YAESU

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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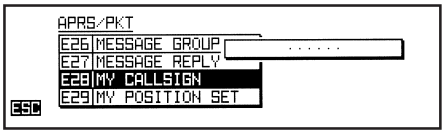
PREPARATIONS

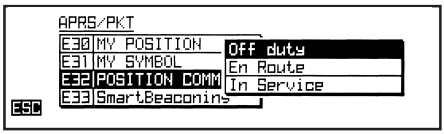
Before performing any APRS® operations, set your callsign, SSID (Secondary Station Identifier), and symbol into the **FTM-350**, and activate the AX.25 Data Modem via the Set Mode.

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 MY CALLSIGN**", then press the ***left side*** [**DIAL**] knob ***twice***.



4. Rotate the ***left side*** [**DIAL**] knob, or press one of the microphone keypad buttons, to select the first letter or number in your callsign.
5. After selecting the first digit of the DTMF string, using the ***left side*** [**DIAL**] knob, press the [➞] key to move to the next digit.
6. Repeat steps 4 and 5 as many times as necessary to complete your call sign.
7. You may backspace the cursor by pressing the [⬅] key.
8. When you have completed entering your callsign, press the [➞] key to move to the SSID slot.
9. Rotate the ***left side*** [**DIAL**] knob to select the SSID, then press the [➞] key to save the new setting.
10. Press the [**ESC**] key to exit from Set Mode item "**E28 MY CALLSIGN**", then rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E31 MY SYMBOL**".
11. Press the ***left side*** [**DIAL**] knob, then select the desired preset symbol by pressing one of the [**ICON1**] ~ [**ICON3**] or [**USER**] keys. 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.

12. Press the [**ESC**] key to save the new setting and exit from Set Mode item "**E31 MY SYMBOL**", then rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E32 POSITION COMMENT**".
13. Press the ***left side*** [**DIAL**] knob, then rotate the ***left side*** [**DIAL**] knob to select the desired comment. You may choose 1 of 15 different comments.

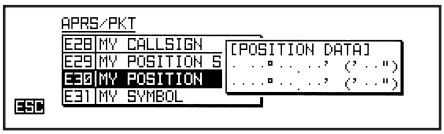


14. Press the [**ESC**] key to save the new setting and exit from Set Mode item "**E32 POSITION COMMENT**", then rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E29 MY POSITION SET**".
15. Press the ***left side*** [**DIAL**] knob. When the optional GPS Antenna Unit is connected to the transceiver, select "**GPS**" by rotating the

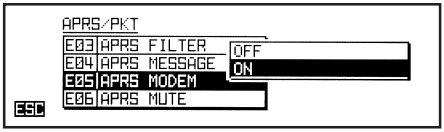
left side [**DIAL**] knob then press the ***left side*** [**DIAL**] knob to save the new setting, and then skip to step 19. Otherwise, select "**MANUAL**" by rotating the ***left side*** [**DIAL**] knob and advance to the next step.

Note: You may choose your position from the "Point" memories stored on the GPS Point List.

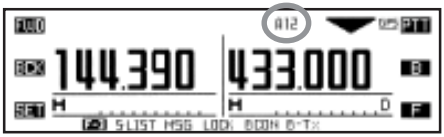
16. Press the [**ESC**] key to save the new setting and exit from Set Mode item "**E29 MY POSITION SET**", then rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E30 MY POSITION**".



17. Press the ***left side*** [**DIAL**] knob ***twice***, then enter your position (Longitude/Latitude) by using the ***left side*** [**DIAL**] knob (select the number/character) and [←] / [→] key (to move the cursor).
18. Press the [**ENT**] key to save the new setting, then press the [**ESC**] key to exit from Set Mode item "**E30 MY POSITION**".
19. Rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E05 APRS MODEM**".
20. Press the ***left side*** [**DIAL**] knob, then rotate the ***left side*** [**DIAL**] knob to select "**ON**".
21. Press the ***left side*** [**DIAL**] knob to save the new setting, then press the [**ESC**] key ***twice*** to exit from Set Mode.



When the APRS modem is activated, an "A12" icon appears above the "Right" band frequency display.



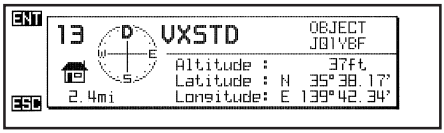
The **FTM-350** provides many convenient functions for APRS operation. Refer to the "APRS/PKT Set Mode" chapter beginning with page 20 for details.

