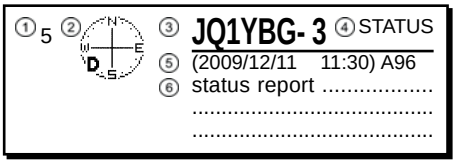
Left Side DIAL	Rotate the *left side* DIAL knob to scroll through the received information (@ small "LIST" icon disappear) or select the received APRS Station (@small "LIST" icon appears). Press the *left* side DIAL knob to toggle the function of the *left* side DIAL knob to "Display Scroll" and "Station Select".
BCK	Jump to the "Station List" window.
SET	Access the Set Mode (APRS/PKT group).
B•TX	Transmit the APRS beacon.
DEL	Deletes the currently disapled APRS Station.
F	Changes the [SMART FUNCTION] key's category (B-1 and B-2).
B-1 DISP	Toggles the compass display between "North Up" and "Heading Up".
B-1 ↓TEXT ↑TOP	↓TEXT: Jump to the top of the "Status Text Message". ↑TOP: Jump to the top column of the received APRS beacon.
B-1 REPLY	Jump to the "TX MESSAGE EDIT" window (Reply operation).
B-1 QSY	The frequency of the band opposite from the APRS operating band is changed in accordance with the QSY frequency information included in the received APRS Beacon.
B-2 RAW	Displays the "Raw" data of the received APRS Beacon.
B-2 QUERY	Jump to the "TX MESSAGE EDIT" window with Query command.
B-2 GPS	Jump to the "GPS Information" page.

"APRS BEACON" DETAIL WINDOW (STATUS STATION)

When receiving a "Status" Beacon, the LCD displays the following information.



Rotate the left side **DIAL** knob to scroll through the received information



①	List number of the received APRS Station.
②	Direction to the received APRS Station※.
③	Callsign of the received APRS Station.
④	Beacon type of the received APRS Station.
⑤	Time (or Date) and the baud rate that a radio received an APRS Station.
⑥	Status comment of the received APRS Station.

※: You may toggle the compass display between "North Up" and "Heading Up" by pressing the [DISP] key.

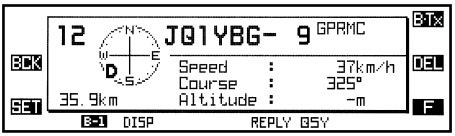
KEY FUNCTION

Left Side DIAL	Rotate the *left side* DIAL knob to scroll through the received information (@ small "LIST" icon disappear) or select the received APRS Station (@small "LIST" icon appears). Press the *left* side DIAL knob to toggle the function of the *left* side DIAL knob to "Display Scroll" and "Station Select".
BCK	Jump to the "Station List" window.
SET	Access the Set Mode (APRS/PKT group).
B•TX	Transmit the APRS beacon.
DEL	Deletes the currently displayed APRS Station.
F	Changes the [SMART FUNCTION] key's category (B-1 and B-2).
B-1 DISP	Toggles the compass display between "North Up" and "Heading Up".
B-1 REPLY	Jump to the "TX MESSAGE EDIT" window (Reply operation).
B-1 QSY	No Action.
B-2 RAW	Displays the "Raw" data of the received APRS Beacon.
B-2 QUERY	Jump to the "TX MESSAGE EDIT" window with Query command.
B-2 GPS	Jump to the "GPS Information" page.

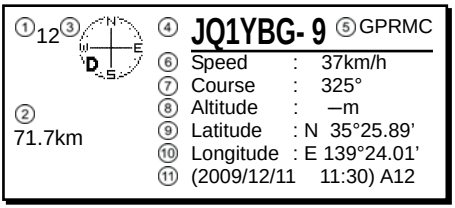
RECEIVING AN APRS® BEACON

"APRS BEACON" DETAIL WINDOW (RAW NMEA STATION)

When receiving a "RAW NMEA" Beacon (GGA/GLL or GPRMC format), the LCD displays the following information.



Rotate the left side **DIAL** knob to scroll through the received information



①	List number of the received APRS Station.
②	Distance from the received APRS Station.
③	Direction to the received APRS Station※1.
④	Callsign of the received APRS Station.
⑤	Beacon type of the received APRS Station.
⑥	Speed of the received APRS Station.
⑦	Progression direction of the received APRS Station.
⑧	Altitude of the received APRS Station.
⑨	Latitude of the received APRS Station.
⑩	Longitude of the received APRS Station.
⑪	Time (or Date) and the baud rate that a radio received an APRS Station.

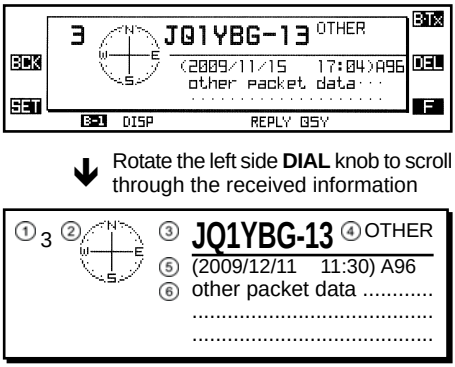
※1: You may toggle the compass display between "North Up" and "Heading Up" by pressing the [DISP] key.

KEY FUNCTION

Left Side DIAL	Rotate the *left side* DIAL knob to scroll through the received information (@ small "LIST" icon disappear) or select the received APRS Station (@small "LIST" icon appears). Press the *left* side DIAL knob to toggle the function of the *left* side DIAL knob to "Display Scroll" and "Station Select".
BCK	Jump to the "Station List" window.
SET	Access the Set Mode (APRS/PKT group).
B•TX	Transmit the APRS beacon.
DEL	Deletes the currently displayed APRS Station.
F	Changes the [SMART FUNCTION] key's category (B-1 and B-2).
B-1 DISP	Toggles the compass display between "North Up" and "Heading Up".
B-1 REPLY	Jump to the "TX MESSAGE EDIT" window (Reply operation).
B-1 QSY	No Action.
B-2 RAW	Displays the "Raw" data of the received APRS Beacon.
B-2 QUERY	Jump to the "TX MESSAGE EDIT" window with Query command.
B-2 GPS	Jump to the "GPS Information" page.

"APRS BEACON" DETAIL WINDOW (OTHER STATION)

When receiving an "Other" Beacon, the LCD displays the following information.



Rotate the left side **DIAL** knob to scroll through the received information

①	List number of the received APRS Station.
②	Does not indicate the direction of the received APRS Station.
③	Callsign of the received APRS Station.
④	Beacon type of the received APRS Station.
⑤	Time (or Date) and the baud rate that a radio received an APRS Station.
⑥	Status comment of the received APRS Station.

KEY FUNCTION

Left Side DIAL	Rotate the *left side* DIAL knob to scroll through the received information (@ small "LIST" icon disappear) or select the received APRS Station (@small "LIST" icon appears). Press the *left* side DIAL knob to toggle the function of the *left* side DIAL knob to "Display Scroll" and "Station Select".
BCK	Jump to the "Station List" window.
SET	Access the Set Mode (APRS/PKT group).
B•TX	Transmit the APRS beacon.
DEL	Deletes the currently displayed APRS Station.
F	Changes the [SMART FUNCTION] key's category (B-1 and B-2).
B-1 DISP	Toggles the compass display between "North Up" and "Heading Up".
B-1 REPLY	Jump to the "TX MESSAGE EDIT" window (Reply operation).
B-1 QSY	No Action.
B-2 RAW	Displays the "Raw" data of the received APRS Beacon.
B-2 QUERY	Jump to the "TX MESSAGE EDIT" window with Query command.
B-2 GPS	Jump to the "GPS Information" page.

ADVICE:

The "Other" station data cannot store to the "Station list" if you do not set the Set Mode item "**7 OTHER**" of the "**E03 APRS FILTER**" to "ON".

RECEIVING AN APRS® BEACON

SORTING A "STATION LIST"

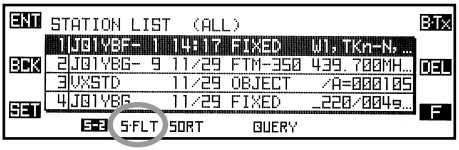
You may sort a "Station List" temporarily.

1. If necessary, press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key's category changes to "**F-2**" mode.
2. Press the [**S•FLT**] key to open the Set Mode item "**E35 SORT FILTER**", then rotate the ***left side*** [**DIAL**] knob to select "**1 SORT**" category.
3. Press the ***left side*** [**DIAL**] knob, then rotate the ***left side*** [**DIAL**] knob to select the sort method.

   TIME: Sort the Station List by time order (default).

   CALLSIGN: Sort the Station List by callsign order.

   DISTANCE: Sort the Station List by near distance order.
4. Press the ***left side*** [**DIAL**] knob to save the new setting, then press the [**ESC**] key to exit from Set Mode.
5. Press the [**SORT**] key to initiate the sorting.

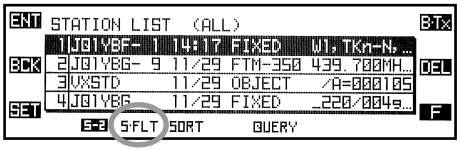


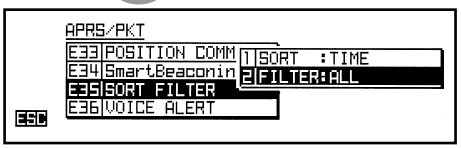
ADVICE:

- When a new APRS beacon is received after a sorting, the new APRS Beacon is added to the top of the "Station List".
- When the radio is turned off, the result of the sorting is returned to the "TIME" order. However, when pressing the [**SORT**] key after turning the radio back on, the result of the sorting is set to the order which is set in step 3 above.

APRS FILTER SETTING

The APRS filter option allows you to select the specific types of data to receive.



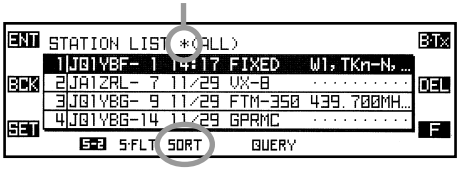


1. If necessary, press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key's category changes to "**S-2**" mode.
2. Press the [**S•FLT**] key to open the Set Mode item "**E35 SORT FILTER**", then rotate the ***left side*** [**DIAL**] knob to select "**2 FILTER**" category.
3. Press the ***left side*** [**DIAL**] knob, then rotate the ***left side*** [**DIAL**] knob to select the "filter" you wish to exclude.

ALL:	All received APRS Beacons are displayed (default).
MOBILE:	Displays only the APRS Beacons of mobile stations.
FREQUENCY:	Displays only the APRS Beacons, which have frquency data.
OBJECT/ITEM:	Displays only the APRS Beacons from Object or Item stations.
DIGIPEATER :	Displays only the APRS Beacons from digipeaters.
VOIP:	Displays only the APRS Beacons from VOIP station, such as WiRES stations.
WEATHER:	Displays only the APRS Beacons from weather stations.
YAESU:	Displays only the APRS Beacons transmitted from a Yaesu transceiver, such as the VX-8 series and FTM-350 series.
OTHER PKT:	Displays only APRS Beacons from STATUS stations, RAW NMEA data, and other packet data (except APRS beacon data). ***Note***: To display the stations including packet data (except APRS Beacon data), it is necessary to set the "**OTHER**" parameter of Set Mode item "**E03 APRS FILTER**" to "**ON**".
CALL RINGER:	Displays only the APRS Beacons of "CALL RINGER" stations, which are entered into Set Mode item "**E10 APRS RINGER** (**CALL**)".
RNG RINGER:	Displays only the APRS Beacons of "RNG RINGER" stations which are defined via the Set Mode parameters of "**E09 APRS RINGER**".
1200bps:	Displays only the APRS Beacons with a 1200 bps baud rate.
9600bps:	Displays only the APRS Beacons with a 9600 bps baud rate.

4. Press the ***left side*** [**DIAL**] knob to save the new setting, then press the [**ESC**] key to exit from Set Mode.
5. Press the [**SORT**] key to initiate the sorting.

The "∗" icon will appear before sorting. When the sorting is finished, the "∗" icon will disappear.

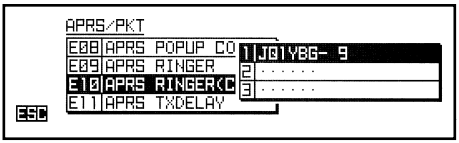


RECEIVING AN APRS® BEACON

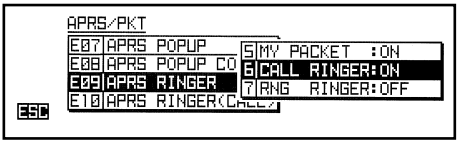
CALLSIGN RINGER

You may enable an alert ringer ( ) to sound when an APRS Beacon is received from a specified station. Enter the callsign of the designated APRS beacon, via Set Mode item "**E10 APRS RINGER (CALL)**", in advance.

1. Press the [**SET**] key to enter the Set Mode.
2. Rotate the ***left side*** [**DIAL**] knob to select "**APRS/PKT**" group, then press the ***left side*** [**DIAL**] knob.
3. Rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E10 APRS RINGER (CALL)**".



4. Press the ***left side*** [**DIAL**] knob, then rotate the ***left side*** [**DIAL**] knob to select the desired memory channel.
5. Press the ***left side*** [**DIAL**] knob again, then enter your callsign by using the ***left side*** [**DIAL**] knob (select the number/character) and [←] / [→] key (to move the cursor).
   Advice 1: You may also select the number/character of your callsign using microphone's keypad too.
   Advice 2: You may delete all data after the cursor that may have been previously stored by pressing the [**CLR**] key. You may undo the erased data by pressing the [**ESC**] key just after the erasing.
6. When you have completed entering your callsign, press the [→] key to move to the SSID slot.
7. Rotate the ***left side*** [**DIAL**] knob to select the SSID, then press the ***left side*** [**DIAL**] knob to save the new setting.
8. Press the [**ESC**] key, then rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E09 APRS RINGER**".



9. Press the ***left side*** [**DIAL**] knob, then rotate the ***left side*** [**DIAL**] knob to select the "**6 CALL RINGER**" category.
10. Press the ***left side*** [**DIAL**] knob, then rotate the ***left side*** [**DIAL**] knob to select "**ON** ".
11. Press the ***left side*** [**DIAL**] knob to save the new setting, then press the [**ESC**] key ***twice*** to exit from Set Mode.

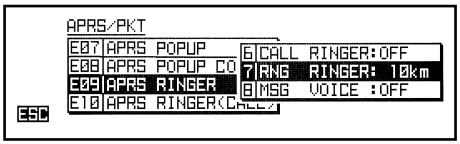
ADVICE:

- You may set the backlight color which is illuminated when receiving an APRS beacon to a desirable color for each APRS beacon via the Set Mode item "**E08 APRS POPUP COLOR**"
- When sorting the station list with the setting in Set Mode item "**E35 SORT FILTER**" to "**CALL RINGER**" (described on the previous page), only the stations having this setting will be sorted.

