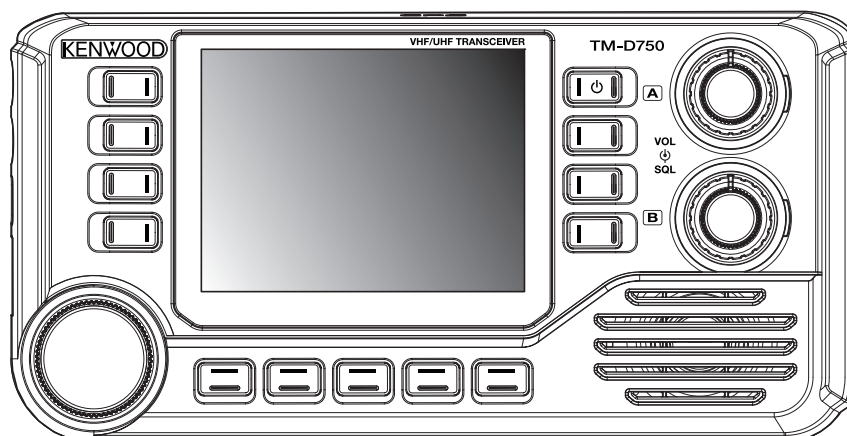


TM-D750A TM-D750E

USER MANUAL

This User Manual covers detailed operating instructions of the TM-D750A/E including basic operating instructions described in the User Guide comes with the product.



JVCKENWOOD Corporation

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2 BEFORE STARTING

Thank You

We are grateful you decided to purchase this **KENWOOD** Digital transceiver.

The models listed below are covered by this manual.

TM-D750A: 144/220/430MHz DIGITAL TRIBANDER (The Americas)

TM-D750E: 144/430MHz DIGITAL DUAL BANDER (Europe)

Features

This transceiver has the following main features:

- **Compatible with APRS® data communication system**
- **Supports APRS® Digipeater function**
- **Supports D-STAR® Digital**
- **Supports simultaneous reception of two D-STAR® signals**
- **D-STAR® Direct Mode**
- **D-STAR® Repeater Monitor**
- **D-STAR® Reflector Terminal Mode**
- **D-STAR® Repeater Terminal Mode**
- **Built-in GPS unit supporting GPS, QZSS, and Galileo**
- **Equipped with a color LCD**
- **Simultaneous reception of two signals (VxU, UxV, UxU (TM-D750A/ TM-D750E), Vx220M, 220MxV, Ux220M (TM-D750A), AIR BAND)**
- **Built-in speaker on the operation panel**
- **Visual Scan and Water Fall Display**
- **Voice processing by DSP**
- **Menu readout function (Voice Guidance)**
- **Built-in Bluetooth (SPP, HSP)**
- **Built-in wireless LAN**
- **microSD memory card (2 GB to 32 GB)**
- **Supports data transfer via USB Type-C™**
- **1000 memory channels, 1500 repeater lists, and 30 hotspot lists**
- **Three-step selectable transmit power**
TM-D750A 144/430 MHz (50 /10 /5 W) 220MHz (20 /10 /5 W)
TM-D750E 144/430 MHz (50 /10 /5 W)

About This Manual

This manual has been prepared based on the following specifications and design.

Specifications and ratings: See Chapter 26 "Others". (p. 0)

Firmware version: V1.00 (and later)

- You can check the firmware version in Menu No. 991.

The title to and ownership of copyrights for software, including but not limited to the firmware that may be distributed individually, to be embedded in KENWOOD product memories, are reserved for JVCKENWOOD Corporation.

Any modifying, reverse engineering, copying, reproducing or disclosing on an Internet website of the software is strictly prohibited.

A user is required to obtain approval from JVCKENWOOD corporation, in writing, prior to redistributing this manual on a personal web page or via packet communication.

Furthermore, any reselling, assigning or transferring of the software is also strictly prohibited without embedding the software in KENWOOD product memories.

Software License Agreement contains the terms and conditions of use of the software embedded in or used with the transceiver. A user is entitled to use the software subject to the acceptance and agreement of this Software License Agreement by the user. Also, this Software License Agreement stipulates the terms and conditions of use of this software embedded in or used with the transceiver, and a user has the right to use the transceiver with the software embedded subject to the applicable laws and regulations, the description and defined in this manual and the warranty card.

The Software License Agreement can be displayed in the menu below. (Refer to Chapter 3 for operation of menu.)

Advanced menu No. 993 "End-User License Agreement"

The software embedded in this transceiver consists of a multiple number of and individual software components. Title to and ownership of copyrights for each software component is reserved for JVCKENWOOD Corporation and the respective bona fide holder. This product employs the software component in accordance with the End User License Agreement (hereinafter referred to as the "EULA") stipulated by JVCKENWOOD Corporation and/or the respective bona fide holder.

There is free software stipulated and governed by the "EULA", and this, a distribution condition of the software component in the executable format under the terms and conditions contained in the GNU General Public License or Lesser General Public License (hereinafter referred to as the "GPL/LGPL"), requires to make the source code for the relevant software components available.

Access the URL below for details of the software component stipulated in the "GPL/LPGL".

<https://www.kenwood.com/gpl/>

Important notice about software can be displayed in the menu below. (Refer to Chapter 3 for operation of menu.)

Advanced menu No. 994 "Important Notice"

About the GPL/ LPGL License

<https://manuals.jvckenwood.com/>

Notices to the User

SUPPLIER'S DECLARATION OF CONFORMITY

47 CFR § 2.1077 Compliance Information
Trade name: KENWOOD
Model(s): TM-D750A
Responsible party: JVCKENWOOD USA Corporation 1440
Corporate Drive, Irving, TX 75038 USA
Telephone number: 972-819-0700

One or more of the following statements may be applicable for this equipment.

FCC WARNING

This equipment generates or uses radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved by the party responsible/ JVCKENWOOD. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

INFORMATION TO THE DIGITAL DEVICE USER REQUIRED BY THE FCC

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can generate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer for technical assistance.

RF EXPOSURE INFORMATION FOR BLUETOOTH AND WLAN

This equipment complies with FCC/IC radiation exposure limits and meets the FCC radio frequency (RF) Exposure Guidelines and RSS-102 of the IC radio frequency (RF) Exposure rules. While transmitting, always keep the antenna and the radio at least 20 cm (7.9 inches) from your body or face, as well as from any bystanders. This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

This device complies with Industry Canada license exempt RSS standard(s). Operation is subject to the following two conditions : (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

This product is designed for connection to an IT power distribution system.

This product contains a CR Coin Cell Lithium Battery which contains Perchlorate Material – special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate

This product includes “Ubiquitous QuickBoot™” technology developed by Ubiquitous AI Corporation. Ubiquitous QuickBoot™ is a trademark of Ubiquitous AI Corporation.

Copyright© 2025 Ubiquitous AI Corporation All rights reserved.

Information on Disposal of Old Electrical and Electronic Equipment and Batteries (applicable for countries that have adopted separate waste collection systems)



Products and batteries with the symbol (crossed-out wheeled bin) cannot be disposed as household waste. Old electrical and electronic equipment and batteries should be recycled at a facility capable of handling these items and their waste byproducts.

Contact your local authority for details in locating a recycle facility nearest to you.



Proper recycling and waste disposal will help conserve resources whilst preventing detrimental effects on our health and the environment.

3 PRECAUTION

- Do not use options not specified by **KENWOOD**.
- If the die-cast chassis or other transceiver part is damaged, do not touch the damaged parts.
- If a headset is connected to the transceiver, reduce the transceiver volume. Pay attention to the volume level when turning the squelch off.
- Do not place the microphone cable around your neck while near machinery that may catch the cable.
- Do not place the transceiver on unstable surfaces.
- When the transceiver is used for long transmissions, the chassis will become hot. Do not touch these hot locations.
- Do not immerse the transceiver in water.
- Do not hold the knob when carrying the transceiver. Doing so may cause the knob to come off and the transceiver to fall.
- If water enters the microphone opening or the speaker grill, the audio level may become unstable or distorted. Lightly shake the transceiver to remove the water from the speaker and/or microphone before operating the transceiver.
- Do not place the accessories of the transceiver or the items removed from the transceiver within reach of infants and children. There is a risk that these may be swallowed. If these are swallowed accidentally, consult a doctor immediately.
- If condensation forms, let it dry naturally or leave the transceiver in the same environment for a long time to eliminate the condensation before using the transceiver.
- Always switch the transceiver power OFF before installing or removing optional accessories. Make these changes out of the Hazardous Location.
- To dispose of batteries, be sure to comply with the laws and regulations in your country or region.
-
- Installing the transceiver near a vehicle's electronic control units may affect these electronic units during transmission.
Be sure to install the transceiver away from the vehicle's electronic control units.