SSID LIST

SSID	DETAILS
Non	Home Station, Home Station IGate
-1	Digipeater
-2	Digipeater
-3	Digipeater
-4	HF to VHF Gateway
-5	IGate (not Home Station)
-6	Operation via Satellite
-7	Hand-held Transceiver, such as VX-8R
-8	Maritime Mobile
-9	Mobile Transceiver, such as FTM-350R
-10	Operation via Internet
-11	APRS touch-tone User (and the Occasional Ballooes)
-12	Portable Units, such as Laptops, Camp Sites etc.
-13	Not Used
-14	Trackers
-15	HF Operation

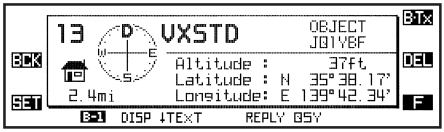
RECEIVING AN APRS® BEACON

1. Set the "Sub" 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: In the factory default, the APRS operation uses the "Sub" band (The "A" icon will appear at the right side of the "Sub" band S/PO meter). You may change the APRS operating band via Set Mode item "**E16 DATA BAND SELECT**" in the "**APRS/PKT**" group.
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.



3. To confirm the details of the received beacon, press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key's category changes to "**F-3**" mode, if necessary, then press the [**S•LIST**] key to open the "Station List" window.

4. Rotate the ***left side*** [**DIAL**] knob to select the desired station, then press the [**ENT**] key to display its received data.
5. Rotate the ***left side*** [**DIAL**] knob to scroll through the additional lines or pages of the received information.
   When the "Comment" or "Status Text" is included in the received data, you may jump to the head of the "Comment" or "Status Text" instantly by pressing the [**↓TEXT**] key.



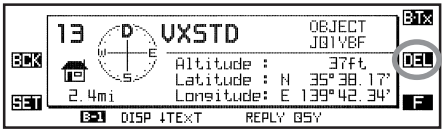
6. When the confirmation is finished, press the [**BCK**] key to return to the "Station List" window.

THE F-3 FUNCTION COMMANDS OF THE [SMART FUNCTION] KEY FOR APRS OPERATION

F-3	S•LIST	Open the "Station List" window.
	MSG	Open the "Message List" window.
	LOCK	Toggles the key lockout feature "on and "off" by pressing the key. Toggles the transceiver's power "on and "off" by pressing and holding the key.
	BCON	Changes the APRS beacon: OFF, ON(FIX), or SMART.
	B-TX	Transmit the APRS beacon.

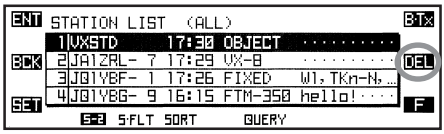
DELETING A RECEIVED BEACON FROM THE "STATION LIST"

1. 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".



DELETING ALL RECEIVED BEACONS FROM THE "STATION LIST"

1. 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, if necessary.
3. Press and hold in the [**DEL**] key for two seconds, then press the [**ALLOK?**] key to delete all messages from the "Message List".



THE FUNCTION COMMAND OF THE [SMART FUNCTION] KEYS WHILE THE STATION LIST IS OPEN

S-1	FAST	Enables scrolling of the station list using a fast stepping rate (4 rows/click).
	TOP	Jump to the top column of the Station List.
		—
	REPLY	Jump to the "TX MESSAGE EDIT" window (Reply operation).
	QSY	An opposite bands frequency of the APRS operation band changes in accordance with the frequency information included in the received APRS beacon.
S-2	S•FLT	Jump to the "APRS/PKT" Set Mode item "E34 SORT FILTER".
	SORT	Initiates sorting.
		—
	QUERY	Jump to the "TX MESSAGE EDIT" window with Query command (?APRSP).
	GPS	Jump to the "GPS Information" page.
S-3		—
	P.LIST	Jump to the "Point List Mode" window.
		—
	POINT	Stores the received position data (Lat/Log) to the "Point" memory.
		—
B-1	DISP	Toggles the compass display between "North Up" and "Heading Up".
	↓TEXT ↑TOP	↓TEXT: Jump to the top of the "Status Text Message". ↑TOP: Jump to the top column of the received APRS beacon.
		—
	REPLY	Jump to the "TX MESSAGE EDIT" window (Reply operation).
	QSY	An opposite bands frequency of the APRS operation band changes in accordance with the frequency information included in the received APRS beacon.
B-2	RAW	Displays the "Raw" data of the received APRS beacon.
		—
		—
	QUERY	Jump to the "TX MESSAGE EDIT" window with Query command (?APRSP).
	GPS	Jump to the "GPS Information" page.

RECEIVING AN APRS® BEACON

APRS FILTER SETTING

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

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 "**E03 APRS FILTER**", 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 "filter" you wish to exclude.
5. Press the ***left side*** [**DIAL**] knob, and then rotate the ***left side*** [**DIAL**] knob to select "**OFF**".
6. Press the ***left side*** [**DIAL**] knob to save the new setting.
7. Repeat the above steps and select "**OFF**" for any other filters you wish exclude.
8. When you have completed your selection, press the [**ESC**] key several times to exit from Set Mode.