RANGE RINGER

You may enable a specific alert ringer (♫) to sound when an APRS beacon is received from a specified station that is within a selected range. Confirmation of whether the specified station is within communication range is verified by a bell ringer.

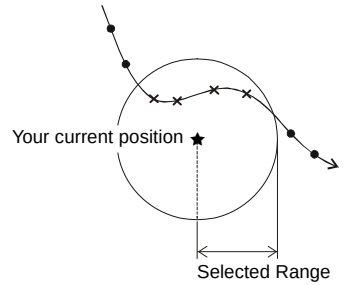
1. Press the [**SET**] key to enter the Set Mode.
2. Rotate the ***left side*** [**DIAL**] knob to select "**APRS/PKT**" group, then press the ***left side*** [**DIAL**] knob.
3. Rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E09 APRS RINGER**".
4. Press the ***left side*** [**DIAL**] knob, then rotate the ***left side*** [**DIAL**] knob to select the "**7 RNG RINGER**" category.



5. Press the ***left side*** [**DIAL**] knob, then rotate the ***left side*** [**DIAL**] knob to select the desired range. Available range is "1" to "100" or "OFF".
   Advice: Selects the unit of the range via Set Mode item "**E12 APRS UNITS**".
6. Press the ***left side*** [**DIAL**] knob to save the new setting, then press the [**ESC**] key ***three times*** to exit from Set Mode.

ADVICE:

- You may set the backlight color which is illuminated when receiving an APRS beacon to a desirable color for each APRS beacon via the Set Mode item "**E08 APRS POPUP COLOR**"
- When setting both "CALLSIGN RINGER" and "RANGE RINGER" to "ON" at the same time, the priority is given to "CALLSIGN RINGER".
- When sorting the station list with the setting of Set Mode item "**E35 SORT FILTER**" set to "**RNG RINGER**" (described on the previous page), only the stations having this setting will be sorted.



●: Emits the "Normal" alert ringer
×: Emits the "RNG RINGER" alert ringer

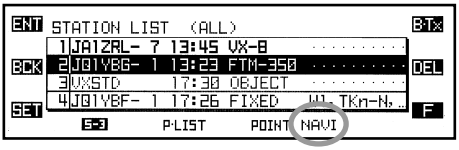
RECEIVING AN APRS® BEACON

APRS NAVIGATION

You may navigate to a specific APRS station when the optional **FGPS-1** or **FGPS-2** GPS Antenna Unit is installed.

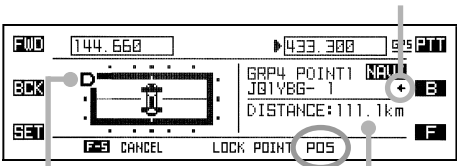
1. If necessary, press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key's category changes to "**F-3**" mode, then press the [**S•LIST**] key to open the "Station List" window.

2. Rotate the ***left side*** [**DIAL**] knob to select the APRS station which you wish to navigate to.



3. Press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key's category changes to "**S-3**" mode, then press the [**NAVI**] key to open the "NAVI" page and initiate navigation. Drive your vehicle so that the "CAR" icon is pointing toward the "**D**" symbol in the Compass display.

Indicates that the destination is the APRS station



Direction of the destination

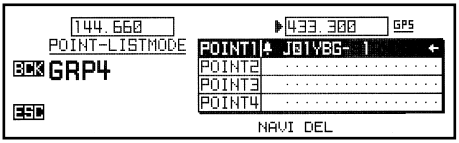
Distance to the destination

Advice 1: The "**D**" symbol is the direction of the APRS station (destination).

Advice 2: Press the [**POS**] key to display the receiving data of the APRS station (destination).

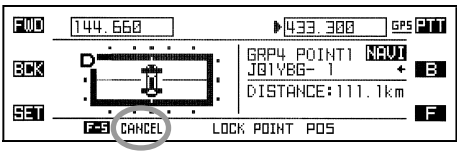
Advice 3: When the APRS station (destination) moves, the APRS station's position data is updated automatically.

Advice 4: The position data of the APRS station is memorized into GRP4 of the Point Memory. In the position data of the APRS station, a blinking "←" icon will appear at the right side of the station name on the "NAVI" page and the "Point List" window.



5. When your vehicle nears the APRS station (destination), an alarm beep is emitted and the "**GOAL!**" notation appears in the Compass display.
6. Press the [**CANCEL**] key to cancel navigation.

Advice: Refer to page 43 of the **FTM-350** Series Operating Manual regarding the Navigation setup.



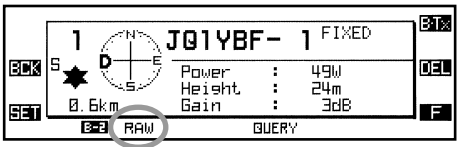
RECEIVING AN APRS® BEACON

INDICATING THE RAW PACKET DATA

You may confirm the Raw data of the received APRS beacon.

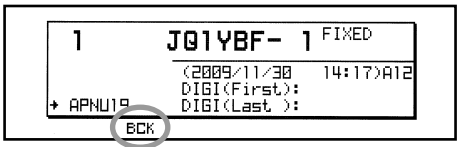
1. If necessary, press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key's category changes to "**F-3**" mode, then press the [**S•LIST**] key to open the "Station List" window.
2. Rotate the ***left side*** [**DIAL**] knob to select the APRS station which you wish to confirm the Raw data, then press the [**ENT**] key to display its received APRS beacon.
3. Press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key's category changes to "**B-2**" mode, then press the [**RAW**] key to indicate the Raw data of the received APRS beacon.
4. Rotate the ***left side*** [**DIAL**] knob to scroll through the additional lines of the received information.
5. Press the [**BCK**] key to return to the APRS Beacon Data window.

APRS Beacon Data Window



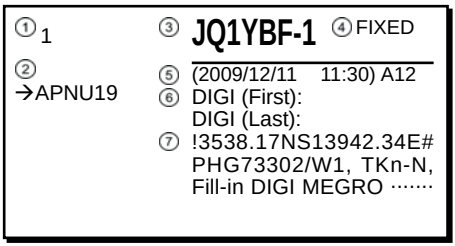
[**RAW**] key

APRS Beacon "RAW" Data Window



[**BCK**] key

Details of the APRS Beacon "RAW" Data



①	List number of the received APRS Station.
②	Destination Address information of the AX.25 Packet.
③	Callsign of the received APRS Station.
④	Beacon Type.
⑤	Time (or Date) and the baud rate that a radio received an APRS Station.
⑥	Digipeater information.
⑦	"RAW" Data (Text) of the received APRS Station.

ADVICE:

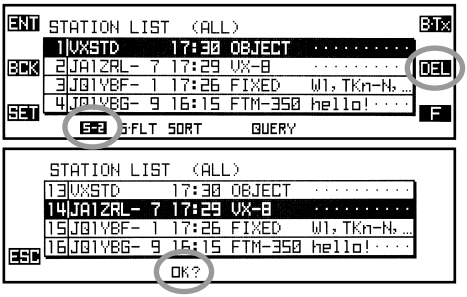
- Your transmitted beacon does not have digipeater information. Therefore, the DIGI (First) and DIGI (Last) data does not appear in the APRS Beacon "RAW" Data Window.
- When receiving a 3rd Party Header Beacon (generally from the I-Gate beacon), the transceiver displays not the route data of the AX.25 packet data but the route data of the 3rd Party Header Beacon.

RECEIVING AN APRS® BEACON

DELETING A RECEIVED BEACON FROM THE "STATION LIST"

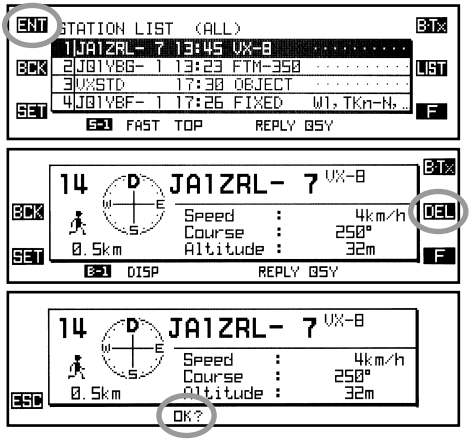
FROM THE "STATION LIST" WINDOW

1. If necessary, press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key's category changes to "**F-3**" mode, then press the [**S•LIST**] key to open the "Station List" window.
2. Press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key's category changes to "**S-2**" or "**S-3**" mode.
3. Rotate the ***left side*** [**DIAL**] knob to select the beacon station to be deleted.
4. Press the [**DEL**] key, then press the [**OK?**] key to delete the selected beacon station from the "Station List".



FROM THE "APRS BEACON DATA" WINDOW

1. If necessary, press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key's category changes to "**F-3**" mode, then press the [**S•LIST**] key to open the "Station List" window.
2. Rotate the ***left side*** [**DIAL**] knob to select the beacon station to be deleted.
3. Press the [**ENT**] key to display the received data, then confirm that you really want to erase this beacon data.
4. Press the [**DEL**] key, then press the [**OK?**] key to delete the selected beacon station from the "Station List".



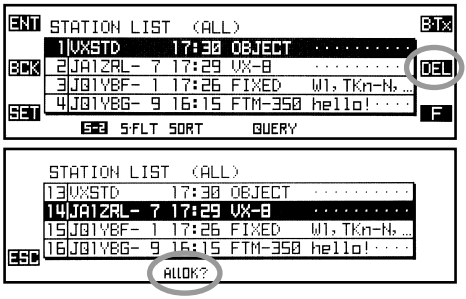
The **FTM-350** Series transceiver enables you to store up to 100 stations into the "Station" list.

If a Station list becames full (100 stations) and the transceiver receives a new beacon, the first station's data is deleted from the Station list, and its station's data is stored into the Station list (first-in, first-out mode).

DELETING A RECEIVED BEACON FROM THE "STATION LIST"

DELETING ALL RECEIVED BEACONS FROM THE "STATION LIST"

1. If necessary, press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key's category changes to "**F-3**" mode, then press the [**S•LIST**] key to open the "Station List" window.
2. Press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key's category changes to "**S-2**" mode.
3. Press and hold in the [**DEL**] key for two seconds, then press the [**ALLOK?**] key to delete all messages from the "Station List".



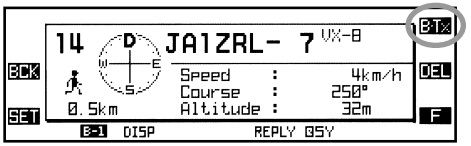
TRANSMIT AN APRS® BEACON

MANUAL TRANSMISSION

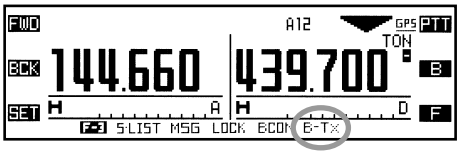
To transmit your APRS beacon manually, press the [**B-TX**] key on the "APRS Station List" Window or "APRS Beacon Detail" Window.

APRS Station List Window

APRS Beacon Detail Window



You may transmit your APRS beacon manually from the frequency display window. To do this, press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key category changes to "**F-3**" mode, if necessary, then press the [**B-TX**] key.



NOTE :

- When receiving an APRS beacon via a Digipeater, a specific alert ringer (♫) will be heard.
- Confirm that the Set Mode item "**E30 MY POSITION SET**" is set to "**GPS**" when the optional **FGPS-1** or **FGPS-2** GPS Antenna Unit is installed. The transceiver will not transmit an APRS beacon until GPS has acquired a GPS signal.

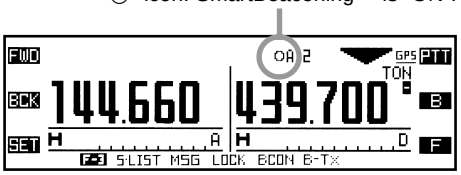
TRANSMIT AN APRS® BEACON

AUTOMATIC TRANSMISSION

The **FTM-350** Series transceiver allows you to transmit your APRS beacon automatically and repeatedly.

1. If necessary, press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key category changes to "**F-3**" mode.
2. Press the [**BCON**] key repeatedly to select the "Auto" beacon mode ("**OFF**", "**ON** " or "**SMART**").

No Icon: Auto Beacon Mode is "OFF".
"⦿" icon: Auto Beacon Mode is "ON".
"○" icon: SmartBeaconing™ is "ON".



OFF: Disables Automatic Transmission (no icon)

ON: Enables Automatic Transmission ("⦿" icon appears at the left of the "A12" icon).
Transmits your APRS beacon in accordance with the interval determined by "**2 INTERVAL**" of the Set Mode item "**E15 BEACON TX**" in the "**APRS/PKT**" group.

SMART: Enables Automatic Transmission ("○" icon appears)
Transmits your APRS beacon in accordance with the interval determined by Set Mode item "**E34 SmartBeaconing**" in the "**APRS/PKT**" group.

ADVICE:

- When the APRS frequency is busy (squelch is open), the transceiver will not transmit an APRS beacon in manual or automatic modes. Insure that the squelch is closed.
- You may select the transmission delay time between transmitting the APRS data and transmitting a preamble (flag code) prior to the APRS data via Set Mode item "**E11 APRS TX DELAY**" in the "**APRS/PKT**" group.
- You may transmit the APRS beacon manually by pressing the [**B-TX**] key, even if the transceiver is in automatic mode.
- In the factory default, the "Proportional" function is set to "ON" via Set Mode item "**3 PROPORTIONAL**" of the "**E15 BEACON TX**" in the "**APRS**" group. Therefore, the digipeater address will change according to the setting of the Set Mode item "**E20 DIGI PATH SELECT**" in the "**APRS**" group, as a result, your packet path through is changed. If you do not want your packet path through to change, set the Set Mode item "**3 PROPORTIONAL**" to "OFF".
- In the factory default, the "Decay" function is set to "ON" via Set Mode item "**4 DECAY**" of the "**E15 BEACON TX**" in the "**APRS**" group. Therefore, the interval of the APRS beacon will extend according to the setting of the Set Mode item "**2 INTERVAL**" of the "**E15 BEACON TX**" when the vehicle is stopped. If you do not want the interval of the APRS beacon to change, set the Set Mode item "**4 DECAY**" of the "**E15 BEACON TX**" to "OFF".

TRANSMIT AN APRS® BEACON

OPTIONAL SETTINGS

INTERVAL TIME SETTING FOR AUTOMATIC TRANSMISSION

You may set the interval time to transmit an APRS beacon automatically when the "Auto" beacon mode is set to "ON ("◉" icon appears)".