Turn the transceiver power off in the following locations:

- In explosive atmospheres (flammable gas, dust particles, metallic powders, grain powders, etc.).
- While taking on fuel or while parked at gasoline service stations.
- Near explosives or blasting sites.
- Where restrictions or warnings are posted regarding the use of radio devices, including but not limited to medical facilities.
- Near persons using pacemakers.



- ◆ Do not disassemble or modify the transceiver for any reason.
- ◆ Do not place the transceiver on or near airbag equipment while the vehicle is running. When the airbag inflates, the transceiver may be projected and strike the driver or passengers.
- ◆ Do not transmit while touching the antenna terminal or if any metallic parts are exposed from the antenna covering. Transmitting at such a time may result in a radio frequency (RF) burn.
- ◆ If an abnormal odor or smoke is detected coming from the transceiver, switch the transceiver power off immediately, and contact your **KENWOOD** dealer.
- ◆ Use of the transceiver while you are driving may be against traffic laws. Please check and observe the vehicle regulations in your area.
- ◆ Do not expose the transceiver to extremely hot or cold conditions.

4 PREPARATION

Supplied Accessories

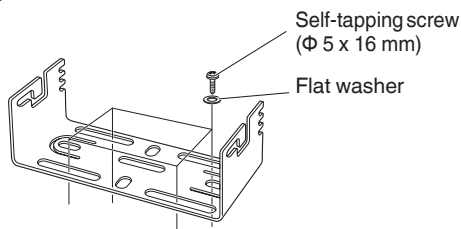
After carefully unpacking the transceiver, identify the items listed in the table below.

Item	Quantity	Item	Quantity
Microphone (Product equivalent to MC-62)	1	Panel holder	1
DC power cable (2 m)/ with two 20 A fuses (Product equivalent to PG-2N)	1	Panel bracket	1
Spare fuse (15 A)	1	Base stand	1
Panel cable (4 m)	1	Screw set	1
Line filter	2	Microphone hanger (with screws)	1
STARTUP GUIDE	1	Mounting bracket	1
Warranty card	1		

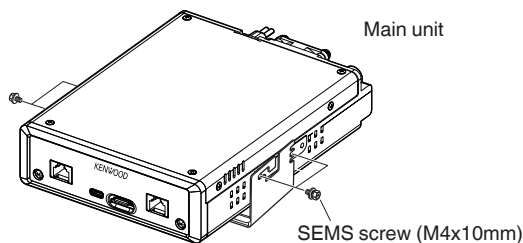
Mounting on the Vehicle

Installing the Main Unit

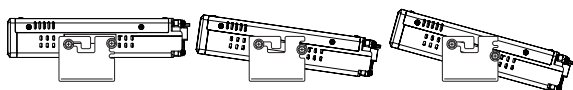
- 1 Install the mounting bracket in the vehicle using the supplied self-tapping screws and flat washers (four of each are supplied).



- 2 Position the main unit, then insert and tighten the supplied hexagon SEMS screws (four are supplied, two for each side of the bracket).
 - Tighten the hexagon SEMS screw firmly using a Phillips screwdriver or a 7 mm wrench.



- The mounting angle between the bracket and the main unit can be set in three ways, as shown in the diagram below.



- ❗ Select a safe, convenient location inside your vehicle that will minimize danger to your passengers and yourself while the vehicle is in motion.
- ❖ Avoid installing in locations exposed to direct sunlight or with poor ventilation. For proper heat dissipation, install the device in a position where the bottom heat-dissipation fins, rear fan, and side vents are not obstructed.
- ❖ Mount securely to prevent it from coming loose due to vibration.
- ❖ Loose screws may cause the main unit to fall, resulting in injury. Make sure it is firmly fastened.

Installing the Operation Panel



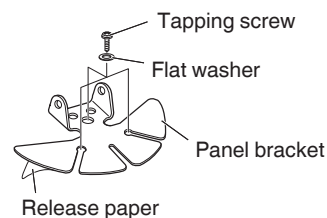
- ❖ Install the operation panel in a location where it can easily receive signals from GPS satellites.
- ❖ Install the operation panel vertically. If it is tilted, it may not receive GPS satellite signals correctly.



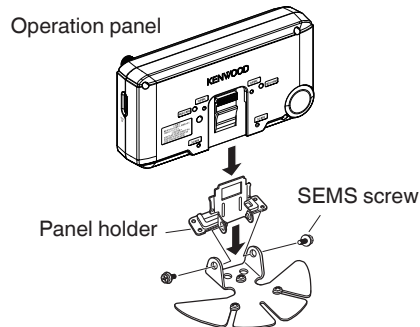
Do not install around the airbag equipment. In an accident, the airbag may not operate normally, or the attached objects may scatter when the airbag inflates, resulting in possible serious injury.

- 1 After securing it to the vehicle, avoid touching the stand or applying vibrations for a while.
- 2 Peel off the release paper from the double-sided tape on the bottom of the panel bracket, and secure it to the vehicle using the three supplied tapping screws.

- After securing it to the vehicle, avoid touching the stand or applying vibrations for a while.
- Once the panel bracket is removed, the adhesive strength of the double-sided tape will weaken, making it unusable.



- 3 Attach the panel holder to the panel bracket using the two supplied SEMS screws.

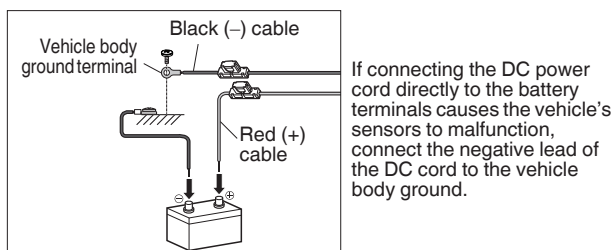
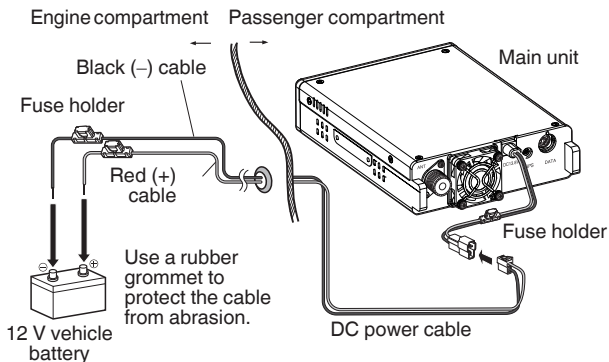


- 4 Attach the operation panel to the panel holder so that it locks in place.

Connecting the Power Cable



- ◆ Be sure to use a 12 V vehicle battery that has sufficient current capacity. If the current to the transceiver is insufficient, the display may darken during transmission or the transmit output power may drop excessively. Never connect the transceiver to a 24 V battery.
- ◆ To prevent the risk of short circuits, disconnect other wiring from the negative (–) battery terminal before connecting the transceiver.
- ◆ If you use the transceiver for a long period when the vehicle battery is not fully charged or when the engine is OFF, the battery may become discharged and will not have sufficient reserves to start the vehicle. Avoid using the transceiver under these conditions.
- ◆ When using a noise filter, it should be installed with an insulator to prevent it from touching metal on the vehicle.
- ◆ We do not recommend using a cigarette lighter socket as some cigarette lighter sockets introduce an unacceptable voltage drop.
- ◆ If the power cable must be routed through a hole in the vehicle chassis or body, for example in the firewall at the front of the passenger compartment, use a rubber grommet to protect the cable from abrasion. Dismantle the fuse holder to pass the cable through the firewall.
- ◆ The entire length of the cable must be dressed so it is isolated from heat, moisture, and the engine secondary (high voltage) ignition system/ cables.
- ◆ After the cable is in place, wind heat-resistant tape around the fuse holder to protect it from moisture. Tie down the full run of cable.
- ◆ Depending on the vehicle, connecting the DC power cord of the transceiver directly to the battery terminals may cause the vehicle's sensors to not operate properly. In such cases, please connect the negative terminal to the vehicle body ground instead of directly to the battery.

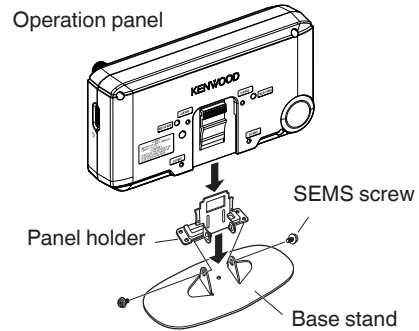


Operating as Base Station

Installing the Operation Panel

- 1 Attach the panel holder to the base stand using the two supplied SEMS screws.