The **FTM-350** provides many convenient functions for APRS operation. Refer to the "APRS/PKT Set Mode" chapter beginning on page 20 for details.

APRS ALERT BEEP LIST

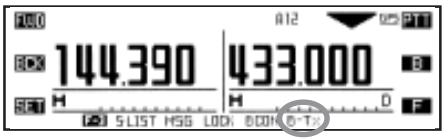
EMERGENCY COMMENT Set	BEACON Received (Duplicate Beacon)	OWN MESSAGE Received
 x 3 times		
EMERGENCY BEACON Received	OWN BEACON (MY POSITION) Received	MESSAGE ACK Received
 x 12 times		
BEACON Received (APRS Filter "ON")	MESSAGE Received	MESSAGE REJ Received
		
BEACON Received (APRS Filter "OFF")	GROUP/BULLETIN MESSAGE Received	BEACON Transmit
		
BEACON Received (Range Ringer Station)	MESSAGE Received (for Other Station)	MESSAGE Transmit
		
BEACON Received (Callsign Ringer Station)	MESSAGE Received (Duplicate Message)	MESSAGE REJ Transmit
		

NOTE

TRANSMIT AN APRS® BEACON

MANUAL TRANSMISSION

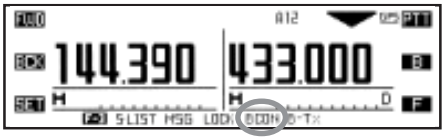
To transmit your APRS beacon manually, press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key category changes to "**F-3**" mode, if necessary, then press the [**B-TX**] key.



AUTOMATIC TRANSMISSION

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

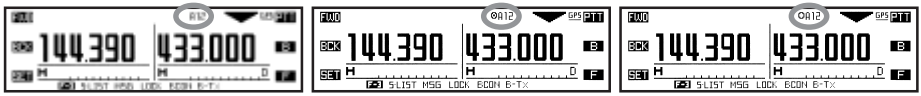
1. Press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key category changes to "**F-3**" mode, if necessary.
2. Press the [**BCON**] key repeatedly to select the "Auto" beacon mode ("**OFF**", "**ON (FIX)**" or "**SMART**").



OFF: Disables Automatic Transmission (no icon)

ON (FIX): 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 "**E14 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 "**E33 SmartBeaconing**※" in the "**APRS/PKT**" group.



OFF ON (FIX) SMART

- ❒ When the APRS frequency is busy (squelch is open), the **FTM-350** will not transmit an APRS beacon in manual or automatic modes. Insure that the squelch is closed.
- ❒ You may transmit the APRS beacon manually by pressing the [**B-TX**] key, even if the **FTM-350** is in automatic 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™ .

OPTIONAL SETTINGS

DIGIPEATER PATH SETTING

The **FTM-350** allows you to set up to eight digipeaters for the APRS packet path.

The **FTM-350** is preset to "WIDE1-1" and "WIDE1-1, WIDE2-1" digi-path to insure that your transmitted APRS beacon is repeated by the New-N paradigm digipeaters. We recommend that you use 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 "**E19 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, then press the ***left side*** [**DIAL**] knob.
5. When you have completed your selection, press the [**ESC**] key several times to exit from Set Mode.

THE F-3 FUNCTION COMMANDS OF THE [SMART FUNCTION] KEY FOR APRS OPERATION

F-3	S•LIST	Open the "Station List" window.
	MSG	Open the "Message List" window.
	LOCK	Toggles the key lockout feature "on and "off" by pressing the key. Toggles the transceiver's power "on and "off" by pressing and holding the key.
	BCON	Changes the APRS beacon: OFF, ON(FIX), or SMART .
	B-TX	Transmit the APRS beacon.

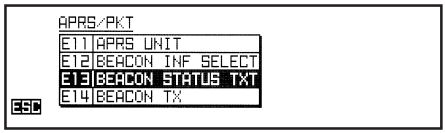
TRANSMIT AN APRS® BEACON

OPTIONAL SETTINGS

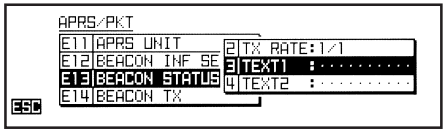
STATUS TEXT MESSAGES

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

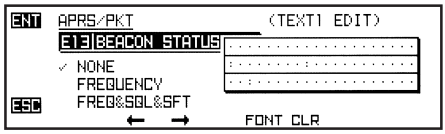
1. Press the [**SET**] key to enter the Set Mode.
2. Rotate the ***left side*** [**DIAL**] knob to select "**APRS/PKT**" group, then press the ***left side*** [**DIAL**] knob.
3. Rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E13 BEACON STATUS TXT**", then press the ***left side*** [**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 text in your message.

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

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 message.