1. Press the [**SET**] key to enter the Set Mode.
2. Rotate the ***left side*** [**DIAL**] knob to select "**APRS/PKT**" group, then press the ***left side*** [**DIAL**] knob.
3. Rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E15 BEACON TX**", then press the ***left side*** [**DIAL**] knob to enable selection of this Set Mode item.

4. Press the ***left side*** [**DIAL**] knob, then rotate the ***left side*** [**DIAL**] knob to select the "**2 INTERVAL**" category.
5. Rotate the ***left side*** [**DIAL**] knob to select the desire interval time. Available selections are 30sec, 1min, 2min, 3min, 5min, 10min, 15min, 20min, 30min, and 60min (Default: 5min).
6. Press the ***left side*** [**DIAL**] knob to save the new setting, then press the [**ESC**] key ***three times*** to exit from Set Mode.

IMPORTANT NOTE:

When you operate the APRS beacon on a Base station, set the "**DECAY**" function to "OFF" via the Set Mode item "**E15: BEACON TX**" in the "**APRS/PKT**" group. If "**DECAY**" is on, the preset beacon interval time will be extended automatically. See page 72 for details.

ADVICE:

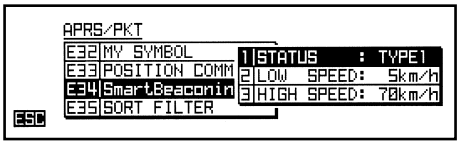
- The interval timer starts when the above setting procedure is completed. When the timer reaches the set time, the APRS beacon transmits automatically.
- You may transmit the APRS beacon manually by pressing the [**B-TX**] key, even if the transceiver is in automatic mode. The interval timer is reset after pressing the [**B-TX**] key.
- The transceiver does not transmit the APRS beacon when the squelch is open, even if the interval timer is expired. When you close the squelch, the transceiver will transmit the APRS beacon.

OPTIONAL SETTINGS

SmartBeaconing™ SETTINGS

The transceiver Set Mode item "**E34 SmartBeaconing**" is set to "TYPE1" as default, this setting is suitable for mobile operation. We recommend using this default setting.

1. Press the [**SET**] key to enter the Set Mode.
2. Rotate the ***left side*** [**DIAL**] knob to select "**APRS/PKT**" group, then press the ***left side*** [**DIAL**] knob.
3. Rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E34 SmartBeaconing**", then press the ***left side*** [**DIAL**] knob to enable selection of this Set Mode item.



4. Rotate the ***left side*** [**DIAL**] knob to select the "**1 STATUS**" category, then press the ***left side*** [**DIAL**] knob.
5. Rotate the ***left side*** [**DIAL**] knob to select "**TYPE1**", then press the ***left side*** [**DIAL**] knob to save the new setting.
6. Press the [**ESC**] key, then rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E15 BEACON TX**".
7. Press the ***left side*** [**DIAL**] knob to enable selection of this Set Mode item.

8. Rotate the ***left side*** [**DIAL**] knob to select the "**1 AUTO**" category, then press the ***left side*** [**DIAL**] knob.
9. Rotate the ***left side*** [**DIAL**] knob to select "**SMART**", then press the ***left side*** [**DIAL**] knob to save the new setting.
10. Press the [**ESC**] key ***three times*** to exit from Set Mode.

※: SmartBeaconing™ is an algorithm created by Tony Arnerich KD7TA and Steve Bragg KA9MVA of HamHUD for adjusting the transmit rate using the speed and heading changes of the vehicle.
Visit www.hamhud.net for more information about SmartBeaconing™ .

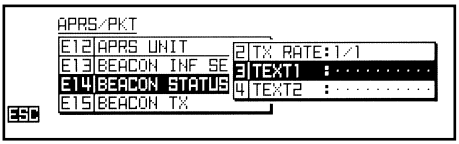
TRANSMIT AN APRS® BEACON

OPTIONAL SETTINGS

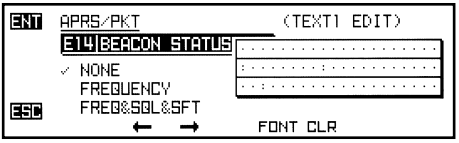
STATUS TEXT

You may store five Status Text Messages (up to 60 characters for each memory), and you may transmit one of these Status Text Messages with the APRS beacon.

1. Press the [**SET**] key to enter the Set Mode.
2. Rotate the ***left side*** [**DIAL**] knob to select "**APRS/PKT**" group, then press the ***left side*** [**DIAL**] knob.
3. Rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E14 BEACON STATUS TXT**", then press the ***left side*** [**DIAL**] knob to enable selection of this Set Mode item.



4. Rotate the ***left side*** [**DIAL**] knob to select the Status Text Resister ("**3: TEXT 1**" through "**7: TEXT 5**") you wish to store the text message to.
5. Press the ***left side*** [**DIAL**] knob, then rotate the ***left side*** [**DIAL**] knob to select additional text to add to your message.



NONE: There is no additional information in your comment.

FREQUENCY: Appends the opposite band frequency data of the APRS operation band into your comment.

FREQ&SQL&SFT: Appends the opposite band frequency data of the APRS operation band, sub audio information (squelch type and its tone frequency/code), and repeater shift frequency data into your comment.

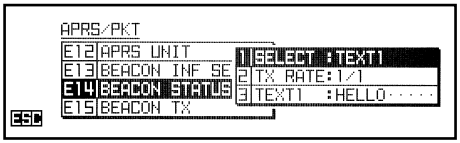
6. Press the ***left side*** [**DIAL**] knob, then enter the desired comment (up to 60 characters) using the following examples.

   Example 1: Rotate the ***left side*** [**DIAL**] knob to select a character/number, and press the [←] or [→] key to move the cursor forward or backward. You may change the character (capital alphabet, small alphabet, numeric, and symbol) by pressing the [**FONT**] key, and press the [**CLR**] key to delete all data after the cursor.

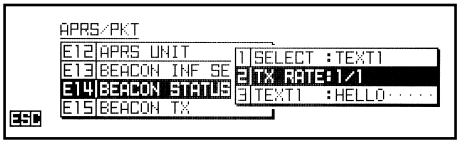
   Example 2: Press one of the microphone keypad buttons.
   - [**UP**] key: Move cursor forward
   - [**DWN**] key: Move cursor backward
   - [**A**] key: delete the current data
   - [**B**] key: add the data
   - [**C**] key: delete all data after the cursor

7. When you have completed your entry, press the [**ENT**] key to save your message.

OPTIONAL SETTINGS



8. Rotate the ***left side*** [**DIAL**] knob to select "**1: SELECT**" item, then press the ***left side*** [**DIAL**] knob.
9. Rotate the ***left side*** [**DIAL**] knob to select the Status Text register ("**TEXT 1**" through "**TEXT 5**") you wish to send, then press the ***left side*** [**DIAL**] knob.



10. Rotate the ***left side*** [**DIAL**] knob to select the "**2: TX RATE**" item, then press the ***left side*** [**DIAL**] knob.
11. Rotate the ***left side*** [**DIAL**] knob to select the rate you want to transmit your Status Text ("**1/1**" ~ "**1/8**" and "**1/2(FREQ)**" ~ "**1/8(FREQ)**").

"**1/1**" ~ "**1/8**": Transmits the Status Text at the designated rate ("1/1" (every time) ~ "1/8" (once in eight times)) when the APRS Beacon is transmitted.

"**1/2(FREQ)**" ~ "**1/8(FREQ)**": Transmits the Status Text at the designated rate ("1/2" (once in two times) ~ "1/8" (once in eight times)) when the APRS Beacon is transmitted. However, the frequency data of the band opposite the APRS band (QSY), the sub audio information (squelch type and its tone frequency/code), and the repeater shift frequency data are included each time the APRS Beacon is transmitted according this selection.

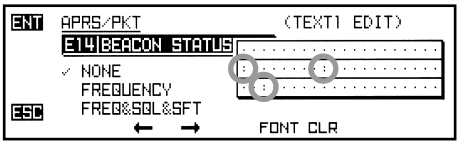
13. Press the ***left side*** [**DIAL**] knob to save the new setting, then press the [**ESC**] key several times to exit from Set Mode.

When the APRS beacon transmits, the Status Text is transmitted with the APRS beacon.

AVAILABLE CHARACTERS

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

A colon (:) is displayed on the 21, 29, and 43 spaces in the comment box. If the comment is longer than a colon position, some transceivers cannot display the entire comment. We recommended that the status comments be as short as possible.

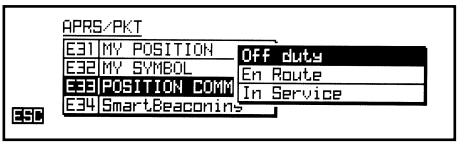


OPTIONAL SETTINGS

POSITION COMMENT

This column selects the "Position Comment" (fixed form message) which is included in the APRS beacon.

1. Press the [**SET**] key to enter the Set Mode.
2. Rotate the ***left side*** [**DIAL**] knob to select "**APRS/PKT**" group, then press the ***left side*** [**DIAL**] knob.
3. Rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E33 POSITION COMMENT**", then press the ***left side*** [**DIAL**] knob to enable selection of this Set Mode item.



4. Rotate the ***left side*** [**DIAL**] knob to select the desired Position Comment. Available selections are: Off Duty, En Route, In Service, Returning, Committed, Special, Priority, Custom 0 ~ Custom 6, and EMERGENCY!.
   When selecting the "EMERGENCY!" item, a specific alert ringer (x 3 times) is heard and the confirmation message "**[OK?]**" is displayed.
   Important Note: Only set this item to "EMERGENCY" when urgent help is needed, such as an accident or a disaster.
5. Press the ***left side*** [**DIAL**] knob to save the new setting, then press the [**ESC**] key two times to exit from Set Mode.

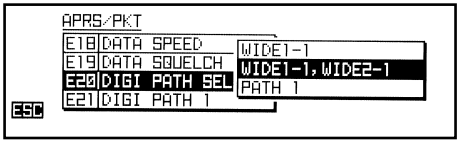
OPTIONAL SETTINGS

DIGIPEATER ROUTE

The **FTM-350** Series transceiver allows you to set up to eight digipeaters for the APRS Packet Path.

The **FTM-350** Series transceiver is preset to "WIDE1-1" and "WIDE1-1, WIDE2-1" digipath to insure that your transmitted APRS Beacon is repeated by the new-N paradigm digipeaters. We recommend that you use this setting by default.

1. Press the [**SET**] key to enter the Set Mode.
2. Rotate the ***left side*** [**DIAL**] knob to select "**APRS/PKT**" group, then press the ***left side*** [**DIAL**] knob.
3. Rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E20 DIGI PATH SELECT**", then press the ***left side*** [**DIAL**] knob to enable selection of this Set Mode item.
4. Rotate the ***left side*** [**DIAL**] knob to select the desired Path Route.
5. Press the ***left side*** [**DIAL**] knob to save the new setting, then press the [**ESC**] key two times to exit from Set Mode.



ADVICE:

- The default setting (WIDE1-1, WIDE2 -1) is the value assumed for the popular New-N Paradigm system that is most often used. The first digipeater relays the APRS signal according to the setting of the WIDE1-1, and then the second digipeater relays the APRS signal according to setting of the WIDE2-1. Visit the http://www.aprs.org/fix14439.html website to learn more about the new-N paradigm system (APRS and digipeater path settings).
- If you want to use another repeating system, select the desired pass route (PATH 1 - PATH 4, FULL 1, or FULL 2), then input the Callsign or Alias of that digipeater (refer to the next chapter).

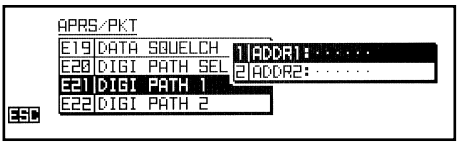
OPTIONAL SETTINGS

DIGIPEATER ROUTE (ADDRESS SETTING)

When selecting a Path Route (PATH 1 - PATH 4, FULL 1, or FULL 2) on Set Mode item "**E20 DIGI PATH SELECT**", you must input the Callsign or Alias of that digipeater via Set Mode items "**E21 DIGI PATH 1**" - "**E24 DIGI PATH 4**", "**E25 DIGI PATH FULL 1**", and "**E26 DIGI PATH FULL 2**". Set Mode items "**E21 DIGI PATH 1**" - "**E24 DIGI PATH 4**" enable you to input up to two Callsign or Alias. Set Mode items "**E25 DIGI PATH FULL 1**" and "**E26 DIGI PATH FULL 2**" enable you to input up to eight Callsign or Alias.

For example, input the Callsign into the Set Mode item "**E21 DIGI PATH 1**".

1. Press the [**SET**] key to enter the Set Mode.
2. Rotate the ***left side*** [**DIAL**] knob to select "**APRS/PKT**" group, then press the ***left side*** [**DIAL**] knob.
3. Rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E21 DIGI PATH 1**", then press the ***left side*** [**DIAL**] knob to enable selection of this Set Mode item.



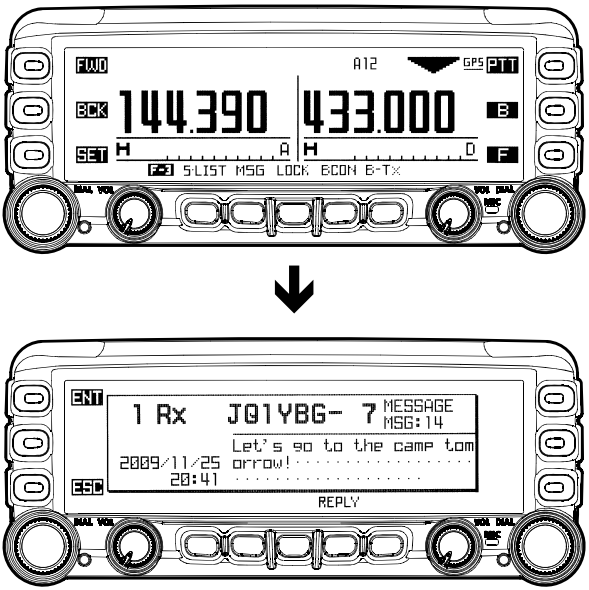
4. Rotate the ***left side*** [**DIAL**] knob to select "**1 ADDR1:**" item, then press the ***left side*** [**DIAL**] knob.
5. Input the callsign and SSID of the digipeater which you wish to path through by using the ***left side*** [**DIAL**] knob (select the number/character) and [←] / [→] key (to move the cursor).
6. Press the ***left side*** [**DIAL**] knob to save the new setting, then press the [**ESC**] key three times to exit from Set Mode.