- 2 Attach the operation panel to the panel holder so that it locks in place.

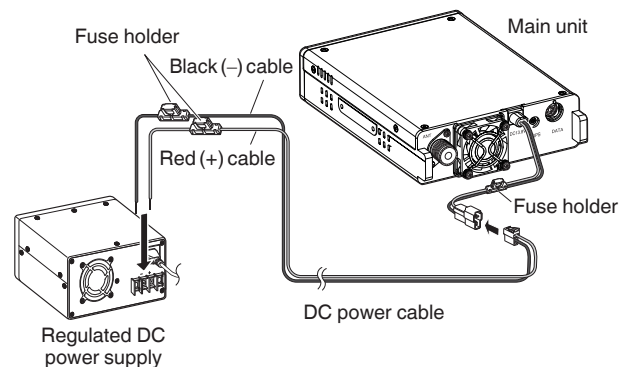


Connecting the Power Cable

When operating this transceiver as a base station, connect it to a 13.8 V regulated DC power supply.

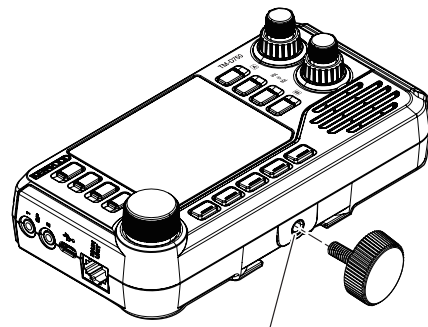
The recommended current capacity of the power supply is more than 13 A.

- 1 Connect the DC power cable to the regulated DC power supply and ensure that the polarities are correct.
Red: Positive (+) terminal, Black: Negative (–) terminal
- 2 Connect the DC power cable to the main unit.
Make sure the connector is fully and securely inserted.



Mounting on a Commercially Available Tripod

The operation panel can be used with a commercially available tripod or similar stand without using the panel holder.



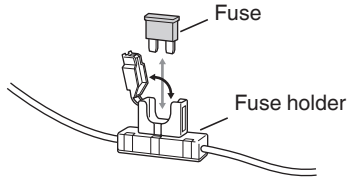
Mounting hole (diameter: 1/4 inch, maximum screw length: 5 mm)



- ◆ Use of the supplied panel holder and panel bracket is recommended when installing to a vehicle.
- ◆ For using a commercially available mounting kit in the vehicle, use after the careful confirmation that the weight of the transceiver is no problem for use, and that shaking, etc. does not occur while traveling. Because the use of a mounting kit inappropriate for the transceiver may be the cause of injury because of a drop, etc. fire, electric shock, and/or accidents, do not use a mounting kit inappropriate for the transceiver.

Replacing the Fuse

When a fuse blows, first correct the cause, then replace it with a fuse of the specified rating. If the fuse blows again immediately, disconnect the DC power cable and contact your authorized KENWOOD dealer or an authorized KENWOOD service center.

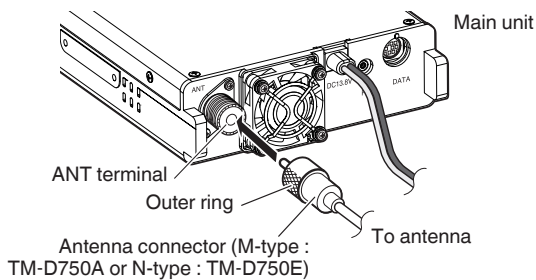


Always use only the specified fuse.

- ◆ The fuse of the DC power cable is 20 A.
- ◆ The fuse of the DC power cable of the transceiver is 15 A.

Installing the Antenna

- 1 Connect the antenna cable to the ANT terminal (M-type : TM-D750A or N-type : TM-D750E) at the back.



- 2 Firmly tighten the outer ring of the antenna connector onto the ANT terminal of the main unit.

About the Antenna

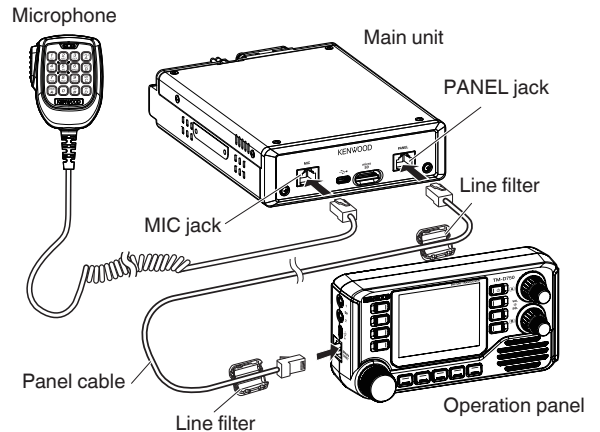
- Use an antenna that is appropriate for the respective frequency band. Using an antenna for a different frequency band can significantly degrade transmission and reception performance.
- The antenna impedance of this transceiver is 50 Ω . Use a 50 Ω coaxial cable with as low loss as possible, and connect to a 50 Ω antenna with a low SWR (1.5 or less) using the shortest possible cable length.
- If the antenna system has a mismatched impedance or is not properly tuned, the transceiver may not perform optimally. In addition, the protection circuit may activate, reducing transmit power and potentially affecting the operation of other electronic devices.



- ◆ When operating as a base station, install a lightning arrester on the antenna to protect against fire, electric shock, injury, or equipment damage due to lightning.

Connecting the Operation Panel and Microphone

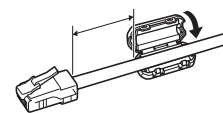
Plug the microphone plug into the MIC jack, then connect the operation panel to the transceiver with the supplied cable.



■ Installing the Line Filter

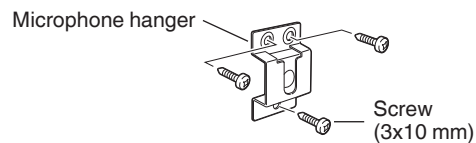
Install the line filters approximately 3 cm from the connectors.

Approx. 3 cm



■ Attaching the Microphone Hanger

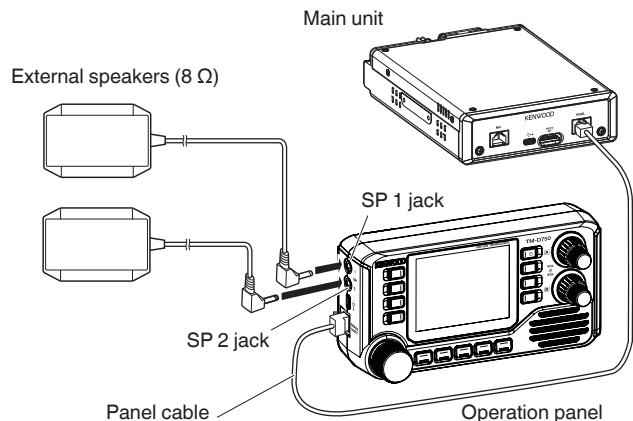
Securely attach the microphone holder using the three supplied screws, ensuring that the microphone can hang without obstructing driving.



Connecting an External Speaker

Connect commercially available external speakers (impedance of 8 Ω) to SP 1 and SP 2 jacks (impedance of 8 Ω) on the side of the operation panel.

When an external speaker is connected to the SP1 jack, the internal speaker will be muted.