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

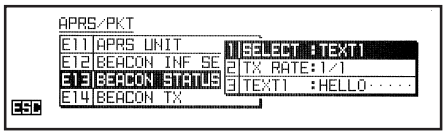
   Example 1: Press the one of the microphone keypad button. Press the [**A**] or [**B**] key to move the cursor forward or backward, and press the [**C**] key to delete all data after the cursor.

   Example 2: 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.

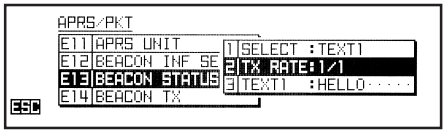
7. When you have completed your entry, press the [**ENT**] key to save your message.

OPTINAL 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 resister ("**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 "**2: TX RATE**" item, then press the ***left side*** [**DIAL**] knob.
11. Rotate the ***left side*** [**DIAL**] knob to select the frequency whereyou want to transmit your Status Text Message ("**1/1**" through "**1/8**"). Then press the ***left side*** [**DIAL**] knob.



12. Press the [**ESC**] key several times to exit from Set Mode.

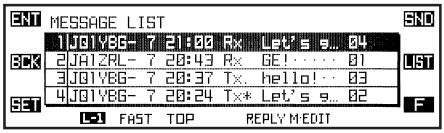
When the APRS beacon transmits, the Status Text Message is transmitted with the APRS beacon.

The **FTM-350** provides many convenient functions for APRS operation. Refer to the "APRS/PKT Set Mode" chapter beginning with page 20 for details.

RECEIVING AN APRS® MESSAGE

1. Set the "Sub" band to the APRS frequency used in your area. 144.390MHz is generally used in North America. If you don't know the APRS frequency of your country, ask your dealer.
   Note: In the factory default, the APRS operation uses the "Sub" band (the "A" icon will appear at the right side of the "Sub" band S/PO meter). You may change the APRS operation band via Set Mode item "**E21 DATA BAND SELECT**" in the "**APRS/PKT**" group.
2. When an APRS message is received, the APRS pop-up window opens and an APRS alert beep is heard. After ten seconds, the APRS pop-up window closes automatically.

3. To confirm the details of the received message, press the [**F**] key repeatedly, until the [**SMART FUNCTION**] key's category changes to "**F-3**" mode, if necessary, then press the [**MSG**] key to open the "Message List" window.
   When the received call is unread, the "" icon will appear behind the "Rx" icon of the Message.



4. Rotate the ***left side*** [**DIAL**] knob to select the desired station, then press the [**ENT**] key to display the received message.
5. When the confirmation is finished, press the [**BCK**] key to return to the "Message List" window.

THE F-3 FUNCTION COMMANDS OF THE [SMART FUNCTION] KEY FOR APRS OPERATION

F-3	S•LIST	Open the "Station List" window.
	MSG	Open the "Message List" window.
	LOCK	Toggles the key lockout feature "on and "off" by pressing the key. Toggles the transceiver's power "on and "off" by pressing and holding the key.
	BCON	Changes the APRS beacon: OFF, ON(FIX), or SMART.
	B-TX	Transmit the APRS beacon.

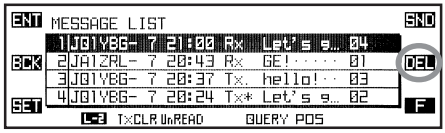
RECEIVING AN APRS® MESSAGE

DELETING A RECEIVED MESSAGE FROM THE "MESSAGE LIST"

1. Press the [**MSG**] key to open the "Message List" window.
2. Rotate the ***left side*** [**DIAL**] knob to select the station which includes the message to be deleted.
3. Press the [**ENT**] key to display the message data, then confirm that you really want to erase this message data.
4. Press the [**DEL**] key, then press the [**OK?**] key to delete the selected message from the "Message List".

DELETING ALL RECEIVED MESSAGES FROM THE "MESSAGE LIST"

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



THE FUNCTION COMMANDS OF THE [SMART FUNCTION] KEYS WHILE MESSAGE LIST IS OPEN

L-1	FAST	Enables scrolling of the message list using a fast stepping rate (4 rows/click).
	TOP	Jump to the top column of the Message List.
	—	—
	REPLY	Jump to the "TX MESSAGE EDIT" window (Reply operation).
	M•EDIT	Jump to the "TX MESSAGE EDIT" window.
L-2	TXCLR	Clears the remaining number of transmissions of the APRS message.
	UnREAD	Toggle the unread flag "on" and "off".
	—	—
	QUERY	Jump to the "TX MESSAGE EDIT" window with Query command (?APRSP).
	POS	Displays the beacon information of the selected station.
M-1	RE•TX	Resends the APRS Message.
	—	—
	—	—
	REPLY	Jump to the "TX MESSAGE EDIT" window (Reply operation).
	M•EDIT	Jump to the "TX MESSAGE EDIT" window.
M-2	RAW	Displays the "Raw" data of the message.
	—	—
	—	—
	QUERY	Jump to the "TX MESSAGE EDIT" window with Query command (?APRSP).
	POS	Displays the beacon information of the selected station.