NOTE

RECEIVING AN APRS® MESSAGE

GENERAL

When an APRS Message is received, the "APRS Message" pop-up window opens and an APRS alert beep ( ) is heard. The "APRS Message" pop-up window closes automatically after ten seconds.



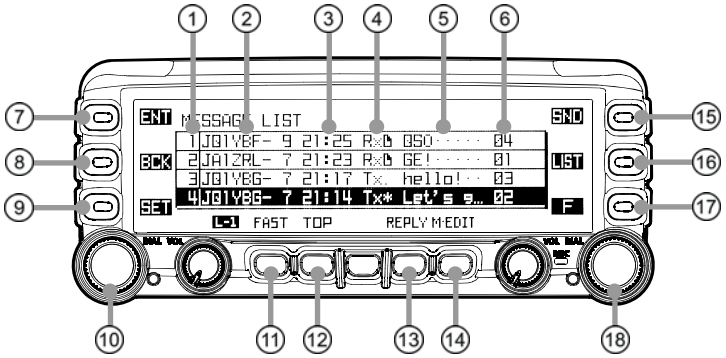
ADVICE:

- The "APRS Message" pop-up window closes automatically after ten seconds. You may change the time duration the "APRS Message" pop-up window remains open, via Set Mode item "**E07 APRS POPUP**" in the "**APRS/PKT**" group.
- You may change the LCD backlight color of the open "APRS Message" pop-up window via Set Mode item "**E08 APRS POPUP COLOR**" in the "**APRS/PKT**" group.

RECEIVING AN APRS® MESSAGE

DISPLAY & SWITCHES

If necessary, press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key's category changes to "**F-3**" mode, then press the [**MSG**] key to open the "Message List" window. The **FTM-350** Series transceiver enables you to store up to 100 messages into the "Message" list.



DISPLAY

①	List Number	Indicates the list number of the received APRS Message.
②	Station Name	Indicates the Callsign of the received APRS Message.
③	Date	Indicates the time (or date) when the radio received an APRS Message. • If a message is received/transmitted on the previous day or before, the time indication turns into the date. • Indicates the time in 24-hour format regardless of the setting of Set Mode item "I02 DATA & TIME FORMAT" in the "TIMER/CLOCK" group.
④	RX / TX	RX: Indicates the received APRS Message (A "📩" icon appears on an unread message). TX: Indicates the transmitted APRS Message and indicates its remaining number of transmissions of the message.
⑤	Message Text	Indicates the beginning part of the received / transmitted APRS Message.
⑥	Message Number / Type	Indicates the Message Number or Message Type.

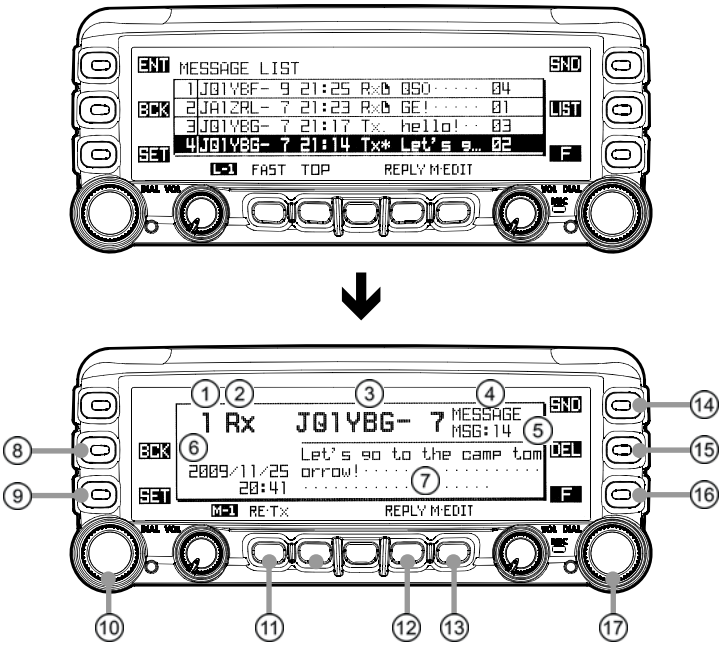
KEY FUNCTION

⑦	ENT	Jump to the "APRS Message" data window.
⑧	BCK	Close the "Message List" window.
⑨	SET	Access the Set Mode (APRS/PKT group).
⑩	DIAL (Left)	Rotate this knob to scroll through the received / transmitted information. Press this knob to jump to the "APRS Message" data window.
⑪	L-1 FAST	Enables scrolling of the station list using a fast stepping rate (4 rows/click).
	L-2 TXCLR	Clears the remaining number of transmissions of the APRS message (Cancel the transmission of the APRS message).
⑫	L-1 TOP	Jump to the top column of the Message List.
	L-2 UnREAD	Toggle the unread flag "on" and "off".
⑬	L-1 REPLY	Jump to the "TX MESSAGE EDIT" window (Reply operation).
	L-2 QUERY	Jump to the "TX MESSAGE EDIT" window with Query command.
⑭	L-1 M•EDIT	Jump to the "TX MESSAGE EDIT" window.
	L-2 POS	Displays the beacon information of the selected station.
⑮	SND	Transmit the APRS Message.
⑯	L-1 LIST	Jump to the "Station List" window.
	L-2 DEL	Deletes the currently displayed Message.
⑰	F	Changes the [SMART FUNCTION] key's category (L-1 and L-2).
⑱	DIAL (Right)	Press this knob to announce the call sign and the selected message. Press this knob again to stop the announcement.

RECEIVING AN APRS® MESSAGE

DISPLAY & SWITCHES

Press the [**ENT**] key on the "Message List" window to open the "APRS Message" data window.



DISPLAY

①	List Number	Indicates the list number of the received / transmitted APRS Message.
②	RX / TX	RX: Indicates the received APRS Message. TX: Indicates the transmitted APRS Message and indicates its remaining number of transmissions of the message.
③	Station Name	Indicates the Callsign of the received (or transmitted) APRS Message.
④	Message Type	Indicates the Message Type of the received / transmitted APRS Message.
⑤	Message Number	Indicates the Message Number (or Group / Bulletin Name) of the received / transmitted APRS Message.
⑥	Date / Time	Indicates the date and time when the radio received (or transmitted) an APRS Message. • Indicates the time in 24-hour format regardless of the setting of Set Mode item "I02 DATA & TIME FORMAT" in the "TIMER/CLOCK" group.
⑦	Message Text	Indicates the APRS Message.

DISPLAY & SWITCHES

KEY FUNCTION

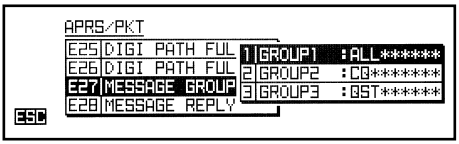
⑧	BCK	Close the "Message List" window.
⑨	SET	Access the Set Mode (APRS/PKT group).
⑩	DIAL (Left)	Press this knob (a small "LIST" icon appears at the bottom left of the display), then rotate this knob to select the received / transmitted APRS Message.
⑪	M-1 RE•TX	Resends the APRS Message.
	M-2 RAW	Displays the "Raw" data of the APRS message.
⑫	M-1 REPLY	Jump to the "TX MESSAGE EDIT" window (Reply operation).
	M-2 QUERY	Jump to the "TX MESSAGE EDIT" window with Query command.
⑬	M-1 M•EDIT	Jump to the "TX MESSAGE EDIT" window.
	M-2 POS	Displays the beacon information of the selected station.
⑭	SND	Transmit the APRS Message.
⑮	DEL	Deletes the currently displayed Message.
⑯	F	Changes the [SMART FUNCTION] key's category (M-1 and M-2).
⑰	DIAL (Right)	Press this knob to announce a call sign and a message in the selected message. Press this knob again to stop the announcement.

RECEIVING AN APRS® MESSAGE

MESSAGE GROUP SETTINGS

The Message group option allows you to choose to receive only specific types of message information.

1. Press the [**SET**] key to enter the Set Mode.
2. Rotate the ***left side*** [**DIAL**] knob to select "**APRS/PKT**" group, then press the ***left side*** [**DIAL**] knob.
3. Rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E27 MESSAGE GROUP**", then press the ***left side*** [**DIAL**] knob to enable modification of this Set Mode item.



4. Rotate the ***left side*** [**DIAL**] knob to select the "group" you wish to utilize (**GROUP1: ALL∗∗∗∗∗∗**, **GROUP2: CQ∗∗∗∗∗∗∗**, **GROUP3: QST∗∗∗∗∗∗**, or **GROUP4: YAESU∗∗∗∗**).
   Note: "**∗**" is a wild card indicating any received character will be accepted in that slot.
5. If you add a new message group code and/or bulletin group code, select "**GROUP5**", "**GROUP6**" (for message group code), "**BULLETN1: BLN?∗∗∗∗∗**", "**BULLETN2: BLN?**" or "**BULLETN3: BLN?**" (for bulletin group code) by rotating the ***left side*** [**DIAL**] knob, then press the ***left side*** [**DIAL**] knob.
6. Use the [←] / [→] key to navigate to each column, then use the ***left side*** [**DIAL**] knob to select the desired characters/numbers in each column.
7. Repeat for each column to complete the message (up to 9 characters) or bulletin (up to 5 characters).
8. When you have completed your selection, press the [**ENT**] key to save the new setting, then press the [**ESC**] key several times to exit from Set Mode.

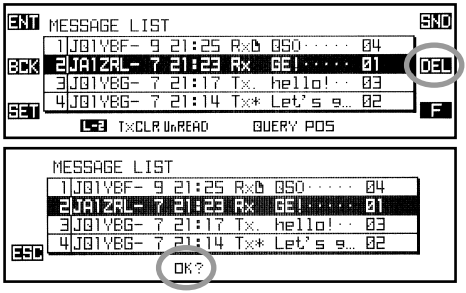
ADVICE:

- The **FTM-350** Series transceiver receives the message when the callsign matches even if the SSID is different. However, the acknowledgment signal does not transmit if the SSID does not match.
- You may disable the audio output of the "APRS Operation Band" during APRS operation via Set Mode item "**E06 APRS MUTE**" in the "**APRS/PKT**" group.
- You may change the time when a APRS Message pop-up window is closed via Set Mode item "**E07 APRS POPUP**" in the "**APRS/PKT**" group.
- You may select an audible alert ringer when an APRS Message is received via Set Mode item "**4 RX MESSAGE**" of the "**E09 APRS RINGER**" in the "**APRS/PKT**" group.

DELETING A RECEIVED MESSAGE FROM THE "MESSAGE LIST"

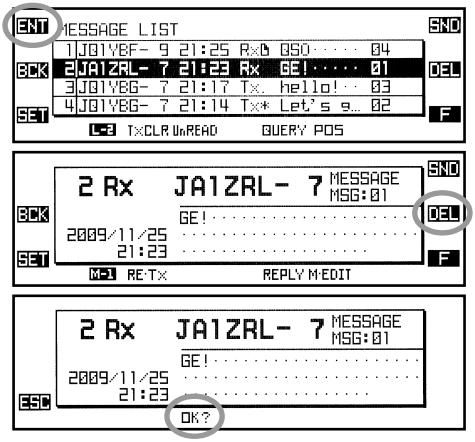
FROM THE "MESSAGE LIST" WINDOW

1. If necessary, press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key category changes to "**F-3**" mode, then press the [**MSG**] key to open the "Message List" window.
2. Rotate the ***left side*** [**DIAL**] knob to select the message to be deleted.
3. Press the [**F**] key, if needed, to change the [**SMART FUNCTION**] key category to "**L-2**" mode.
4. Press the [**DEL**] key, then press the [**OK?**] key to delete the selected message from the "Message List".



FROM THE "APRS MESSAGE DATA" WINDOW

1. If necessary, press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key category changes to "**F-3**" mode, then press the [**MSG**] key to open the "Message List" window.
2. Rotate the ***left side*** [**DIAL**] knob to select the message to be deleted.
3. Press the [**ENT**] key to display the received message, then confirm that you really want to erase this message.
4. Press the [**DEL**] key, then press the [**OK?**] key to delete the selected message from the "Message List".



The **FTM-350** Series transceiver allows you to store up to 100 messages into the "Message" list.

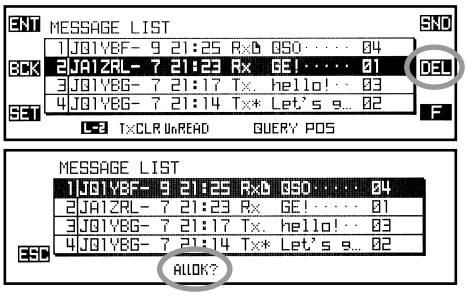
When the Message list becomes full (100 messages), and a new message is received, the oldest message (highest number) is deleted from the Message list, and the new message is stored into the Message list (lowest number) (first-in, first-out mode).

RECEIVING AN APRS® MESSAGE

DELETING A RECEIVED MESSAGE FROM THE "MESSAGE LIST"

DELETING ALL RECEIVED MESSAGES FROM THE "MESSAGE LIST"

1. If necessary, press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key category changes to "**F-3**" mode, then press the [**MSG**] key to open the "Message List" window.
2. Press the [**F**] key, if needed, to change the [**SMART FUNCTION**] key category to "**L-2**" mode.
3. Press and hold in the [**DEL**] key for two seconds, then press the [**ALLOK?**] key to delete all messages from the "Message List".

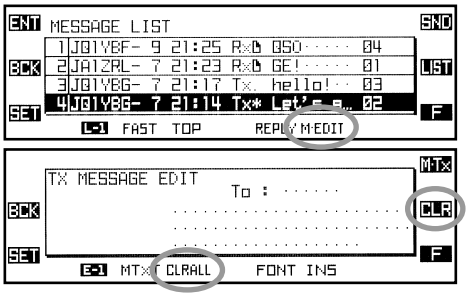


NOTE

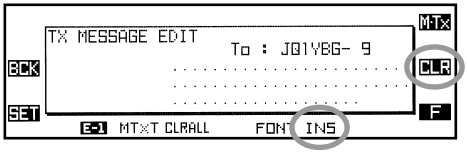
TRANSMIT AN APRS® MESSAGE

GENERAL

1. If necessary, press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key category changes to "**F-3**" mode.
2. Press the [**MSG**] key to open the "Message List" window.
3. Press the [**F**] key, if needed, to change the [**SMART FUNCTION**] key's category to "**L-1**" mode.
4. Press the [**M•EDIT**] key to enter the "TX Message Edit" mode.
5. Press and hold the [**CLR**] key for two seconds to clear any previously stored callsign, if necessary.
   You may clear all data (callsign (with SSID) and message) by pressing the [**CLRALL**] key.