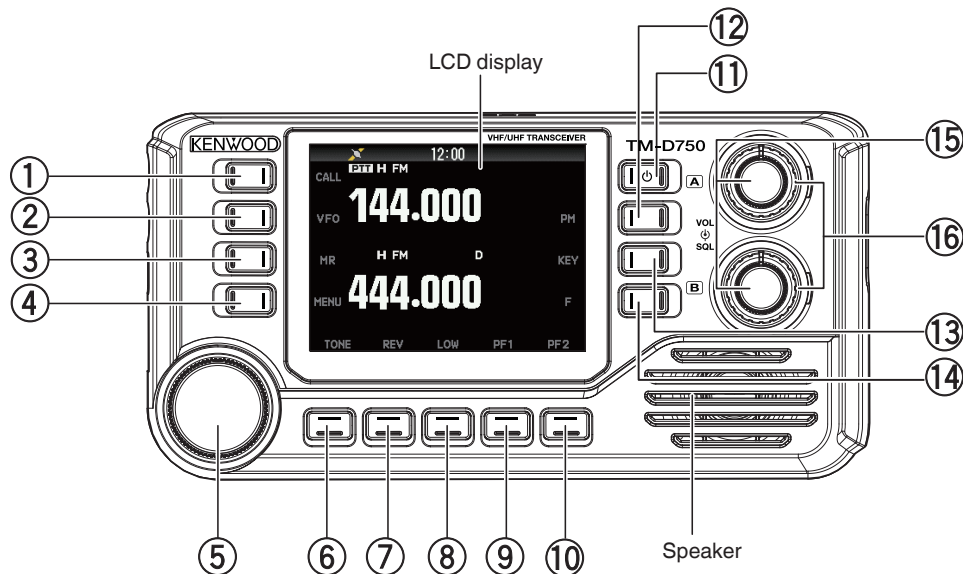


- ◆ Do not connect speakers with an impedance of 4 Ω . Depending on the connection status, there is a risk of problems such as the panel cable overheating due to the increase in current exceeding its rated current capacity.

5 PART NAMES AND FUNCTIONS

Operation Panel

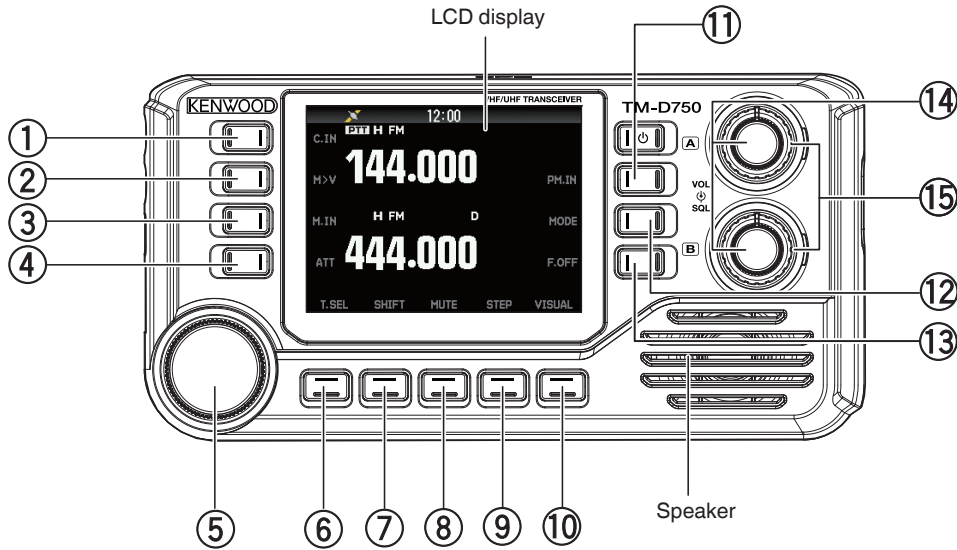
Normal Mode



- ① **[CALL]**
Press [CALL] to select the CALL channel.
Press and hold [CALL] to start CALL scan.
- ② **[VFO]**
Press [VFO] to enter VFO mode.
Rotate the [ENC] control to select an operating frequency.
Press and hold [VFO] to start band scan.
- ③ **[MR]**
Press [MR] to enter Memory channel mode.
Rotate the [ENC] control to select a Memory channel.
Press and hold [MR] to start Memory scan.
- ④ **[MENU]**
Press [MENU] to enter Menu mode.
- ⑤ **[ENC] Control**
Rotate the [ENC] control to select an operating frequency, Memory channel, Menu item, setting value and change the scan direction, etc.
Press the [ENC] control to enter MHz mode while in VFO or Call mode. It displays the memory channel list while in memory channel mode.
Press and hold [ENC] control to start MHz scan or Group scan.
- ⑥ **[TONE]**
Press [TONE] to turn the Tone function ON.
Each time you press [TONE], the function cycles through the following:
Tone ON → CTCSS ON → DCS ON → Cross Tone ON → OFF
- ⑦ **[REV]**
Press [REV] to turn the Reverse function ON or OFF.
- ⑧ **[LOW]**
Each time you press [LOW], the transmit output cycles through the following:
Middle Power → Low Power → High Power
- ⑨ **[PF1]**
Press [PF1] to activate its programmed function.
* The default setting is [BAND] (frequency band select).
- ⑩ **[PF2]**
Press [PF2] to activate its programmed function.
* The default setting is [CTRL] (operating band select).
- ⑪ **[⏻] Power switch**
Each time you press and hold [⏻], the transceiver power is turned ON or OFF.
* [VOICE] appears when "Menu No.922. Voice Guidance" is set to "Manual/Auto1/Auto2", and pressing [⏻] triggers a voice announcement each time.
- ⑫ **[PM]**
Press [PM] to enter the PM (Programmable Memory) channel selection mode.
- ⑬ **[KEY]**
Each time you press [KEY], the software key cycles through the following:
APRS soft key → Digital soft key → GPS soft key → Radio soft key
- ⑭ **[F]**
Press [F] to enter Function mode.
Press and hold [F] to turn the transceiver key lock function ON or OFF.
- ⑮ **[BAND SEL] Control (VOL)**
Rotate the [BAND SEL] control of the volume that you wish to adjust.
Press [BAND SEL] for the side you wish to select to simultaneously choose the operating band and transmitting band.
Press the upper control to select Band A and press the lower control to select Band B.
Press and hold [BAND SEL] to switch between Single band mode and Dual band mode.
* The [BAND SEL] button is divided into [BAND SEL A] (upper) and [BAND SEL B] (lower). On the display, the upper side corresponds to Band A, and the lower side corresponds to Band B.
- ⑯ **[SQL] Control**
Rotate the [SQL] control to adjust the squelch level. Clockwise tightens the squelch and counterclockwise opens the squelch.

Function Mode

Pressing [F] in normal mode enters function mode, and the functions of each key will change.



① [C.IN]

Press [C.IN] to store the current operating frequency to the Call channel.

② [M>V]

Press [M>V] to copy the current Memory channel or Call channel to the VFO (memory shift).

③ [M.IN]

Press [M.IN] to store the displayed frequency into the memory channel selected using the [ENC] control.

④ [ATT]

Press [ATT] to toggle the attenuator ON or OFF for the operating band.

⑤ [ENC] Control

Rotate the [ENC] control to select an operating frequency, Memory channel, Menu item, setting value and change the scan direction, etc.

Press the [ENC] control to return to Normal mode. It displays the memory channel list while in memory channel mode.

Press and hold [ENC] control to start MHz scan or Group scan.

⑥ [T.SEL]

While Tone, CTCSS, DCS, or Cross Tone is ON, press [T.SEL] to enter Tone, CTCSS, DCS, or Cross Tone setup mode.

Press and hold [T.SEL] to start the Tone Scan, CTCSS Scan, or DCS Scan.

Rotate the [ENC] control to select the Tone/CTCSS frequency, DCS code, or Cross tone combination.

⑦ [SHIFT]

Press [SHIFT] to enter Offset direction selection mode.

Each time you press [SHIFT], the offset direction toggles as follows: plus (+) direction → minus (−) direction → −7.6 MHz (TM-D750E only) → OFF

⑧ [MUTE]

Press [MUTE] to turn the Mute function ON or OFF.

⑨ [STEP]

Press [STEP] to return to the setup mode for the step frequency (list display).

⑩ [VISUAL]

Press [VISUAL] to turn ON the Visual scan function.

⑪ [PM.IN]

Press [PM.IN] to enter PM channel registration mode.

⑫ [MODE]

When you press [MODE], the demodulation mode of the operating band will switch as follows:

FM/NFM → DV (DR) → AM → FM/NFM

⑬ [F.OFF]

Press [F.OFF] to return Normal mode.

⑭ [BAND SEL] Control (VOL)

Press [BAND SEL] on the operating band to change the frequency range or memory group.

⑮ [SQL] Control

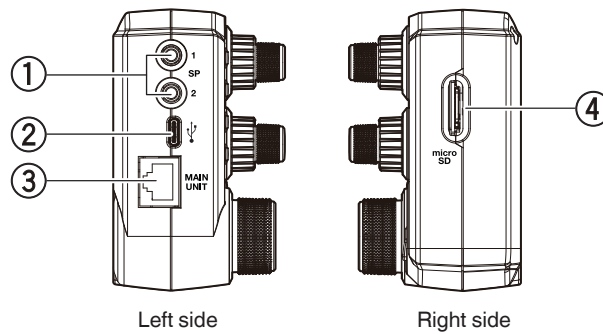
Rotate the [SQL] control to adjust the squelch level. Clockwise tightens the squelch and counterclockwise opens the squelch.