RECEIVING AN APRS® MESSAGE

MESSAGE GROUP SETTING

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

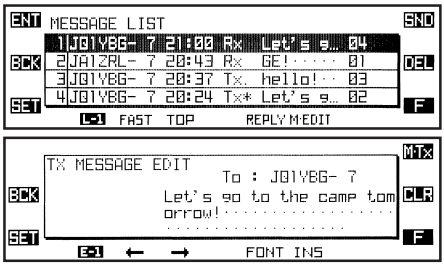
1. Press the [**SET**] key to enter the Set Mode.
2. Rotate the ***left side*** [**DIAL**] knob to select "**APRS/PKT**" group, then press the ***left side*** [**DIAL**] knob.
3. Rotate the ***left side*** [**DIAL**] knob to select Set Mode item "**E26 MESSAGE GROUP**", then press the ***left side*** [**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**).
5. If you add a new message group code and/or bulletin group code, select "**GROUP5**", "**GROUP6**" (for message group code) or "**BULLETN1**" ~ "**BULLETN3**" (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, the 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.

The **FTM-350** provides many convenient functions for APRS operation. Refer to the "APRS/PKT Set Mode" chapter beginning on page 20 for details.

NOTE

TRANSMIT AN APRS® MESSAGE

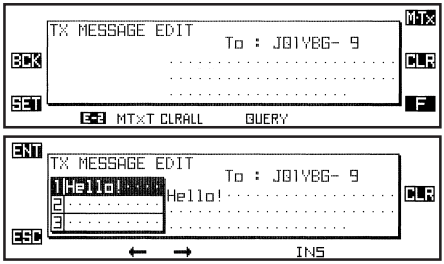
1. Press the [**F**] key repeatedly, until the [**SMART FUNCTION**] keys category changes to "**F-3**" mode, if necessary.
2. Press the [**MSG**] key to open the "Message List" window.
3. Press the [**M•EDIT**] key to enter the "TX Message Edit" mode.
4. Press the [**CLR**] key to clear any previously stored callsign, if necessary.
5. Enter the callsign (with SSID) of the station you wish to contact using the following examples.



Example 1: Press one of the microphone keypad button. Press the [**A**] / [**B**] key to move the cursor forward or backward, and press the [**C**] key to delete all data after the cursor.

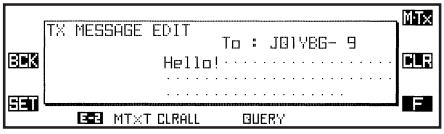
Example 2: Rotate the ***left side*** [**DIAL**] knob to select a character/number and press the [➞] key to move the cursor to the next digit. Press the [←] key to backspace the cursor.

6. When you have completed entering the callsign (with SSID), press the microphone [**B**] key or [➞] key.
7. Press the [**CLR**] key to clear any previous messages, if necessary.
8. Enter the message using the same procedures as above. 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 in "**APRS/PKT**" Set Mode item "**E04 APRS MESSAGE TEXT**"; see next page):
      1) Press the [**F**] key to change the [**SMART FUNCTION**] keys category to "**E-2**" mode.
      2) Press the [**MTXT**] key to open the "MESSAGE TEXT" window, then rotate the ***left side*** [**DIAL**] knob to select the desired previously stored message.

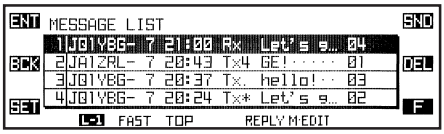


      3) Press the [**ENT**] key to insert the message, then press the [**ESC**] key to close the window.
   c. Press the [**INS**] key to add a character.
   d. Press the [**CLR**] key or microphone [**C**] key to delete all data after the cursor.

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



10. 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.



11. 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 Detailed Message screen,) instead of the remaining number of transmissions.

THE FUNCTION COMMANDS OF THE [SMART FUNCTION] KEYS WHILE MESSAGE LIST APPEARS

L-1	FAST	Enables scrolling of the message list using a fast stepping rate (4 rows/click).
	TOP	Jump to the top column of the message List.
		—
	REPLY	Jump to the "TX MESSAGE EDIT" window (Reply operation).
	M•EDIT	Jump to the "TX MESSAGE EDIT" window.

L-2	TXCLR	Clears the remaining number of transmissions of the APRS message.
	UnREAD	Toggle the unread flag "on" and "off".
		—
	QUERY	Jump to the "TX MESSAGE EDIT" window with Query command (?APRSP).
	POS	Displays the beacon information of the selected station.

M-1	RE•TX	Resends the APRS Message when the acknowledgment packet ("ack") is not received.
		—
		—
	REPLY	Jump to the "TX MESSAGE EDIT" window (Reply operation).
	M•EDIT	Jump to the "TX MESSAGE EDIT" window.