6. Enter the callsign (with SSID) of the station you wish to contact using the following examples.
   Example 1: Rotate the ***left side*** [**DIAL**] knob to select a character/number and rotate the ***right side*** [**DIAL**] knob to move the cursor.
   Example 2: Press the [**INS**] key to add a character, and press the [**CLR**] key to delete the current character.
   Example 3: Press the microphone keypad buttons. See chart below for detail of each keypad button.



7. When you have completed entering the callsign (with SSID), press the microphone [**UP**] key or rotate the ***right side*** [**DIAL**] knob one click to clockwise.
8. Press and hold the [**CLR**] key for two seconds to clear any previous messages, if necessary.

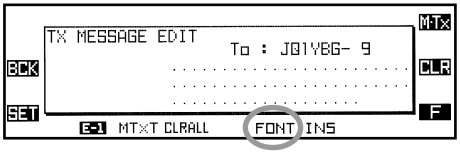
MH-48A6JA KEYPAD FUNCTION

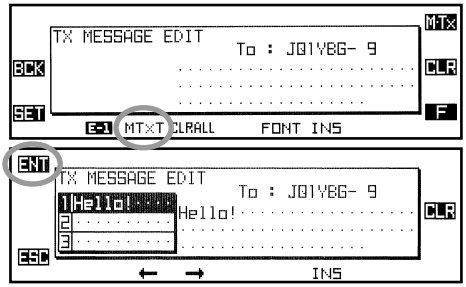
KEY	CHARACTER	KEY	FUNCTION
1	1	✱※1	Increment the character.
2	a b c 2 A B C	**A**	Delete the current character.
3	d e f 3 D E F	**B**	Insert a space.
4	g h i 4 G H I	**C**	Delete all characters after the cursor.
5	j k l 5 J K L	**D**	Transmit the message
6	m n o 6 M N O	DWN	Moves the cursor backward.
7	p q r s 7 P Q R S	**UP**	Moves the cursor to the next digit.
8	t u v 8 T U V	**P1**	Recall the previously stored message.
9	w x y z 9 W X Y Z	**P2**	Starts/Stops the announcement of the callsign and message.
0	0 (Space) – % / ? ! . : #		
#※2	%※3	**P3/P4**	No Action.

※1: Increments the number while entering the SSID.
※2: Decrements the number while entering the SSID.
※3: Enabled only for the first letter at the beginning of the message (For optional **FVS-2** Voice Guide Unit).

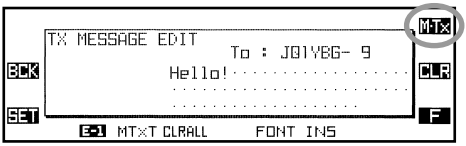
GENERAL

9. Enter the message using the same procedures as described previously. Additionally, you may select/add/delete the characters/message using the following procedure:
   a. Press the [**FONT**] key to change the character (upper-case alphabet, lower-case alphabet, numeric, and symbol).
   b. If you want to add a previously stored message (select a message from the list stored via Set Mode item "**E04 APRS MESSAGE TEXT**" in the "**APRS/PKT**" group; see page 57 for programming):
      1) Press the [**MTXT**] key to open the "MESSAGE TEXT" window.
      2) Rotate the ***left side*** [**DIAL**] knob to select the desired previously stored message, or press the microphone key corresponding to the message bank number (1 ~ 8) of a previously stored message.
      2) Press the [**ENT**] key to insert the message, then press the [**ESC**] key to close the window.

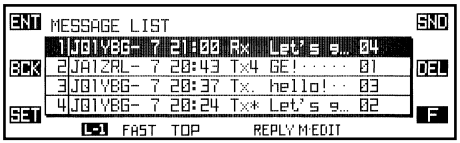




10. When the message entry is complete, press the [**M•TX**] key to transmit the message and return to the normal operation display. The transmitted message is stored into the "Message List".



11. The APRS message is transmitted repeatedly, up to five times, once each minute until an acknowledgment packet ("ack") is received. If an acknowledgment packet ("ack") is received, the beeper will sound and the "✱" icon will appear on the display.



12. Each time the APRS message is transmitted repeatedly, the remaining number of transmissions of the message is shown on the display. If there is no acknowledgment packet ("ack"), even after the message transmits five times, the "**.**" (period) icon will appear on the "Message List" window, (Or, the "TXOUT" notation will appear on the Message data window) instead of the remaining number of transmissions.

AVAILABLE CHARACTERS

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

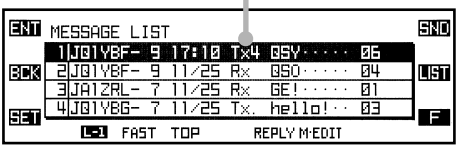
TRANSMIT AN APRS® MESSAGE

RECEIVING AN ACKNOWLEDGMENT

The APRS message is transmitted repeatedly, up to five times, once each minute until an acknowledgment packet ("ack") is received. If an acknowledgment packet ("ack") is received, the beeper will sound and the "✱" icon will appear on the display.

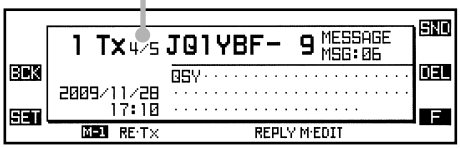
Each time the APRS message is repeated, the remaining number of transmissions of the message is shown on the display. If there is no acknowledgment packet ("ack"), even after the message transmits five times, the "**.**" (period) icon will appear on the "Message List" window, (Or, the "TXOUT" notation will appear on the "APRS Message" pop-up window) instead of the remaining number of transmissions.

"**Txn**": Remaining number of transmissions.
"**Tx✱**": Acknowledgment ("ack") is received.
"**Tx.**": TX Out.



"MESSAGE LIST" WINDOW

"**n/5**": Remaining number of transmissions.
"**No icon**": Acknowledgment ("ack") is received.
"**OUT**": TX Out.

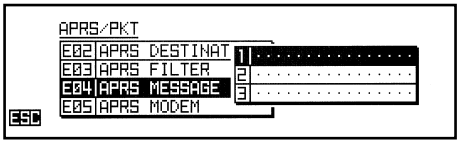


"APRS MESSAGE" DATA WINDOW

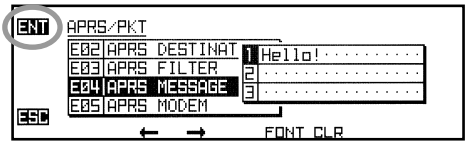
STORE A FIXED FORM MESSAGE

The **FTM-350** Series transceiver allows you to store eight fixed form messages (up to 16 characters for each message).

1. Press the [**SET**] key to enter the Set Mode.
2. Rotate the ***left side*** [**DIAL**] knob to select "**APRS/PKT**" group, then press the ***left side*** [**DIAL**] knob.
3. Rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E04 APRS MESSAGE TXT**", then press the ***left side*** [**DIAL**] knob to enable modification of this Set Mode item.



4. Rotate the ***left side*** [**DIAL**] knob to select the Message register (1 - 8) where you wish to store a message.
5. Press the ***left side*** [**DIAL**] knob to begin message entry into the selected register.
6. Enter the message using the same procedure as described previously.
7. When you have completed your message entry, press the [**ENT**] key to save the new setting, then press the [**ESC**] key several times to exit from Set Mode.



AVAILABLE CHARACTERS

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

MH-48A6JA KEYPAD FUNCTION

KEY	CHARACTER	KEY	FUNCTION
1	1	✱※1	Increment the character.
2	a b c 2 A B C	**A**	Delete the current character.
3	d e f 3 D E F	**B**	Insert a space.
4	g h i 4 G H I	**C**	Delete all characters after the cursor.
5	j k l 5 J K L	**D**	Save the message.
6	m n o 6 M N O	DWN	Moves the cursor backward.
7	p q r s 7 P Q R S	**UP**	Moves the cursor to the next digit.
8	t u v 8 T U V	**P1**	Programmable key action.
9	w x y z 9 W X Y Z	**P2**	Programmable key action.
0	0 (Space) – % / ? ! . : #	**P3**	Programmable key action.
#※2	%※3	**P4**	Programmable key action.

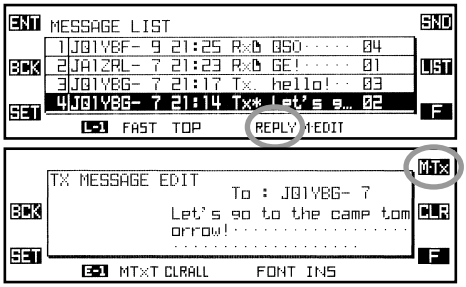
※1: Increments the SSID number while entering the SSID number.
※2: Decrements the SSID number while entering the SSID number.
※3: Enabled only for the first letter at the beginning of the message.

TRANSMIT AN APRS® MESSAGE

APRS MESSAGE REPLYING

You may reply to another stations received massage manually. To do this:

1. If necessary, press the [**F**] key repeatedly, until the [**SMART FUNCTION**] keys category changes to "**F-3**" mode.
2. Press the [**MSG**] key to open the "Message List" window.
3. Rotate the ***left side*** [**DIAL**] knob to select the station you wish to reply to.
4. Press the [**REPLY**] key to open the "TX Message Edit" window.
5. Enter the message using the same procedures as described at step 9 of the "General" chapter, if needed.
6. Press the [**M•TX**] key to transmit the reply message to the selected station.



APRS MESSAGE REPLYING

AUTOMATIC MESSAGE REPLYING

You may transmit a reply message which was programmed beforehand automatically when the transceiver receives a message (Factory default: The transceiver transmits reply to all received messages).

1. Press the [**SET**] key to enter the Set Mode.
2. Rotate the ***left side*** [**DIAL**] knob to select "**APRS/PKT**" group, then press the ***left side*** [**DIAL**] knob.
3. Rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E28 MESSAGE REPLY**", then press the ***left side*** [**DIAL**] knob to enable modification of this Set Mode item.

4. Rotate the ***left side*** [**DIAL**] knob to select "**1: REPLY**" item, then press the ***left side*** [**DIAL**] knob.
5. Rotate the ***left side*** [**DIAL**] knob to select "**ON**", then press the ***left side*** [**DIAL**] knob to save the new setting.
6. Rotate the ***left side*** [**DIAL**] knob to select "**2: CALLSIGN**" item, then press the ***left side*** [**DIAL**] knob.
7. Program the Callsign and SSID of the station you wish to reply to using the same procedure as described previously.
8. Rotate the ***left side*** [**DIAL**] knob to select "**3: TEXT**" item, then press the ***left side*** [**DIAL**] knob.
9. Program the message for the station you wish to reply to using the same procedure as described previously.
10. When you have completed your setting, press the [**ENT**] key to save the new setting, then press the [**ESC**] key **three times** to exit from Set Mode.

APRS/PKT SET MODE

SET MODE ITEM	FUNCTION	AVAILABLE VALUES (DEFAULT: BOLD)
E01 APRS COMPASS	Selects the compass display heading	NORTH UP / HEADING UP
E02 APRS DESTINATION	Displays the model code of this transceiver.	APY350 (Fixed)
E03 APRS FILTER	Selects the filter type option allowing you to receive only specified types of APRS beacon data.	1 Mic-E: ON / OFF 2 POSITION: ON / OFF 3 WEATHER: ON / OFF 4 OBJECT: ON / OFF 5 ITEM: ON / OFF 6 STATUS: ON / OFF 7 OTHER: ON / OFF 8 RANGE LIMIT: OFF / 1-3000 9 ALTNET: ON / OFF
E04 APRS MESSAGE TXT	Programming a fixed form APRS message.	8 messages (up to 16 characters)
E05 APRS MODEM	Enables/Disables the APRS modem.	ON / OFF
E06 APRS MUTE	Enables/Disables the AF mute function on the APRS band.	ON /OFF
E07 APRS POPUP	Sets the timer parameter of the pop-up window.	1 BEACON: OFF / 1 ~ 10 ~ 30sec / CONTINUOUS 2 MESSAGE: OFF / 1 ~ 10 ~ 30sec / CONTINUOUS 3 MY PKT: ON / OFF
E08 APRS POPUP COLOR	Sets the backlight color of the pop-up window.	1 BEACON: OFF / LCD COLOR / WHT-BLUE / SKY-BLUE / MRN-BLUE / GREEN / YLW-GREEN / ORANGE / AMBER / WHITE 2 MOBILE: OFF / LCD COLOR / WHT-BLUE / SKY-BLUE / MRN-BLUE / GREEN / YLW-GREEN / ORANGE / AMBER / WHITE 3 OBJ/ITEM: OFF / LCD COLOR / WHT-BLUE / SKY-BLUE / MRN-BLUE / GREEN / YLW-GREEN / ORANGE / AMBER / WHITE 4 CAL RNG: OFF / LCD COLOR / WHT-BLUE / SKY-BLUE / MRN-BLUE / GREEN / YLW-GREEN / ORANGE / AMBER / WHITE 5 CAL RNG: OFF / LCD COLOR / WHT-BLUE / SKY-BLUE / MRN-BLUE / GREEN / YLW-GREEN / ORANGE / AMBER / WHITE 6 MESSAGE: OFF / LCD COLOR / WHT-BLUE / SKY-BLUE / MRN-BLUE / GREEN / YLW-GREEN / ORANGE / AMBER / WHITE 7 GRP/BULT: OFF / LCD COLOR / WHT-BLUE / SKY-BLUE / MRN-BLUE / GREEN / YLW-GREEN / ORANGE / AMBER / WHITE 8 MY PKT: OFF / LCD COLOR / WHT-BLUE / SKY-BLUE / MRN-BLUE / GREEN / YLW-GREEN / ORANGE / AMBER / WHITE