◆ The tone frequency changes according to the status of the transceiver, as described in the settings below.

Tone OFF	: Disabled
Tone ON	: Tone frequency
CTCSS ON	: CTCSS frequency
DCS ON	: DCS frequency
Cross Tone ON	: Cross tone combination
Voice Alert ON	: Voice Alert frequency

Left & Right



① SP Jacks (SP 1/SP 2)

Connect an external speaker. There are two speaker jacks: SP1 and SP2. The audio output when an external speaker is connected varies depending on the speaker output mode and the connection status of the speakers.

② USB Connector (USB Type-C™)

The transceiver can be connected to a PC by using a commercially available USB cable (USB Type-C™).

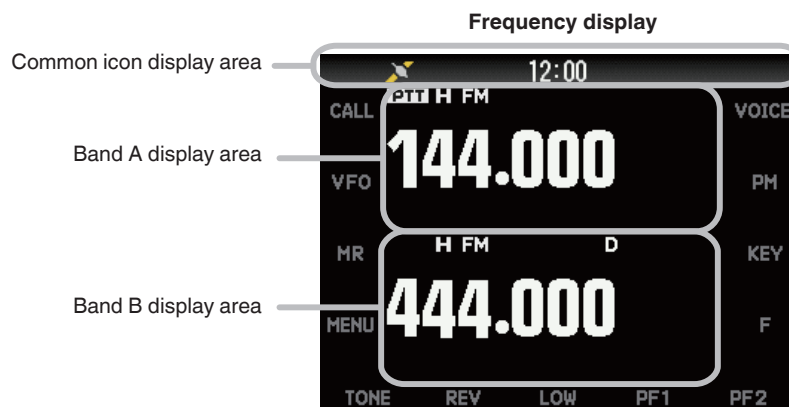
③ MAIN UNIT Jack

This is the connector for connecting the main unit. Connect it using the supplied panel cable.

④ microSD Memory Card Slot

Insert a microSD memory card to store configuration data, recorded data, QSO logs, and other information.

Display



■ Common icon Display Area

Indicator	Description	Page
	Appears when the built-in GPS function is ON and positioning.	p. 64
	Appears when the built-in GPS function is ON and not positioning.	p. 64
	Appears when the external GPS function is ON and positioning is in progress.	p. 70
	Appears when the external GPS function is ON but there is no positioning.	p. 70
	Appears when a weather observation device is connected.	p. 70
	Appears when the GPS Track Log function is ON and the built-in GPS function is positioning.	p. 69
	Appears when the GPS Track Log function is ON but not acquiring a position.	p. 69
	Appears when a message is received.	p. 80
	Appears while recording a QSO.	p. 134
	Appears when QSO recording is paused.	p. 134

PART NAMES AND FUNCTIONS

Indicator	Description	Page
	Appears when the Priority Scan function is ON.	p. 44
	Appears when Bluetooth is ON but not connected to a compatible device.	p. 124
	Appears when Bluetooth is ON and connected to a compatible device.	p. 124
	Appears when the wireless LAN compatible device is not connected while the wireless LAN is ON.	p. 118
	Appears while the wireless LAN compatible device is connected while the wireless LAN is ON.	p. 118
	Appears when a network connection error occurs while the wireless LAN is ON and the wireless LAN compatible device is connected.	p. 118
	Appears when the microSD memory card of the operation panel is available. Blinks while the card is being mounted.	p. 128
	Appears when the microSD memory card of the main unit is available. Blinks while the card is being mounted.	p. 128
	Appears when Weather Alert is ON. Blinks when Weather Alert is detected. (TM-D750A only.)	
	Appears when the key lock is ON.	p. 61
	Displays the configured PM number. (PM auto write ON)	p. 39
	Displays the configured PM number. (PM auto write OFF)	p. 39
	Appears while in Mute mode.	p. 59

■ Band A/Band B Display Area

Indicator	Description	Page
	S Meter: Displays the signal strength during reception.	p. 56
	RF Meter: Displays the power level during transmission.	p. 22 p. 56
	Indicates the transmitting band.	p. 21
	Indicates the operating band (A/B).	p. 21
	Appears when the transmit power is set to Low.	p. 22
	Appears when the transmit power is set to Medium.	p. 22
	Appears when the transmit power is set to High.	p. 22
	Appears while in FM mode.	p. 21
	Appears while in Narrow FM mode.	p. 21
	Appears while in AM mode.	p. 21
	Appears when in DR (Digital Repeater) mode.	p. 99
	Appears when in DV (Digital Voice) mode.	p. 99
	Appears when Voice Alert is set to "On".	p. 97
	Appears while receiving in Terminal mode.	p. 113
	Appears while transmitting in Terminal mode.	p. 113

PART NAMES AND FUNCTIONS

Indicator	Description	Page
VAR	Appears when Voice Alert is set to "RX Only".	p. 97
T	Appears when the Tone function is ON.	
CT	Appears when the CTCSS function is ON.	
DCS	Appears when the DCS function is ON.	
T/C	Appears when the Cross tone function is "TONE/CTCSS".	
D/C	Appears when the Cross tone function is "DCS/CTCSS".	
T/D	Appears when the Cross tone function is "TONE/DCS".	
D/O	Appears when the Cross tone function is "DCS/OFF".	
+	Appears when the Shift function is set to plus.	p. 33
-	Appears when the Shift function is set to minus.	p. 33
	Appears when the Shift is set to -7.6 MHz.	
±	Appears when a split channel is selected.	
R	Appears when the Reverse function is ON.	p. 33
ATT	Appears when the Attenuator function is ON.	p. 52
APRS 12	Appears when the packet speed is set to 1200 bps in APRS mode.	p. 75
APRS 96	Appears when the packet speed is set to 9600 bps in APRS mode.	p. 75
KISS 12	Appears when the packet speed is set to 1200 bps in KISS mode.	p. 98
KISS 96	Appears when the packet speed is set to 9600 bps in APRS mode.	p. 98
STA	Appears when in standby in Packet mode.	p. 98
BCON	Appears when the beacon transmission function is set to ON.	p. 75
OBJ	Appears when the object transmission function is set to ON.	p. 88

Menu mode display



KEY GUIDE
display area

D-STAR (DV/DR mode) display



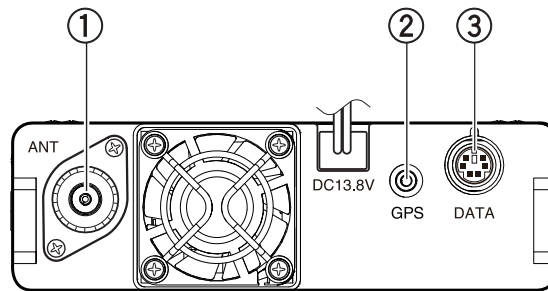
Indicator	Description	Page
	Appears when Weather Alert is ON. Blinks when Weather Alert is detected. (TM-D750A only.)	
	Appears when the APRS channel is ON.	-
	Indicates the memory group number.	p. 38
	Indicates the Weather Channel. (TH-D75A only.)	
	Appears when the Memory Channel Lockout function is ON.	p. 43
	Appears when the Repeater Lockout function is ON.	p. 115
	Appears when Callsign squelch is ON.	p. 111
	Appears when Code squelch is ON.	p. 111
	TX: Appears in interrupt communication. RX: Blinks while receiving interrupt communication.	p. 110
	Appears when the auto reply function is ON.	p. 104
	Appears when transmitting GPS data in DV/DR mode.	p. 111
	Appears while in data communication mode. Blinks while receiving fast data.	p. 109
	Appears when a packet loss happens.	p. 144
	Appears when the repeater monitor is Off.	p. 108
	Appears when the repeater monitor is On.	p. 108
	Appears when receiving monitor audio in repeater monitor mode.	p. 108
	Appears when monitor audio is muted in repeater monitor mode.	p. 108

PART NAMES AND FUNCTIONS

Indicator	Description	Page
	Indicates a cross-band type repeater for local area call.	p. 100 p. 106
	Indicates an assist-type repeater for call within zone.	p. 106
	Indicates a repeater for gateway call.	p. 106
	Appears when direct reply is possible.	p. 103
DIRECT	Appears while in the direct mode.	p. 102
TERM	Appears while in the reflector terminal mode.	p. 113
TERM	Appears while in the repeater terminal mode.	p. 113
	Appears in TO (recipient name).	p. 99
	Appears on the repeater used when communicating with the recipient.	p. 99

Main Unit

Rear



① ANT terminal

Connect an SO-239/M-type (TM-D750A) or N-type (TM-D750E) external antenna to this terminal. For test transmissions, connect a dummy load instead of the antenna. The antenna system or dummy load must have an impedance of 50 Ω .