M-2	RAW	Displays the "Raw" data of the message.
		—
		—
	QUERY	Jump to the "TX MESSAGE EDIT" window with Query command (?APRSP).
	POS	Displays the beacon information of the selected station.

E-1	←	Moves the cursor to the left.
	→	Moves the cursor to the right.
		—
	FONT	Change the character (upper-case alphabet, lower-case alphabet, numeric, and symbol).
	INS	Inserts a character into the current digit.

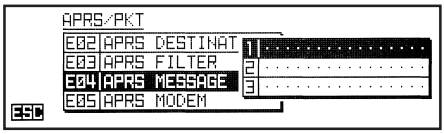
E-2	MTXT	Opens the "MESSAGE TEXT" window.
	CLRALL	Clears all data.
		—
	QUERY	Clear the all data and add Query command (?APRSP).

TRANSMIT AN APRS® MESSAGE

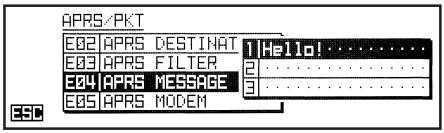
STORE THE FIXED FORM MESSAGE

The **FTM-350** 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) you wish to store your message to.
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.



The **FTM-350** provides many convenient functions for APRS operation. Refer to the "APRS/PKT Set Mode" chapter beginning with page 20 for details.

NOTE

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
E04 APRS MESSAGE TXT	Programming the fixed form APRS message.	8 messages (up to 16 character)
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
E08 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 CALL RINGER: ON / OFF 6 RNG RINGER: OFF / 1 ~ 100 7 MSG VOICE: ON / OFF
E09 APRS RINGER (CALL)	Call Sign register for the "CALL RINGER" function.	8 stations (6 characters plus SSID)
E10 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
E11 APRS UNIT	Selects the unit for the 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.
E12 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
E13 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 3 TEXT 1: 4 TEXT 2: 5 TEXT 3: 6 TEXT 4: 7 TEXT 5:

APRS/PKT SET MODE

SET MODE ITEM	FUNCTION	AVAILABLE VALUES (DEFAULT: BOLD)
E14 BEACON TX	Enables/Disables the automatic transmission of the APRS Beacon.	1 AUTO: OFF / ON(FIX) / 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
E15 COM PORT SETTING	Sets the COM port setting.	1 SPEED: 4800bps / **9600bps** / 19200bps 2 OUTPUT: OFF / GPS OUT / PACKET
E16 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
E17 DATA SPEED	Selects the Baud Rate for APRS and DATA operation.	1 APRS: **1200 bps** / 9600 bps 2 DATA: **1200 bps** / 9600 bps
E18 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
E19 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
E20 DIGI PATH 1	Sets the APRS packet path.	(up to 2 Digipeater Address)
E21 DIGI PATH 2	Sets the APRS packet path.	(up to 2 Digipeater Address)
E22 DIGI PATH 3	Sets the APRS packet path.	(up to 2 Digipeater Address)
E23 DIGI PATH 4	Sets the APRS packet path.	(up to 2 Digipeater Address)
E24 DIGI PATH FULL 1	Sets the APRS packet path.	(up to 8 Digipeater Address)
E25 DIGI PATH FULL 2	Sets the APRS packet path.	(up to 8 Digipeater Address)
E26 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?
E27 MESSAGE REPLY	Enable/Disable the message reply feature, and program its details.	1 STATUS: ON / OFF 2 CALLSIGN: ****** - ** 3 TEXT:
E28 MY CALLSIGN	Program your callsign.	****** - NN

APRS/PKT SET MODE

SET MODE ITEM	FUNCTION	AVAILABLE VALUES (DEFAULT: BOLD)
E29 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
E30 MY POSITION	Determine and memorize your location (Lat/Log).	POSITION DATA: NS°.' (' ") / EW°.' (' ")
E31 MY SYMBOL	Selects your icon which will be displayed on the monitor of other stations as you.	46 symbols
E32 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!
E33 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
E34 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

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 **FTM-350** 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 **FTM-350** 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 "**E11: APRS UNIT**".
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
Mic-E: When this item set to "ON", the **FTM-350** shows the stations which send a MIC Encoder Beacon.
POSITION: When this item set to "ON", the **FTM-350** shows the stations which send a Position Beacon and Raw NMEA data.
WEATHER: When this item set to "ON", the **FTM-350** shows the stations which send a Weather Beacon.

OBJECT: When this item set to "ON", the **FTM-350** shows the stations which send an Object Beacon.

ITEM: When this item set to "ON", the **FTM-350** shows the stations which send an Item Beacon.

STATUS: When this item set to "ON", the **FTM-350** shows the stations which send a Status Beacon.