SET MODE ITEM	FUNCTION	AVAILABLE VALUES (DEFAULT: BOLD)
E09 APRS RINGER	Enables/Disables the alert ringer while APRS operation.	1 TX BEACON: ON / OFF 2 TX MESSAGE: ON / OFF 3 RX BEACON: ON / OFF 4 RX MESSAGE: ON / OFF 5 MY PACKET: ON / OFF 6 CALL RINGER: ON / OFF 7 RNG RINGER: OFF / 1 ~ 100 8 MSG VOICE: ON / OFF
E10 APRS RINGER (CALL)	Call Sign register for the "CALL RINGER" function.	8 stations (6 characters plus SSID)
E11 APRS TXDELAY	Select the transmission delay time between transmitting the APRS data and transmitting a preamble (flag code) prior to APRS data.	100ms / 150ms / 200ms / **250ms** / 300ms / 400ms / 500ms / 750ms / 1000ms
E12 APRS UNITS	Selects the unit for APRS beacon information.	1 POSITION: .mm' / ' ss" 2 DISTANCE: km / mile 3 SPEED: km/h / knot / mph 4 ALTITUDE: m / ft 5 BARO: hPa / mb / mmHb / inHb 6 TEMP: °C / °F 7 RAIN: mm / inch 8 WIND: m/s / mph / knot The default value depends on the transceiver version.
E13 BEACON INF SELECT	Sets the information of the TX Beacon.	1 AMBIGUITY: **OFF** / 1digit / 2digits / 3digits / 4digits 2 SPD/CSE: ON / OFF 3 ALTITUDE: ON / OFF
E14 BEACON STATUS TXT	Store the status text for the APRS Beacon.	1 SELECT: **OFF** / TEXT 1 ~ TEXT 5 2 TX RATE: **1/1** ~ 1/8 / 1/2 (FREQ) ~ 1/8 (FREQ) 3 TEXT 1: (up to 60 characters) 4 TEXT 2: (up to 60 characters) 5 TEXT 3: (up to 60 characters) 6 TEXT 4: (up to 60 characters) 7 TEXT 5: (up to 60 characters)
E15 BEACON TX	Enables/Disables the automatic transmission of the APRS Beacon.	1 AUTO: OFF / ON / SMART 2 INTERVAL: 30sec / 1min / 2min / 3min / **5min** / 10min / 15min / 20min / 30min / 60min 3 PROPORTIONAL: ON / OFF 4 DECAY: ON / OFF 5 LOW SPEED: 1 ~ 3 ~ 99 6 RATE LIMIT: 5sec ~ **30sec** ~ 180 sec

APRS/PKT SET MODE

SET MODE ITEM	FUNCTION	AVAILABLE VALUES (DEFAULT: BOLD)
E16 COM PORT SETTING	Sets the COM port setting.	1 SPEED: 4800bps / **9600bps** / 19200bps 2 OUTPUT: **OFF** / GPS OUT / PACKET / WAYPOINT 3 INPUT: **OFF** / GPS IN 4 WP FORMAT: **NMEA9** / NMEA8 / NMEA7 / NMEA6 5 WP FILTER: **ALL** / MOBILE / FREQ / OBJ/ITEM / DIGI / VOIP / WEATHER / YAESU / C RINGER / R RINGER
E17 DATA BAND SELECT	Selects the operating band for APRS and DATA operation.	1 APRS: MAIN BAND / SUB BAND / **L-BAND FIX** / R-BAND FIX / L=TX/R=RX / L=RX/R=TX 2 DATA: MAIN BAND / SUB BAND / L-BAND FIX / **R-BAND FIX** / L=TX/R=RX / L=RX/R=TX
E18 DATA SPEED	Selects the Baud Rate for APRS and DATA operation.	1 APRS: **1200 bps** / 9600 bps 2 DATA: **1200 bps** / 9600 bps
E19 DATA SQUELCH	Configure the Squelch settings for APRS, DATA and TX.	1 APRS: **RX BAND** / TX/RX BAND 2 DATA: **RX BAND** / TX/RX BAND 3 TX: **ON** / OFF
E20 DIGI PATH SELECT	Selects the APRS packet path you wish to path through.	OFF / WIDE1-1 / **WIDE1-1, WIDE2-1** / PATH1 / PATH2 / PATH3 / PATH4 / FULL1 / FULL2
E21 DIGI PATH 1	Sets the APRS packet path.	(up to 2 Digipeater Addresses)
E22 DIGI PATH 2	Sets the APRS packet path.	(up to 2 Digipeater Addresses)
E23 DIGI PATH 3	Sets the APRS packet path.	(up to 2 Digipeater Addresses)
E24 DIGI PATH 4	Sets the APRS packet path.	(up to 2 Digipeater Addresses)
E25 DIGI PATH FULL 1	Sets the APRS packet path.	(up to 8 Digipeater Addresses)
E26 DIGI PATH FULL 2	Sets the APRS packet path.	(up to 8 Digipeater Addresses)
E27 MESSAGE GROUP	Sets the filter type option allowing you to receive only specified types of APRS Group/Bulletin message information.	1 GROUP1: ALL****** 2 GROUP2: CQ******* 3 GROUP3: QST****** 4 GROUP4: YAESU**** 5 GROUP5: 6 GROUP6: 7 BULLETN1: BLN?***** 8 BULLETN2: BLN? 9 BULLETN3: BLN?
E28 MESSAGE REPLY	Enable/Disable the message reply feature, and program its details.	1 REPLY:ON / **OFF** 2 CALLSIGN: ****** - ** 3 TEXT:
E29 MY CALLSIGN	Program your callsign.	****** - NN

APRS/PKT SET MODE

SET MODE ITEM	FUNCTION	AVAILABLE VALUES (DEFAULT: BOLD)
E30 MY POSITION SET	Select your position to send by APRS.	GPS MANUAL P.LIST GRP1-POINT1 P.LIST GRP1-POINT2 P.LIST GRP1-POINT3 P.LIST GRP1-POINT4 P.LIST GRP2-POINT1 P.LIST GRP2-POINT2 P.LIST GRP2-POINT3 P.LIST GRP2-POINT4 P.LIST GRP3-POINT1 P.LIST GRP3-POINT2 P.LIST GRP3-POINT3 P.LIST GRP3-POINT4 P.LIST GRP4-POINT1 P.LIST GRP4-POINT2 P.LIST GRP4-POINT3 P.LIST GRP4-POINT4
E31 MY POSITION	Determine and memorize your location (Lat/Log).	POSITION DATA: NS°.' (' ") / EW°.' (' ")
E32 MY SYMBOL	Selects your icon which will be displayed on the monitor of other stations as you.	46 symbols
E33 POSITION COMMENT	Selects position comment depending on your situation.	**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!
E34 SmartBeaconing	Sets the SmartBeaconing™ feature. (SmartBeaconing™ from HamHUD Nichetronix)	1 STATUS: **OFF** / TYPE1 / TYPE2 / TYPE3 2 LOW SPEED: 2 ~ **5** ~ 30 3 HIGH SPEED: 3 ~ **70** 4 SLOW RATE: 1min ~ **30min** ~ 100min 5 FAST RATE: 10sec ~ **120sec** ~ 180sec 6 TURN ANGLE: 5° ~ **28°** ~ 90° 7 TURN SLOPE: 1 ~ **26** ~ 255 8 TURN TIME: 5sec ~ **30sec** ~ 180sec
E35 SORT FILTER	Selects the Sort method and Filter type.	1 SORT: **TIME** / CALLSIGN / DISTANCE 2 FILTER: **ALL** / MOBILE / FREQUENCY / OBJECT / ITEM / DIGIPEATER / VOIP / WEATHER / YAESU / OTHER PKT / CALL RINGER / RNG RINGER / 1200bps / 9600bps
E36 VOICE ALERT	Enables/disables the Voice Alert function.	1 V.ALERT: OFF, TONE SQL, DCS, RX-TSQL, or RX-DCS 2 TSQL: 50 standard CTCSS tones 100.0 Hz 3 DCS: 104 standard DCS codes 023

APRS/PKT SET MODE

E01: APRS COMPASS

Function: Selects the display format of the APRS compass.

Available Values: NORTH UP or HEADING UP

Default: NORTH UP

NORTH UP: The LCD displays the compass scale in the "North up" orientation and displays the beacon station with a "D" icon on the compass scale.

HEADING UP: The LCD displays the compass scale in the "Heading Up" orientation and displays the beacon station with a "D" icon on the compass scale.

E02: APRS DESTINATION

Function: Displays the model code of this transceiver.

Default: APY350 (This model code can not be changed.)

E03: APRS FILTER

Function: Selects the filter type option allowing you to receive only the specified types of APRS Beacon data.

Available Values:
1 Mic-E: OFF or ON
2 POSITION: OFF or ON
3 WEATHER: OFF or ON
4 OBJECT: OFF or ON
5 ITEM: OFF or ON
6 STATUS: OFF or ON
7 OTHER: OFF or ON
8 RANGE LIMIT: OFF, 1 ~ 10 (by one step), 20 ~ 3000 (by 10 steps)
The range unit depends on the Set Mode Item "**E12: APRS UNITS**".
9 ALTNET: OFF or ON

Default:
1 Mic-E: ON
2 POSITION: ON
3 WEATHER: ON
4 OBJECT: ON
5 ITEM: ON
6 STATUS: ON
7 OTHER: OFF
8 RANGE LIMIT: OFF
9 ALTNET: OFF

Mic-E: When this item is set to "ON", the transceiver shows the stations which send a MIC Encoder Beacon.

POSITION: When this item is set to "ON", the transceiver shows the stations which send a Position Beacon and Raw NMEA data.

WEATHER: When this item is set to "ON", the transceiver shows the stations which send a Weather Beacon.

OBJECT: When this item is set to "ON", the transceiver shows the stations which send an Object Beacon.

ITEM: When this item is set to "ON", the transceiver shows the stations which send an Item Beacon.

STATUS: When this item is set to "ON", the transceiver shows the stations which send a Status Beacon.

OTHER: When this item is set to "ON", the transceiver shows the stations which send a packet signal except an APRS beacon.

RANGE LIMIT: When this item is set to "ON", the transceiver shows the stations which are inside of the range limit setting.

ALTNET: When this item is set to "ON", the transceiver shows the stations which include the Destination Address by the Alternate Nets.

E04: APRS MESSAGE TXT

Function: Programming a Fixed form APRS message. See page 57 for details.

E05: APRS MODEM

Function: Enables/Disables the APRS modem (AX.25 Data modem).
Available Values: OFF or ON
Default: OFF

When this item is set to "ON", the "A12" (for 1200 bps packet) or "A96" (for 9600 bps packet) icon appears in the display.

E06: APRS MUTE

Function: Enables/Disables audio output of the "APRS Operation Band" during APRS operation.
Available Values: OFF or ON
Default: OFF

When this item is set to "ON", the "A12" or "A96" icon in the display blinks.

E07: APRS POPUP

Function: Sets the timer parameter of the pop-up window.
Available Values: 1 BEACON: OFF, 1 ~ 30 sec, or CONTINUOUS
2 MESSAGE: OFF, 1 ~ 30 sec, or CONTINUOUS
3 MY PKT: ON or OFF
Default: 1 BEACON: 10 sec
2 MESSAGE: 10 sec
3 MY PKT: OFF

BEACON: Selects the open time of the pop-up window, when an APRS beacon is received for the first time or when an APRS beacon which includes different content※ is received.

※: It usually shows whenever the status text of your APRS beacon is changed. However the **FTM-350** does not open the pop-up window when receiving the same APRS beacon from the same station.

When this item is set to "OFF", the pop-up window does not open.

When this item is set to "CONTINUOUS", the pop-up window remains open until the [**ENT**] or [**ESC**] key is pressed.

MESSAGE: Selects the open time of the pop-up window when an APRS Message is received.

When this item is set to "OFF", the pop-up window does not open.

When this item is set to "CONTINUOUS", the pop-up window remains open until the [**ENT**] or [**ESC**] key is pressed.

MY PKT: Selects the open time of the pop-up window, when your own APRS beacon via a digipeater is received for the first time or when your own APRS beacon which has different content※ is received.

※: It usually shows whenever the status text of your APRS beacon is changed. However the **FTM-350** does not open the pop-up window when receiving the same APRS beacon from the same statio.

The open time is the same as the time that is selected in "1 BEACON" item.

Important Note: The above pop-up windows do not open whenever the Station List, Message List, or Set modes are displayed.

E08: APRS POPUP COLOR

Function: Sets the backlight color of the pop-up window.

Available Values:

1 BEACON: OFF, LCD COLOR, WHT(White)-BLUE, SKY-BLUE, MRN(Marine)-BLUE, GREEN, YLW(Yellow)-GREEN, ORANGE, AMBER, or WHITE

2 MOBILE: OFF, LCD COLOR, WHT(White)-BLUE, SKY-BLUE, MRN(Marine)-BLUE, GREEN, YLW(Yellow)-GREEN, ORANGE, AMBER, or WHITE

3 OBJ/ITEM: OFF, LCD COLOR, WHT(White)-BLUE, SKY-BLUE, MRN(Marine)-BLUE, GREEN, YLW(Yellow)-GREEN, ORANGE, AMBER, or WHITE

4 CAL RING: OFF, LCD COLOR, WHT(White)-BLUE, SKY-BLUE, MRN(Marine)-BLUE, GREEN, YLW(Yellow)-GREEN, ORANGE, AMBER, or WHITE

5 RNG RING: OFF, LCD COLOR, WHT(White)-BLUE, SKY-BLUE, MRN(Marine)-BLUE, GREEN, YLW(Yellow)-GREEN, ORANGE, AMBER, or WHITE

6 MESSAGE: OFF, LCD COLOR, WHT(White)-BLUE, SKY-BLUE, MRN(Marine)-BLUE, GREEN, YLW(Yellow)-GREEN, ORANGE, AMBER, or WHITE

7 GRP/BULT: OFF, LCD COLOR, WHT(White)-BLUE, SKY-BLUE, MRN(Marine)-BLUE, GREEN, YLW(Yellow)-GREEN, ORANGE, AMBER, or WHITE

8 MY PKT: OFF, LCD COLOR, WHT(White)-BLUE, SKY-BLUE, MRN(Marine)-BLUE, GREEN, YLW(Yellow)-GREEN, ORANGE, AMBER, or WHITE

Default: All: OFF

BEACON: This item determines the backlight color of the pop-up window when receiving an APRS beacon.

MOBILE: This item determines the backlight color of the pop-up window when receiving APRS beacons from the "Mobile" stations.

OBJ/ITEM: This item determines the backlight color of the pop-up window when receiving APRS beacons from the "Object" or "Item" stations.

CAL RING: This item determines the backlight color of the pop-up window when receiving APRS beacons from the "CALL RINGER" stations, which are, entered into Set Mode item "**E10 APRS RINGER (CALL)**".

RNG RING: This item determines the backlight color of the pop-up window when receiving the APRS beacons from the "RNG RINGER" stations, which are entered into Set Mode item "**E09 APRS RINGER**".

MESSAGE: This item determines the backlight color of the pop-up window when receiving an APRS Message (includes Message Ack and Message Rej).

GRP/BULT: This item determines the backlight color of the pop-up window when receiving a Group Message or Bulletin Message.

MY PKT: This item determines the backlight color of the pop-up window when receiving your own APRS beacon via the digipeater.

Note: When a received APRS beacon matches any of the above items, the transceiver checks the APRS beacon in the following order, and illuminates the backlight with the color determined by the first matched item.

Checking order: MY PKT → CAL RING → RNG RING → MOBILE → OBJ/ITEM → BEACON.

E09: APRS RINGER

Function: Enables/Disables the alert ringer during APRS operation.