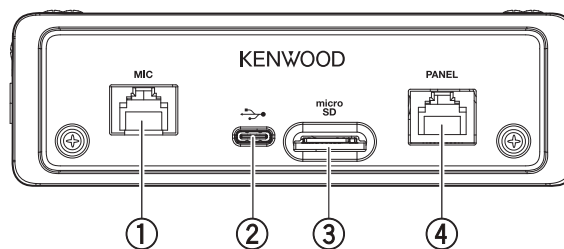
② GPS Connector

Connect the external GPS receiver or the Weather Station.

③ DATA Connector

This is the data input/output terminal. Used to operate the EchoLink node station by connecting to a PC, or to connect to the external TNC.

Front



① MIC Jack

Connect the microphone to this jack.

② USB Connector (USB Type-C™)

The transceiver can be connected to a PC by using a commercially available USB cable (USB Type-C™).

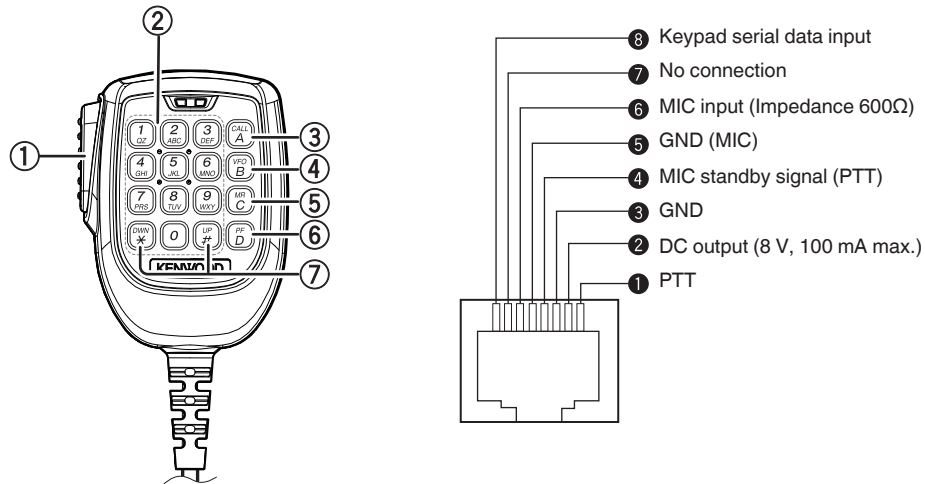
③ microSD Memory Card Slot

Insert a microSD memory card to store configuration data, recorded data, QSO logs, and other information.

④ PANEL Jack

Connect the Operation panel to this jack. Use the supplied Modular plug cable.

Microphone (MC-62)



- ① **[PTT]**
Press and hold [PTT], then speak into the microphone to transmit your voice.
- ② **DTMF keypad**
Press these keys to make DTMF calls, enter frequencies, or enter characters. You can also enter the menu number.
- ③ **[CALL/A]**
Performs the same function as the [CALL] key on the operation panel. You can assign a function to it as the PF4 key.
- ④ **[VFO/B]**
Performs the same function as the [VFO] key on the operation panel. You can assign a function to it as the PF3 key.
- ⑤ **[MR/C]**
Performs the same function as the [MR] key on the operation panel. You can assign a function to it as the PF2 key.
- ⑥ **[PF/D]**
You can assign a function to it as the PF1 key. By default, it switches between Band A and Band B.
- ⑦ **[UP/#]/[DWN/*]**
Use to switch frequencies and select items, like the [ENC] control on the control panel.

6 BASIC OPERATIONS

Switching the Power ON/ OFF

Switching the Power ON

- 1 Press and hold [⏻] until the KENWOOD logo appears.
When the power is switched ON, the power-on message is displayed for approximately 1 second, after which the frequency display appears.



Switching the Power OFF

- 1 Press and hold [⏻].

Adjusting the Internal Clock

The built-in clock of this unit is automatically set by the GPS function at the factory default setting. When the power is turned ON, the built-in GPS receiver will begin positioning after a short while, and "GPS Locked" will appear at the top of the display.

After that, the GPS icon <GPS> changes to <GPS>, and the time and date information are set automatically.

If GPS signals are weak or the GPS function cannot be used, set the time and date manually as described below.

- 1 Access Menu No. 950.
Press [MENU], then "Configuration" → "Date & Time" → "Setting" in order.
Alternatively, press [MENU], then press [9][5][0] on the microphone keypad in order.
 - For operations in menu mode, refer to "Operating in Menu Mode" (p. 23).
- 2 Use [UP/#]/[DWN/✖] or the [ENC] control to select the item, and move the cursor with [◀]/[▶].
Set the "date" and "time".



- 3 Press the [ENC] control.
The date, time, and time zone are set.
- 4 Press [ESC] to return to the frequency screen.



◆ "GPS Locked" appears on the display only when you turn on the power or turn on the GPS function and start positioning for the first time.

◆ The GPS icon on this transceiver does not blink.

◆ If there is no voltage supplied from the vehicle battery or a regulated DC power supply connector, date and time information is retained by the built-in lithium battery for approximately one week, and then cleared. If you turn on the power after the date and time information has been cleared and do not perform acquisition using the built-in GPS receiver or manual settings, the built-in clock will return to the default date and time as shown below. (Initial values may change due to firmware updates.)

Date: 01/01/2026

Time: 00:00

NTP Server

The transceiver automatically communicates with an NTP (Network Time Protocol) server to correct the internal clock (date and time).

- 1 Access Menu No. 953 to turn ON automatic time correction.
Press [MENU], then "Configuration" → "Date & Time" → "NTP Time Correction" in order.

Alternatively, press [MENU], then press [9][5][3] on the microphone keypad in order.

- For operations in menu mode, refer to "Operating in Menu Mode" (p. 23).

The transceiver will automatically communicate with the NTP server and correct the internal clock at the following times.

- When the transceiver power is ON
- Every 24 hours after the transceiver power is ON

Adjusting the Volume

Adjusts the receiving audio volume. The volume can be set separately for the bands A/B.

- 1 Rotate the [BAND SEL] control on the VFO side to adjust the volume.

Rotate clockwise to increase the volume, and counterclockwise to decrease the volume.

If no audio is heard (when the squelch is closed), press the PF key assigned to [MONITOR] to turn ON the monitor function, then rotate [BAND SEL A] or [BAND SEL B] to adjust the noise level (monitor).

- To change the volume of the beep that sounds when you press a key. (refer to p. 58)
- To change the volume of voice guidance. (refer to p. 138)

Setting examples

When using APRS concurrently

When making a voice call on the Band A, reduce or mute the volume of the Band B.

Selecting Dual Band/ Single Band Mode

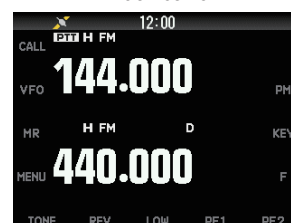
You can switch the transceiver between dual band operation and single band operation.

In dual band mode, both bands can be received simultaneously. In single-band mode, the display for the inactive band is turned off, and no audio is output from that band.

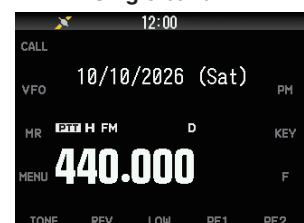
- 1 Press and hold [BAND SEL A] or [BAND SEL B] for the operating band.

Each time you press and hold [BAND SEL A] or [BAND SEL B], the transceiver switches between dual-band and single-band mode.

Dual band



Single band



Selecting an Operating Band

You can select or divide the Operating band and transmitting band simultaneously.

Operating Band

Select whether Band A (upper) or Band B (lower) will be used for frequency changes and various settings.

Transmitting Band

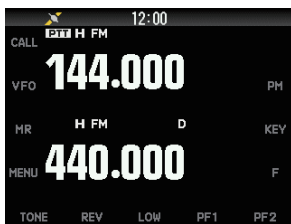
Select the band that will transmit when the [PTT] button on the microphone is pressed.

Switch the Operating Band and Transmitting Band Simultaneously

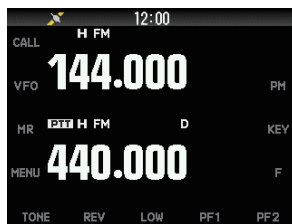
Switch the operating band and transmitting band simultaneously.