OTHER: When this item set to "ON", the **FTM-350** shows the stations which send a packet signal except the APRS beacon.

RANGE LIMIT: When this item set to "ON", the **FTM-350** shows the stations which are inside of the range limit setting.

E04: APRS MESSAGE TXT

Function: Programming the Fixed form APRS message. See page 18 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
Default: 1 BEACON: 10 sec
2 MESSAGE: 10 sec

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

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

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

E08: 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 CALL RINGER: OFF or ON
6 RNG RINGER: OFF/1 - 100
7 MSG VOICE: OFF or ON

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

TX BEACON: When this item is set to "ON", the **FTM-350** emits an audible alert ringer when an APRS beacon is transmitted.

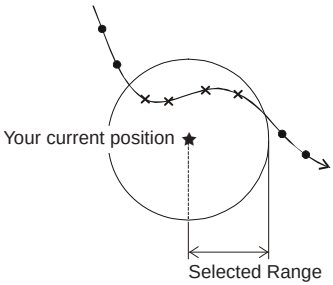
TX MESSAGE: When this item is set to "ON", the **FTM-350** emits an audible alert ringer when an APRS message is transmitted.

RX BEACON: When this item is set to "ON", the **FTM-350** emits an audible alert ringer when an APRS beacon is received.

RX MESSAGE: When this item is set to "ON", the **FTM-350** emits an audible alert ringer when an APRS message is received.

CALL RINGER: When this item is set to "ON", the **FTM-350** emits an audible alert ringer when an APRS beacon including a callsign which is entered in the Set Mode item "**E09 APRS RINGER (CALL)**".

RNG RINGER: When this item is set to a desired value, the **FTM-350** 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 "**E11 APRS UNIT**").



MSG VOICE: When this item is set to "ON", the **FTM-350** audibly announces the received APRS message and callsign (requires 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 alphabetically.

E09: 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.

E10: 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

E11: APRS UNIT

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.

E12: 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.

E13: BEACON STATUS TXT

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

Available Values: 1 SELECT: OFF / TEXT 1 ~ TEXT 5
2 TX RATE: 1/1 ~ 1/8
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 **FTM-350** does not transmit the Status Text Message.
When this item is set to one of the "TEXT 1" ~ "TEXT 5", the **FTM-350** transmits the Status Text Message corresponding to the slot which you selected.

TX RATE: Selects the rate at which the Status Text Message is included with the **FTM-350** APRS beacon transmissions ("1/1" (every time) ~ "1/8" (once in eight times)).

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

E14: BEACON TX

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

Available Values:

1 AUTO:	OFF, ON(FIX), 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 **FTM-350** only transmits your APRS beacon when the [**B-TX**] key is pressed.

When this item is set to "ON (FIX)", 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 "**E14 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 "**E33 SmartBeaconing**".

INTERVAL: This item sets the interval time to transmit the APRS beacon automatically when "1 AUTO" of the Set Mode item "**E14 BEACON TX**" is set to "ON (FIX)".

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 "**E19 DIGI PATH SELECT**" is set to "WIDE - 1-1, WIDE - 2-1", and the "INTERVAL" item is set to "5min", the APRS beacon path changes as follows:

a. 5 minute WIDE - 1-1, WIDE - 2-1
b. 10 minute (none)
c. 15 minute WIDE - 1-1
d. 20 minute (none)
e. 25 minute WIDE - 1-1, WIDE - 2-1

repeats steps b - e afterward

When the Set Mode item "**E19 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.

Setting this item 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 was stopped the interval time extend 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.

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 **FTM-350** considers the vehicle has stopped. (The speed unit is determined from the Set Mode item "**E11 APRS UNIT**").

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 **FTM-350** 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.

E15: 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, or PACKET

Default: 1 SPEED: 9600 bps
2 OUTPUT: OFF

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 **FTM-350** does not output any data from the COM port.
When this item is set to "GPS OUT", the **FTM-350** outputs the GPS data (NMEA data: GGA & RMC) from the COM port.
When this item is set to "PACKET", the **FTM-350** outputs the Packet data from the COM port.

Important Note: If you connect your personal computer to the **FTM-350**, verify the correct settings for "**E16: DATA BAND SELECT**" and "**E17: DATA SPEED**".

E16: 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: SUB BAND
2 DATA: MAIN BAND

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.

E17: 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

E18: 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 **FTM-350** is transmitting.

E19: 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)

E20: 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 "**E19 DIGI PATH SELECT**".

E21: 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 "**E19 DIGI PATH SELECT**".

E22: 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 "**E19 DIGI PATH SELECT**".

E23: 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 "**E19 DIGI PATH SELECT**".

E24: 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 "**E19 DIGI PATH SELECT**".

E25: 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 "**E19 DIGI PATH SELECT**".

E26: 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?