Available Values:
1 TX BEACON: OFF or ON
2 TX MESSAGE: OFF or ON
3 RX BEACON: OFF or ON
4 RX MESSAGE: OFF or ON
5 MY PACKET: OFF or ON
6 CALL RINGER: OFF or ON
7 RNG RINGER: OFF/1 - 100
8 MSG VOICE: OFF or ON

Default:
1 TX BEACON: ON
2 TX MESSAGE: ON
3 RX BEACON: ON
4 RX MESSAGE: ON
5 MY PACKET: ON
6 CALL RINGER: OFF
7 RNG RINGER: OFF
8 MSG VOICE: OFF

TX BEACON: When this item is set to "ON", the transceiver emits an audible alert ringer when an APRS beacon is transmitted.

TX MESSAGE: When this item is set to "ON", the transceiver emits an audible alert ringer when an APRS message is transmitted.

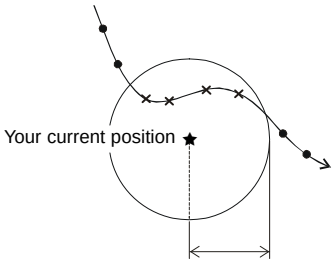
RX BEACON: When this item is set to "ON", the transceiver emits an audible alert ringer when an APRS beacon is received.

RX MESSAGE: When this item is set to "ON", the transceiver emits an audible alert ringer when an APRS message is received.

MY PACKET: When this item is set to "ON", the transceiver emits an audible alert ringer when your own APRS beacon is received via a digipeater.

CALL RINGER: When this item is set to "ON", the transceiver emits an audible alert ringer when an APRS beacon including a callsign which is entered in the Set Mode item "**E10 APRS RINGER (CALL)**".

RNG RINGER: When this item is set to a desired value, the transceiver emits an audible alert ringer when an APRS beacon is received from a station within the selected range (The range unit depends on the Set Mode item "**E12 APRS UNITS**").



●: Emits the "Normal" alert ringer
×: Emits the "RNG RINGER" alert ringer

MSG VOICE: When this item is set to "ON", the transceiver audibly announces the received APRS message and callsign (requires the optional **FVS-2** Voice Guide Unit). Normally, only the call sign is announced. However, if the beginning of the message includes a "%" character, the entire message will be announced.

E10: APRS RINGER (CALL)

Function: Programs the callsigns, which causes a ringing bell sound when the "**5 CALL RINGER**" function of the Set Mode item "**E08 APRS RINGER**" is set to ON. You may program up to eight callsigns.

E11: APRS TXDELAY

Function: Selects the transmission delay time between transmitting the APRS data and transmitting a preamble (flag code) prior to the APRS data.

Available Values: 100ms, 150ms, 200ms, 250ms, 300ms, 400ms, 500ms, 750ms, or 1000ms

Default: 250ms

E12: APRS UNITS

Function: Selects the unit for the APRS operation.

Available Values:
1 POSITION: . mm' or ' ss"
2 DISTANCE: mile or km
3 SPEED: mph, knot, or km/h
4 ALTITUDE: ft or m
5 BARO: mb, mmHG, inHg, or hPa
6 TEMP: °F or °C
7 RAIN: inch or mm
8 WIND: mph, knot, or m/s

Default: Depends on the transceiver version.

E13: BEACON INF SELECT

Function: Sets the TX Beacon format.

Available Values:
1 AMBIGUITY: OFF, 1digit, 2digits, 3digits, 4digits
2 SPD/CSE: ON or OFF
3 ALTITUDE: ON or OFF

Default:
1 AMBIGUITY: OFF
2 SPD/CSE: ON
3 ALTITUDE: ON

AMBIGUITY: Remove the selected number of digits from the position data (Lat/Log).

Example: OFF: 35°38.17'
1digit: 35°38.1
2digits: 35°38.
3digits: 35°3 .
4digits: 35° .

SPD/CSE: Enables/Disables transmission of the speed and course data.

ALTITUDE: Enables/Disables transmission of the altitude data.

E14: BEACON STATUS TXT

Function: Enables/Disables the transmission of the Status Text and programs its programmed.

Available Values: 1 SELECT: OFF, TEXT 1 ~ TEXT 5
2 TX RATE: 1/1 ~ 1/8, 1/2(FREQ) ~ 1/8(FREQ)
3 TEXT 1:
4 TEXT 2:
5 TEXT 3:
6 TEXT 4:
7 TEXT 5:

Default: 1 SELECT: OFF
2 TX RATE: 1/1

SELECT: When this item is set to "OFF", the transceiver does not transmit the Status Text.
When this item is set to one of the "TEXT 1" ~ "TEXT 5", the transceiver transmits the Status Text corresponding to the slot which you have selected.

TX RATE: 1/1 ~ 1/8: Selects the rate at which the Status Text is included with the transceiver APRS beacon transmissions ("1/1" (every time) ~ "1/8" (once in eight times)).
1/2(FREQ) ~ 1/8(FREQ): This selection is similar to "1/1~1/8" selections. Transmits the Status Text at the designated rate ("1/2" (once in two times) ~ "1/8" (once in eight times)) when the APRS Beacon is transmitted. However, the opposite band frequency data of the APRS operation band, sub audio information (squelch type and its tone frequency/code), and repeater shift frequency data always transmits when the APRS Beacon is transmitted.

TEXT 1 ~ TEXT 5: Stores the Status Text. Each memory stores up to 60 characters.

E15: BEACON TX

Function: Enables/Disables the automatic transmission feature of the APRS beacon and selects its parameters.

Available Values:

1 AUTO:	OFF, ON, or SMART
2 INTERVAL:	30sec, 1min, 2min, 3min, 5min, 10min, 15min, 20min, 30min, or 60min
3 PROPORTIONAL:	ON or OFF
4 DECAY:	ON or OFF
5 LOW SPEED:	1 ~ 99
6 RATE LIMIT:	5sec ~ 180 sec

Default:

1 AUTO:	OFF
2 INTERVAL:	5min
3 PROPORTIONAL:	ON
4 DECAY:	ON
5 LOW SPEED:	3
6 RATE LIMIT:	30 sec

AUTO: This item selects the automatic transmission method of the APRS beacon.

When this item is set to "OFF" (no icon), your APRS beacon does not transmit automatically. The transceiver only transmits your APRS beacon when the [**B-TX**] key is pressed.

When this item is set to "ON", the "◉" icon appears on the display, and the APRS beacon transmits in accordance with the interval determined by "2 INTERVAL" of the Set Mode item "**E15 BEACON TX**".

When this item is set to "SMART" ("○" icon appears on the display), the APRS beacon transmits in accordance with the interval determined by Set Mode item "**E34 SmartBeaconing**".

INTERVAL: This item sets the interval time to transmit the APRS beacon automatically when "1 AUTO" of the Set Mode item "**E15 BEACON TX**" is set to "ON".

PROPORTIONAL: This item enables changing the transmit APRS beacon path route automatically according to the "INTERVAL" time determined from the item of this Set Mode.

For example, if you set this item to "ON" when Set Mode item "**E20 DIGI PATH SELECT**" is set to "WIDE1-1, WIDE2-1", and the "INTERVAL" item is set to "5min", the APRS beacon path changes as follows:

a. 5 minute WIDE1-1, WIDE2-1
b. 10 minute (none)
c. 15 minute WIDE1-1

d. 20 minute (none)
e. 25 minute WIDE1-1, WIDE2-1
repeats steps b - e afterward
When the Set Mode item "**E20 DIGI PATH SELECT**" is set to "OFF", "FULL1", or "FULL2", this item is ignored.

DECAY: This function extends the interval of the APRS beacon when the vehicle is stopped.
When this item is set to "ON", extends the setting value of the "INTERVAL" item step by step when the vehicle is stopped.
For example, if the "INTERVAL" item is set to "1min", then when the vehicle is stopped the interval time extends to "2 min" → "3 min" → "5 min" → "10min" → "15min" → "20min" → "30min" → "30min" ... (the "60min" is not selected).
When the "INTERVAL" item is set to "30min" or "60min", this item is ignored.
Important Note: When you operate APRS as a Base station, the "DECAY" function should be set to "OFF". If "DECAY" is ON, the preset beacon interval time will be extended automatically.

LOW SPEED: This item determines the threshold speed to judge the stop state of your vehicle.
When the vehicle speed is lower than a selected speed, the transceiver considers the vehicle has stopped. (The speed unit is determined from the Set Mode item "**E12 APRS UNITS**").

RATE LIMIT: This item determines the time to delay the automatic transmission of a APRS beacon.
For example, if the vehicle moves after an APRS beacon automatically transmitted by the DECAY function when the vehicle was stopped, the transceiver may transmit the APRS beacon twice in a short time. The second transmission may be delayed by enabling this item.

Important Note: When the AUTO item is set to "SMART" (SmartBeaconing™ is activated), the INTERVAL, PROPORTIONAL, DECAY, LOW SPEED, and RATE LIMIT items are ignored.

E16: COM PORT SETTING

Function: Sets the COM port setting.
Available Values: 1 SPEED: 4800 bps, 9600 bps, or 19200 bps
2 OUTPUT: OFF, GPS OUT, PACKET, or WAYPOINT
3 INPUT: OFF, GPS IN
4 WP FORMAT: NMEA6, NMEA7,NMEA8, NMEA9

5 WP FILTER: ALL, MOBILE, FREQ, OBJ/ITEM, DIGI, VOIP, WEATHER, YAESU, C RINGER (CALL RINGER), or R RINGER (RNG RINGER)

Default: 1 SPEED: 9600 bps
2 OUTPUT: OFF
3 INPUT: OFF
4 WP FORMAT: NMEA9
5 WP FILTER: ALL

SPEED: This item selects the baud rate of the COM port which connects the optional packet cable.

OUTPUT: This item selects the type of data output to the COM port.
When this item is set to "OFF", the transceiver does not output any data to the COM port.
When this item is set to "GPS OUT", the transceiver outputs the GPS data (NMEA data: GGA & RMC) from the COM port.
When this item is set to "PACKET", the transceiver outputs the Packet data from the COM port.
When this item is set to "WAYPOINT", the transceiver outputs the Waypoint data to the COM port.

INPUT: This item selects the input data type of the COM port.
When connecting an external GPS receiver (not supplied: enabling the outputs $GPRMC, $GPGAA, and $GPGSV data) to the transceiver through the COM port, set this item to "GPS".

WP FORMAT: This item determines the output of the selected number of digits from the callsign of the APRS Beacon station included in the Waypoint data when the OUTPUT item is set to "WAYPOINT".
For example, "W6DXA-14" is
"NMEA6": DXA-14
"NMEA7": 6DXA-14
"NMEA8": W6DXA-14
"NMEA9": W6DXA-14

WP FILTER: This item determines the output APRS beacon to the COM port when the OUTPUT item is set to "WAYPOINT".

Important Note: If you connect your personal computer to the transceiver, verify the correct settings for "**E16 COM PORT SETTING**" and "**E17: DATA BAND SELECT**".

E17: DATA BAND SELECT

Function: Selects the operating band for the DATA mode.

Available Values: 1 APRS: MAIN BAND, SUB BAND, L-BAND FIX, R-BAND FIX, L=TX / R=RX, or L=RX / R=TX
2 DATA: MAIN BAND, SUB BAND, L-BAND FIX, R-BAND FIX, L=TX / R=RX, or L=RX / R=TX

Default: 1 APRS: L-BAND FIX
2 DATA: R-BAND FIX

Note: An "**A**" icon appears in the S- meter area of the APRS operation band. A "**D**" icon appears in the S- meter area of the DATA operation band.

E18: DATA SPEED

Function: Selects the baud rate for the DATA mode.

Available Values: 1 APRS: 1200 bps or 9600 bps
2 DATA: 1200 bps or 9600 bps

Default: 1 APRS: 1200 bps
2 DATA: 1200 bps

E19: DATA SQUELCH

Function: Configures the Squelch settings for APRS, DATA, and TX.

Available Values: 1 APRS: RX BAND or TX/RX BAND
2 DATA: RX BAND or TX/RX BAND
3 TX: OFF or ON

Default: 1 APRS: RX BAND
2 DATA: RX BAND
3 TX: ON

RX BAND: Does not transmit the APRS/DATA data when the RX band's squelch circuit is open.

TX/RX BAND: Does not transmit the APRS/DATA data when the TX and RX band's squelch circuits are both open.

TX: Determine the SQL port (pin 6 of the DATA jack). When this item is set to "ON", the external TNC can not initiate transmit while the transceiver is transmitting.

E20: DIGI PATH SELECT

Function: Selects the APRS packet path you wish to path through.

Available Values: OFF / WIDE1-1(fixed value) / WIDE1-1,WIDE2-1(fixed value) / PATH 1 / PATH 2 / PATH 3 / PATH 4 / FULL 1 or FULL2

Default: WIDE1-1,WIDE2-1 (fixed value)

E21: DIGI PATH 1

Function: Sets the APRS packet path.

Program the address information (callsign or alias etc) of the digipeater that you selected as "**PATH 1**" in Set Mode item "**E20 DIGI PATH SELECT**" (2 path).

E22: DIGI PATH 2

Function: Sets the APRS packet path.

Program the address information (callsign or alias etc) of the digipeater that you selected as "**PATH 2**" in Set Mode item "**E20 DIGI PATH SELECT**" (2 path).

E23: DIGI PATH 3

Function: Sets the APRS packet path.

Program the address information (callsign or alias etc) of the digipeater that you selected as "**PATH 3**" in Set Mode item "**E20 DIGI PATH SELECT**" (2 path).

E24: DIGI PATH 4

Function: Sets the APRS packet path.

Program the address information (callsign or alias etc) of the digipeater that you selected as "**PATH 4**" in Set Mode item "**E20 DIGI PATH SELECT**" (2 path).

E25: DIGI PATH FULL 1

Function: Sets the APRS packet path.

Program the address information (callsign or alias etc) of the digipeater that you selected as "**FULL 1**" in Set Mode item "**E20 DIGI PATH SELECT**" (8 path).

E26: DIGI PATH FULL 2

Function: Sets the APRS packet path.

Program the address information (callsign or alias etc) of the digipeater that you selected as "**FULL 2**" in Set Mode item "**E20 DIGI PATH SELECT**" (8 path).

E27: MESSAGE GROUP

Function: Sets the filter type option allowing you to receive only the specified types of APRS Group/Bulletin Message information.

Available Values:
1 GROUP1: ALL∗∗∗∗∗
2 GROUP2: CQ∗∗∗∗∗∗
3 GROUP3: QST∗∗∗∗∗
4 GROUP4: YAESU∗∗∗∗
5 GROUP5:
6 GROUP6:
7 BULLETN1: BLN?∗∗∗∗∗
8 BULLETN2: BLN?
9 BULLETN3: BLN?