- Press [BAND SEL A] or [BAND SEL B].
Each time [BAND SEL A] or [BAND SEL B] is pressed, the operating band and transmit band switch. The operating band is indicated by < **PTT** > on the display.

Operating band : A band
Transmitting band : A band



Operating band : B band
Transmitting band : B band



Selecting the Operating Band Only

Only the operating band is switched.

Select whether Band A (upper) or Band B (lower) will be used for frequency changes and various settings.

- Press the PF key assigned to [CTRL].
Each time the PF key is pressed, the operating band switches. The operating band is indicated by < **CTRL** > on the display.

Operating band : A band
Transmitting band : B band



Operating band : B band
Transmitting band : A band



Selecting a Frequency Band

You can change the frequency bands for bands A and B.

- Press [F], and press [BAND SEL A] or [BAND SEL B].
Each time you repeat the operation, the frequency band of the operating band switches.
Band A :
118 → 144 → 220 → 430 → 118 (MHz)
Band B :
118 → 144 → VHF → 200&300 → 430 → UHF → 118 (MHz)



- The default setting of the [PF1] key also allows you to switch the frequency band.
- 220 MHz band in Band A is used by the TM-D750A only.

Frequency ranges:

- 118 MHz: Band B 108 to 136 MHz
- 144 MHz: 136 to 174 MHz
- VHF: 174 to 216 MHz (TM-D750A), 174 to 230 MHz (TM-D750E)
- 220 MHz: 216 to 260 MHz (TM-D750A only)
- 200/300 MHz: Band B 216 to 410 MHz (TM-D750A), 230 to 410 MHz (TM-D750E)
- 430 MHz: 410 to 470 MHz
- UHF: 470 to 524 MHz

Selecting the Demodulation Mode

You can select the demodulation mode.

- Press [BAND SEL A] or [BAND SEL B] to select an operating band.
- Press [F], and press [MODE].
Each press changes the demodulation mode.
FM/NFM → DV (DR) → AM → FM/NFM



- The FM/NFM mode and DV/DR mode cannot be switched using the [MODE] button.
- In DV/DR mode, only the frequency bands that can be transmitted can be selected.

Changing the Frequency

Depending on the communication style, select from the three modes: VFO mode, memory channel mode, or CALL channel mode.

VFO Mode

This mode allows you to freely set the frequency.

- Press [VFO] to select VFO mode.
- Rotate [UP/#]/[DWN/*] or [ENC] control to set the frequency.
The frequency will change according to the configured step size.

Model	144 MHz	220 MHz	430 MHz
TM-D750A	5 kHz	20 kHz	25 kHz
TM-D750E	12.5 kHz	-	25 kHz



- 220 MHz band in Band A is used by the TM-D750A only.

Adjust in MHz Units "MHz"

Select VFO mode or CALL mode first.

- Press [ENC].
The transceiver enters MHz mode, and the MHz digit will blink.
- Press [UP/#]/[DWN/*] or rotate the [ENC] control.
The frequency changes in MHz units.
- Press [ENC].
MHz mode ends.

Memory Channel Mode

Memory channel mode lets you quickly select a frequently used frequency and its associated data that you have stored in a memory channel.

- 1 Press [MR] to enter Memory Channel mode.
The Memory channel number appears on the display.



◆ When nothing is registered in the memory channel, Memory Channel mode is not entered. (Refer to "Memory Channel List" (p. 34).)

- 2 Press [UP/#]/[DWN/✕] or rotate the [ENC] control to select the memory channel.

Press [UP/#] or rotate the [ENC] control clockwise to call up the memory channel with the higher number, and press [DWN/✕] or rotate the [ENC] control counterclockwise to call up the memory channel with the lower number.

Display the memory channel number you want to recall. Press [VFO] to return to frequency display (VFO mode).

Call Channel Mode

CALL channels are frequencies often used to locate the station you want to communicate with. They are available for each band.

- 1 Press [CALL] to enter Call Channel mode.
"C" appears on the display.
 - Press [CALL] again to return to the previous frequency.
 - The default settings are as follows.

TM-D750A

Band (Mode)	Call Channel	Memory Name
VHF (except DV/DR mode)	146.520 MHz (FM)	Call VHF (FM)
VHF (DV/DR mode)	144.000 MHz (DV)	Call VHF (DV)
220 MHz (except DV/DR mode)	223.500 MHz (FM)	Call 220M (FM)
220 MHz (DV/DR mode)	223.000 MHz (DV)	Call 220M (DV)
UHF (except DV/DR mode)	446.000 MHz (FM)	Call UHF (FM)
UHF (DV/DR mode)	440.000 MHz (DV)	Call UHF (DV)

TM-D750E

Band (Mode)	Call Channel	Memory Name
VHF (except DV/DR mode)	145.500 MHz (FM)	Call VHF (FM)
VHF (DV/DR mode)	144.8125MHz (DV)	Call VHF (DV)
UHF (except DV/DR mode)	433.500 MHz (FM)	Call UHF (FM)
UHF (DV/DR mode)	433.6125MHz (DV)	Call UHF (DV)



◆ If the [ENC] control is rotated while the CALL channel is being called, the contents of the CALL channel are copied to VFO, switching to VFO mode, and the frequency changes in the direction the [ENC] control is rotated.

Adjusting the Squelch

When there is no signal, rotate the [SQL] control clockwise and set the squelch level to the point where the noise disappears. The squelch level can be set separately for Band A and Band B.

- 1 After selecting the operating band and frequency band, rotate the [SQL] control.

Turning it fully counterclockwise opens the squelch. If you hear audio from an ongoing communication through the speaker, rotate the [ENC] control to a frequency where no communication is taking place.

Rotate clockwise to the point where background noise disappears. Turning it further clockwise increases the squelch depth.



◆ The point at which background noise disappears using the [SQL] control can vary depending on environmental factors such as the strength of noise signals and temperature.

◆ The squelch also supports S-meter squelch. (Menu No. 103)

◆ Turning [SQL] clockwise will prevent reception of weaker signals.

◆ When the squelch is closed, pressing the PF key assigned to [MONITOR] will open the squelch regardless of signal input level, allowing you to monitor the received signal. Pressing it again returns to the normal squelch state.

Transmitting

Monitor the frequency you intend to transmit on and make sure it will not cause interference or disruption to other stations. Also, when transmitting to a nearby station, reduce the output power. Transmission is possible only in FM mode or DV mode.

- 1 Select your desired band and frequency/channel.
- 2 Press and hold the microphone [PTT], and speak into the microphone to transmit.
While holding it, the RF meter will appear on the transmitting band side, indicating the transmitting state.
- 3 Release the microphone [PTT].
Returns to receiving mode.



◆ Keep the microphone about 5 cm from your mouth. If held too far away, the person receiving may have difficulty hearing you.

◆ If transmission exceeds the preset time, the Time-out Timer function will automatically return the transceiver to receiving mode. To continue transmitting, release [PTT] once and press it again.

◆ In cases such as when the receiving frequency is three times the transmitting frequency, your own transmitted signal may be received.

◆ The RF meter is not displayed when transmitting in Direct Mode, Reflector TERM Mode, Repeater Terminal Mode.

◆ If the transceiver detects high temperature, the transmit output may be reduced or transmission may be disabled. Please refer to the INSTRUCTION MANUAL for details.

Selecting an Output Power

- 1 Select the band and frequency/channel for which you want to change the output power.
- 2 Press [LOW] to select High (H), Medium (M), or Low (L) output.

Model	Output Power	144 MHz	220 MHz	430 MHz
TM-D750A	H	50 W	20 W	50 W
	M	10 W	10 W	10 W
	L	5 W	5 W	5 W
TM-D750E	H	50 W	-	50 W
	M	10 W	-	10 W
	L	5 W	-	5 W



◆ Transmission output cannot be set individually for each frequency band.

◆ Separate settings can be made for band A and band B.

7 MENU MODE

Many functions on this transceiver are selected or configured via the Menu rather than physical controls.

Operating in Menu Mode

Example: Setting ON or OFF for Menu No. 962 (Mic Keys Lock).

1 Press [MENU]

The transceiver enters menu mode. The icon where the cursor is currently positioned will be highlighted, and the name of the main category will be shown at the bottom of the screen.

(Example: TX/RX)

The entered menu number will be displayed in the upper right corner of the screen.



2 Select "Configuration" and press the [ENC] control.

Menu No.9-- appears on the display.

3 Select "Lock" and press the [ENC] control.

Menu No.96- appears on the display.