E27: MESSAGE REPLY

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

Available Values: 1 STATUS: OFF or ON
2 CALLSIGN: ∗∗∗∗∗∗-∗∗
3 TEXT:

Default: 1 STATUS: OFF
2 CALLSIGN: ∗∗∗∗∗∗-∗∗
3 TEXT:

STATUS: When this item is set to "ON", the **FTM-350** 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.

E28: MY CALLSIGN

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

E29: MY POSITION SET

Function: Determine 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 "**E30 MY POSITION**".
P.LIST: Your location is determined from the "Point" list memory data. See page 25 of the **FTM-350** Operating manual for details.

E30: MY POSITION

Function: Program your location (Longitude/Latitude) manually.
See page 2 for details.

E31: 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 charactor)
Default: ICON1: , ICON2: , ICON3: , USER:
You may replace the default icon of the ICON1, ICON2, and ICON3 to another one by rotating the ***left side*** [**DIAL**] knob.

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).

E32: 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.

E33: SmartBeaconing

Function: Selects the various parameters of the 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 resisters 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 **FTM-350** 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 “**E11 APRS UNIT**”.)

HIGH SPEED: This item designates the higher speed threshold. The **FTM-350** 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 “**E11 APRS UNIT**”.)

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 **FTM-350** 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.

E34: 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

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.

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 a frquency data, are displayed.

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

DIGIPEATER : Only the APRS beacons from the digipeaters are displayed.

APRS/PKT SET MODE

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

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

YAESU: Only the APRS beacons transmitted from a Yaesu transceiver, such as the **VX-8D**, **FTM-350** etc. are displayed.

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

Note: To display the stations including the 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 **FTM-350** displays only the APRS beacons of the "CALL RINGER" stations, which are, entered into Set Mode item "**E09 APRS RINGER** (**CALL**)".

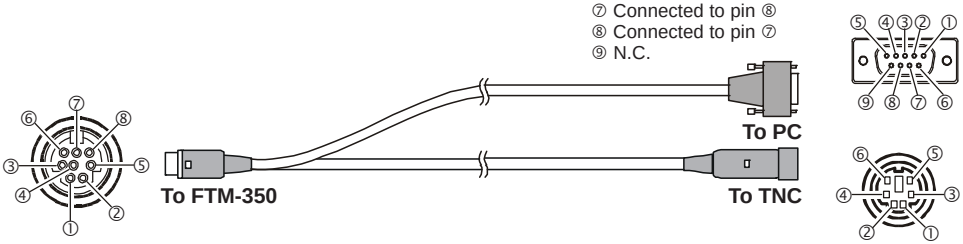
RNG RINGER: The **FTM-350** displays only the APRS beacons of the "RNG RINGER" stations which are defined via the Set Mode parameters of "**E08 APRS RINGER**".

NOTE

APPENDIX

CT-140 CABLE CONNECTIONS

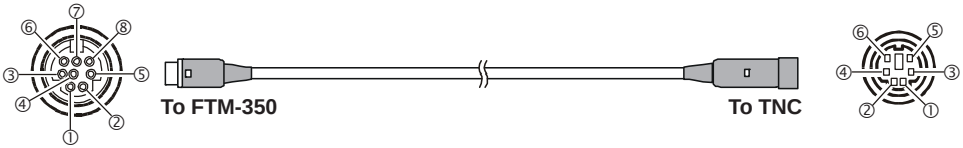
D-SUB 9-PIN
① N.C.
② TXD (Serial data output: FTM-350 → PC)
③ RXD (Serial data input: FTM-350 ← PC)
④ N.C.
⑤ GND
⑥ N.C.
⑦ Connected to pin ⑧
⑧ Connected to pin ⑦
⑨ N.C.



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: FTM-350 → PC)
⑧ RXD (Serial data input: FTM-350 ← 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)

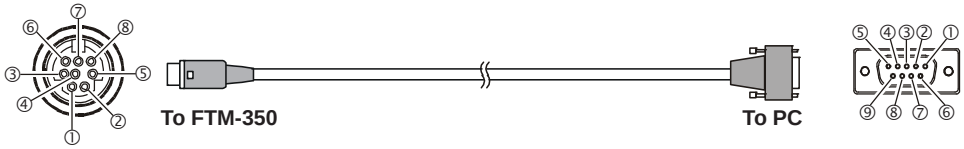
CT-141 CABLE CONNECTIONS



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: FTM-350 → PC)
⑧ RXD (Serial data input: FTM-350 ← 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: FTM-350 → PC)
⑧ RXD (Serial data input: FTM-350 ← PC)

D-SUB 9-PIN
① N.C.
② TXD (Serial data output: FTM-350 → PC)
③ RXD (Serial data input: FTM-350 ← 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 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: FTM-350 → PC)
⑧ RXD (Serial data input: FTM-350 ← PC)

YAESU

Printed in Japan

E H 0 3 3 M 1 1 1