E28: MESSAGE REPLY

Function: Enable/Disable the automatic message reply feature, and program its details.

Available Values: 1 REPLY: OFF or ON
2 CALLSIGN: ✶✶✶✶✶✶-✶✶
3 TEXT:

Default: 1 REPLY: OFF
2 CALLSIGN: ✶✶✶✶✶✶-✶✶
3 TEXT:

REPLY: When this item is set to "ON", the transceiver transmits the reply message (determined from the TEXT item) automatically when an APRS message is received.

CALLSIGN: Program the callsign here when you wish to reply to a specific station only.

TEXT: Enter the reply message.

E29: MY CALLSIGN

Function: Program your callsign. See page 2 for details.

E30: MY POSITION SET

Function: Determines your location (Longitude/Latitude).

Available Values: GPS, MANUAL, or P.LIST GRP1-POINT1 ~ P.LIST GRP4-POINT4

Default: GPS

GPS: Your location is determined by the optional GPS Unit. When the optional GPS Unit is connected to the transceiver, select this item.

MANUAL: Your location is determined by Set Mode item "**E31 MY POSITION**".

P.LIST: Your location is determined from the "Point" list memory data. See page 25 of the **FTM-350** Series Operating Manual for details.

E31: MY POSITION

Function: Program your location (Longitude/Latitude) manually.
See page 6 for details.

E32: MY SYMBOL

Function: Select the icon, which will be displayed to identify your station on the monitors of other stations.

Available Values: ICON1, ICON2, ICON3 (46 symbols each), and USER (free select character)

Default: ICON1:  , ICON2:  , ICON3:  , USER:

You may replace the default icon for ICON1, ICON2, and ICON3 to another type by rotating the ***left side*** [**DIAL**] knob.

Note: If you wish to change the USER icon, press the ***left side*** [**DIAL**] knob, then rotate the ***left side*** [**DIAL**] knob to select the desired Symbol Table ID (left digits in the parenthesis), then press the ***left side*** [**DIAL**] knob and rotate the ***left side*** [**DIAL**] knob to select the desired Symbol Code (right digits in the parenthesis).

E33: POSITION COMMENT

Function: Selects position comment depending on your situation.

Available Values: Off Duty, En Route, In Service, Returning, Committed, Special, Priority, Custom 0 ~ Custom 6, EMERGENCY!

Default: Off Duty

Important Note: Only set this item to "EMERGENCY" when urgent help is needed, such as an accident or a disaster.

E34: SmartBeaconing

Function: Selects the various parameters of SmartBeaconing™.
The SmartBeaconing™ function regulates the APRS beacon transmissions based on the received GPS data (Movement speed, and movement direction etc.).

Available Values:
1 STATUS: OFF, TYPE1, TYPE2, or TYPE3
2 LOW SPEED: 2 ~ 30
3 HIGH SPEED: 3 ~ 70
4 SLOW RATE: 1 min ~ 100 min
5 FAST RATE: 10 sec ~ 180 sec
6 TURN ANGLE: 5° ~ 90°
7 TURN SLOPE: 1 ~ 255
8 TURN TIME: 5 sec ~ 180 sec

Default:
1 STATUS: OFF
2 LOW SPEED: 5
3 HIGH SPEED: 70
4 SLOW RATE: 30 min
5 FAST RATE: 120 sec
6 TURN ANGLE: 28°
7 TURN SLOPE: 26
8 TURN TIME: 30 sec

STATUS: These registers sum up (combine) the "LOW SPEED" through "TURN TIME" items parameters in the "TYPE 1", "TYPE 2", or "TYPE 3" settings.
When STATUS is set to "TYPE 1", "TYPE 2", or "TYPE 3", the SmartBeaconing™ is activated with parameters of that setting.
When STATUS is set to "OFF", the SmartBeaconing™ function is disabled.

LOW SPEED: This item designates the lower speed threshold. The transceiver transmits an APRS beacon when your vehicle speed becomes lower than the selected speed. The transmission interval time of the APRS beacon is set in "SLOW RATE" item. (The speed unit is determined from the Set Mode item "**E12 APRS UNITS**".)

HIGH SPEED: This item designates the higher speed threshold. The transceiver transmits an APRS beacon when your vehicle speed becomes higher than the selected speed. The transmission interval time of the APRS beacon is set in "FAST RATE" item. (The speed unit is determined from the Set Mode item "**E12 APRS UNITS**".)

SLOW RATE: This item designates the transmission interval time of the APRS beacon at low vehicle speeds.

FAST RATE: This item designates the maximum transmission interval time of the APRS beacon at high vehicle speeds.

TURN ANGLE: This item designates the course change angle that indicates a progress heading change.

TURN SLOPE: This item sets a coefficient to modify the TURN ANGLE algorithm, thus increasing the beacon rate for lower vehicle speeds.
When this setting value is increased, the threshold angles of the APRS beacon timing are increased as the vehicle velocity is decreased.

TURN TIME: This item designates the minimum delay time between each APRS beacon. The transceiver does not transmit an APRS beacon until this setting time has elapsed since the previous APRS beacon transmission, preventing too frequent beacon transmissions.

Note: In the factory, the same default parameter, suitable for mobile operation are saved in TYPE1, TYPE2 and TYPE3 registers. You may customize the parameters of each register for differing situations such as highway travel, urban routes, etc.
SmartBeaconing™ from HamHUD Nichetronix.

E35: SORT FILTER

Function: Selects the Sort method and Filter type.

Available Values:
- 1 SORT: TIME, CALLSIGN, or DISTANCE
- 2 FILTER: ALL, MOBILE, FREQUENCY, OBJECT/ITEM, DIGIPEATER, VOIP, WEATHER, YAESU, OTHER PKT, CALL RINGER, RNG RINGER, 1200bps, 9600bps

Default:
- 1 SORT: TIME
- 2 FILTER: ALL

SORT

TIME: Press the Smart Function [**SORT**] key, to sort the Station List by time order.

CALLSIGN: Press the Smart Function [**SORT**] key, to sort the Station List by callsign order.

DISTANCE: Press the Smart Function [**SORT**] key, to sort the Station List by near distance order.

Note: The sorted Station List automatically returns to "TIME" order when the transceiver is turned off. However, when you press the [**SORT**] key after having turned on the radio, the order of the sorting is set to the value which is selected in the SORT FILTER.

FILTER

ALL: All received APRS beacons are displayed.

MOBILE: Only the APRS beacons of the mobile stations are displayed.

FREQUENCY: Only the APRS beacons, which have frquency data, are displayed.

OBJECT/ITEM: Only the APRS beacons from Object or Item stations are displayed.

DIGIPEATER : Only the APRS beacons from digipeaters are displayed.

VOIP: Only the APRS beacons from a VOIP station, such as WiRES stations are displayed.

WEATHER: Only the APRS beacons from weather stations are displayed.

YAESU: Only the APRS beacons transmitted from a Yaesu transceiver, such as the **VX-8DR/DE**, **VX-8GR/GE**, **FTM-350AR/AE** etc. are displayed.

OTHER PKT: Only APRS beacons of STATUS stations including RAW NMEA data, and APRS Beacons including packet data (except APRS beacon data) are displayed.

Note: To display the stations including packet data (except the APRS Beacon data), it is necessary to set the "OTHER" parameter of Set Mode item "**E03 APRS FILTER**" to "on".

CALL RINGER: The transceiver displays only the APRS beacons of the "CALL RINGER" stations, which are, entered into Set Mode item "**E10 APRS RINGER** (**CALL**)".

RNG RINGER: The transceiver displays only the APRS beacons of the "RNG RINGER" stations which are defined via the Set Mode parameters of "**E09 APRS RINGER**".

1200bps: The transceiver displays only the APRS beacons with 1200 bps baud rate.

9600bps: The transceiver displays only the APRS beacons with 9600 bps baud rate.

E36: VOICE ALERT

Function: Enables/disables the Voice Alert function.

Available Values: 1 V.ALERT: OFF, TONE SQL, DCS, RX-TSQL, or RX-DCS
2 TSQL: 50 standard CTCSS tones
3 DCS: 104 standard DCS codes

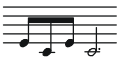
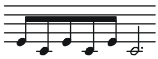
Default: 1 V.ALERT: OFF
2 TSQL: 100 Hz
3 DCS: 023

V.ALERT: When this item is set to "OFF", disables the Voice Alert function.
When this item is set to "TONE SQL", both the voice and APRS communications are in Tone squelch operation. A blinking "TSQ" icon will appear on the display.
When this item is set to "DCS", both the voice and APRS communications are in DCS (Digital Code Squelch) operation. A blinking "DCS" icon will appear on the display.
When this item is set to "RX-TSQL", voice communication is in Tone squelch operation, and APRS communication is No Tone operation. A blinking "TSQ" icon will appear on the display except APRS transmission.
When this item is set to "RX-DCS", voice communication is DCS (Digital Code Squelch) operation, and APRS communication is No Tone operation. A blinking "DCS" icon will appear on the display except APRS transmission.

Note

- The CTCSS tone is set via "2 TSQL" parameter, and the DCS tone is set via "3 DCS" parameter.
- This transceiver always receives and memorizes all APRS signals regardless of the setting of this menu.
- When the Set Mode item "**E17 DATA BAND SELECT**" is set to "L=TX/R=RX" or "L=RX/R=TX", the Voice Alert function does not operate.

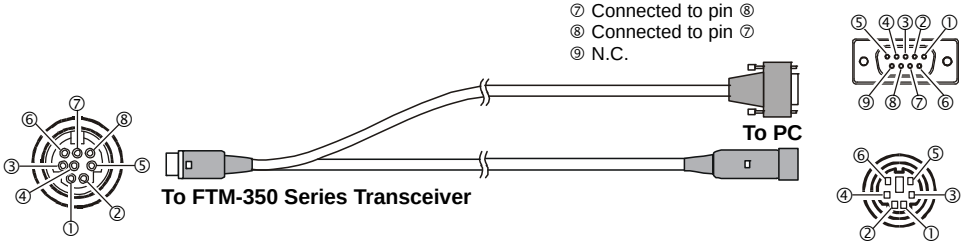
APRS ALERT BEEP LIST

EMERGENCY COMMENT Set	BEACON Received (Duplicate Beacon)	OWN MESSAGE Received
		
EMERGENCY BEACON Received	**OWN BEACON (MY POSITION) Received**	**MESSAGE ACK Received**
		
BEACON Received (APRS Filter "ON")	**MESSAGE Received**	**MESSAGE REJ Received**
		
BEACON Received (APRS Filter "OFF")	**GROUP/BULLETIN MESSAGE Received**	**BEACON Transmit**
		
BEACON Received (Range Ringer Station)	**MESSAGE Received (from Other Station)**	**MESSAGE Transmit**
		
BEACON Received (Callsign Ringer Station)	**MESSAGE Received (Duplicate Message)**	**MESSAGE REJ Transmit**
		

APPENDIX

CT-140 CABLE CONNECTIONS

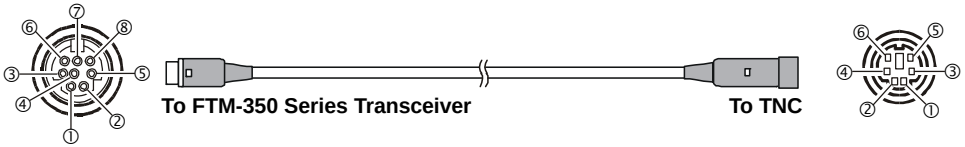
D-SUB 9-PIN
① N.C.
② TXD (Serial data output: Transceiver → PC)
③ RXD (Serial data input: Transceiver ← PC)
④ N.C.
⑤ GND
⑥ N.C.
⑦ Connected to pin ⑧
⑧ Connected to pin ⑦
⑨ N.C.



8-PIN MINI DIN
① PKD (Packet data input)
② GND
③ PKS (PTT)
④ RX96 (9600bps Packet data output)
⑤ RX12 (1200bps Packet data output)
⑥ SQL (Squelch control)
⑦ TXD (Serial data output: Transceiver → PC)
⑧ RXD (Serial data input: Transceiever ← PC)

6-PIN MINI DIN
① PKD (Packet data input)
② GND
③ PKS (PTT)
④ RX96 (9600bps Packet data output)
⑤ RX12 (1200bps Packet data output)
⑥ SQL (Squelch control)

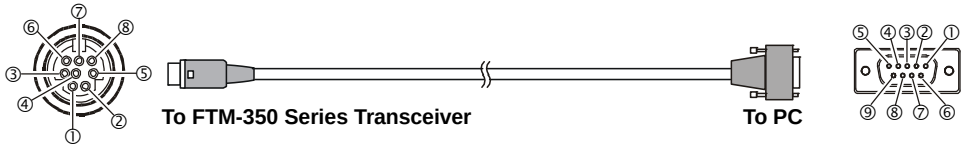
CT-141 CABLE CONNECTIONS



8-PIN MINI DIN
① PKD (Packet data input)
② GND
③ PKS (PTT)
④ RX96 (9600bps Packet data output)
⑤ RX12 (1200bps Packet data output)
⑥ SQL (Squelch control)
⑦ TXD (Serial data output: Transceiver → PC)
⑧ RXD (Serial data input: Transceiver ← PC)

6-PIN MINI DIN
① PKD (Packet data input)
② GND
③ PKS (PTT)
④ RX96 (9600bps Packet data output)
⑤ RX12 (1200bps Packet data output)
⑥ SQL (Squelch control)

CT-142 CABLE CONNECTIONS



8-PIN MINI DIN
① PKD (Packet data input)
② GND
③ PKS (PTT)
④ RX96 (9600bps Packet data output)
⑤ RX12 (1200bps Packet data output)
⑥ SQL (Squelch control)
⑦ TXD (Serial data output: Transceiver → PC)
⑧ RXD (Serial data input: Transceiver ← PC)

D-SUB 9-PIN
① N.C.
② TXD (Serial data output: Transceiver → PC)
③ RXD (Serial data input: Transceiver ← PC)
④ N.C.
⑤ GND
⑥ N.C.
⑦ Connected to pin ⑧
⑧ Connected to pin ⑦
⑨ N.C.

FTM-350 SERIES TRANSCEIVER DATA JACK PIN ASSIGNMENT

(Viewed from rear panel)

① PKD (Packet data input)
② GND
③ PKS (PTT)
④ RX96 (9600bps Packet data output)
⑤ RX12 (1200bps Packet data output)
⑥ SQL (Squelch control)
⑦ TXD (Serial data output: Transceiver → PC)
⑧ RXD (Serial data input: Transceiver ← PC)

YAESU
The radio

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