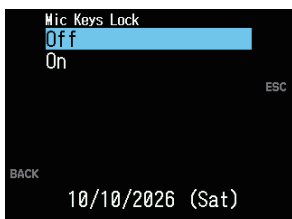
4 Select "Mic Keys Lock" and press the [ENC] control.

Menu No.962 "Mic Keys Lock" appears on the display.

During step 2, you can also recall by pressing [9], [6], and [2] in that order on the microphone keypad. (direct recall)

5 Select [On] or [Off] with [UP/#]/[DWN/✱] or the [ENC] control, and press the [ENC] control.

The setting value is set.



- ◆ Pressing [PTT] during each operation ends menu mode without confirming the setting.
- ◆ Pressing [BACK] during an operation returns to the previous screen. When pressed during step 3, the selected setting value is discarded and the transceiver returns to the previous operation.
- ◆ Pressing [MENU] while scanning cancels the scan.

Character Entry

On screens that require text input, such as memory names or power-on messages, there are two input methods. Using the microphone keypad to enter characters, similar to a mobile phone. And using the [ENC] control to scroll through characters sequentially and select them for input.

Entering Text Using the Microphone Keypad

1 Use [0]–[9], [DWN/✱], and [UP/#] to input characters.

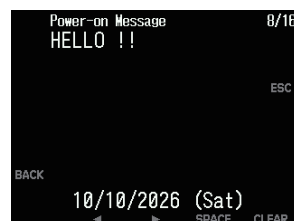
Each key press cycles through the characters assigned to that key. If you want to enter consecutive characters assigned to the same key, move the cursor forward using [MR/C] (or backward with [VFO/B]) before entering the next character.

Press [CALL/A] to delete the character at the cursor. When the cursor is at the last character, subsequent presses act as a backspace.

The backspace operation is performed when there is a blank space.

Press [VFO/B] or [MR/C] to move the cursor. When the cursor is at the end of the input string, a space (half-width) is automatically inserted.

Example: Entering the power-on message (Menu No.902)



- Pressing [SPACE] enters a space.
- Pressing [CLEAR] clears the text.

2 Press [MR/C]

The cursor moves to the right.

3 Press [PF/D]

The entered content is confirmed.

Cursor Shift

This function provides assistance for entering text using the keypad of the microphone. It is convenient to use this function when consecutively entering characters with the same key because it automatically moves the cursor to the right after a set time has passed.

You can set the cursor move delay to your preference.

1 Press [MENU]

2 Select "Configuration" and press the [ENC] control.

Menu No.9-- appears on the display.

3 Select "Auxiliary" and press the [ENC] control.

Menu No.94- appears on the display.

4 Select "Cursor Shift" and press the [ENC] control.

Menu No.947 "Cursor Shift" appears on the display.

5 Select from "Off", "1.0", "1.5", or "2.0" (sec) and press the [ENC] control.

Input with the [ENC] Control

1 Rotate the [ENC] control to display the character you want to enter.

2 Press [▶].

The character or symbol is entered and the cursor moves to the right.

Press [CLEAR] to delete the character at the cursor. If the cursor is on a blank space, pressing [CLEAR] moves the cursor left.

Menu Configuration

No.	Display	Description	Setting Values
TX/RX - RX			
100	Programmable VFO	Sets the VFO frequency tuning range (Band A only)	Varies depending on frequency band
101	Beat Shift	Beat shift	Type 1 - Type 8
102	FM Narrow	Switches the FM mode bandwidth to narrow	Off/ On
103	S-Meter Squelch	S-meter squelch	Off/ On
104	SM SQL Hangup Time	S-meter squelch hangup time	Off/ 125/ 250/ 500 [ms]
105	Mute Hangup Time	Mute hangup time	Off/ 125/ 250/ 500/ 750/ 1000 [ms]
106	MONITOR Type	Monitor type	SQL Off/ CTCSS/DCS Off
107	WX Alert	Weather alert	Off/ On *TM-D750A only
TX/RX - TX			
110	TX Inhibit	TX inhibit	Off/ On
111	Time-out Timer	Time-out timer	0.5/ 1.0/ 1.5/ 2.0/ 2.5/ 3.0/ 3.5/ 4.0/ 4.5/ 5.0/ 10.0 [min]
112	Mic. Sensitivity	Microphone sensitivity	High/ Medium/ Low
113	TX Notification	TX notification	Off/ On
TX/RX - RX Filter			
120	AM High Cut	AM high cut	3.0/ 4.5/ 6.0/ 7.5 [kHz]
TX/RX - Scan			
130	Resume	Resume method	Time/ Carrier/ Seek
131	Resume (Digital)	Resume method (Digital)	Time/ Carrier/ Seek
132	Time Restart	Time operate restart time	1 - 5 - 10 [sec]
133	Carrier Restart	Carrier operate restart time	1 - 2 - 10 [sec]
134	Priority Scan	Priority scan	Off/ On
135	Scan Auto Backlight	Scan auto backlight	Off/ On
136	Visual Scan	Visual scan mode	Mode1: 17 ch/ Mode2: 33 ch/ Mode3: 57 ch/ Mode4: 115 ch
137	Auto Weather Scan	Auto weather channel scan	Off/ On *TM-D750A only
TX/RX - Repeater			
140	Offset Frequency	Sets the offset width	Varies with the selected frequency band
141	Auto Offset	Auto repeater offset	Off/ On
142	1750Hz TX Hold	1750Hz TX hold	Off/ On
TX/RX - VOX			
150	VOX	VOX	Off/ On (AF)/ On (Data)
151	Gain	VOX gain level	0 - 4 - 9
152	Delay	VOX delay time	250/ 500/ 750/ 1000/ 1500/ 2000/ 3000 [ms]
153	TX on Busy	VOX transmission when busy	Off/ On
TX/RX - DTMF			
160	Encode Speed	Sets the DTMF memory transmission speed	50/ 100/ 150 [ms]
161	Pause Time	Sets the DTMF pause time	100/ 250/ 500/ 750/ 1000/ 1500/ 2000 [ms]
162	TX Hold	Holds DTMF transmission output for 2 seconds	Off/ On
163	DTMF Memory	DTMF memory	Up to 10 channels for DTMF memory channel Up to 16 characters for DTMF memory name Up to 16 digits for DTMF memory code
164	EchoLink Memory	EchoLink memory	Up to 10 channels for EchoLink memory channel Up to 8 characters for EchoLink memory name Up to 8 digits for one channel code
TX/RX - Others			
170	QSO Log	Saves QSO log (communication history)	Off/ On
Memory - Memory Channel			
200	View List	Memory channel list	-
201	Group Name	Group name	Up to 16 characters
202	Recall Method	Method to recall a memory channel	All Bands/ Current Band
203	Group Link	Memory group linking	Up to 30 group links
204	CALL Ch List	Call channel list	-
Memory - Repeater List			
210	View List	Repeater list	-

MENU MODE

No.	Display	Description	Setting Values
Memory - Callsign List			
220	View List	Callsign list	-
Memory - Hotspot List			
230	View List	Hotspot list	-
Memory - PM			
240	Auto PM Store	Auto PM store	Off/ On
Audio File - Recording File			
300	View List	Recording file list	-
301	Recording	Recording	Stop/ Start
302	Recording Band	Switches the recording target band	A Band/ B Band/ A/B Band
303	Recording File Storage	Recording file storage	Continuous / Split
Audio File - Voice Message			
310	View List	Voice message list	-
311	TX Monitor	TX monitor	Off/ On
312	Digital Auto Reply	Digital auto reply	-
GPS - Basic Settings			
400	Built-in GPS	Built-in GPS	Off/ On
401	My Position	My position	GPS / My Position 1 - My Position 5
402	Position Ambiguity	Position ambiguity mode	Off / 1-Digit - 4-Digit
403	PC Output	GPS data output to PC	Off/ On
404	SAT Info. Output	Satellite information output	GPS/ GPS/QZSS/Galileo
405	Sentence	NMEA Sentence	GGA / GLL/ GSA/ GSV/ RMC / VTG
406	SBAS	SBAS	Off/ On
GPS - Track Log			
410	Track Log	Track log	Off/ On
411	Clear Track Log	Clear track log	-
412	Record Method	Method to record a track log	Time / Distance/ Beacon
413	Interval	Track log interval	2 - 10 - 1800 [sec]
414	Distance	Track log distance	0.01 - 9.99 [km]
GPS - GPS Port			
420	Baud Rate	GPS terminal baud rate	2400/ 4800 / 9600 [bps]
421	Input	GPS input	Off/ GPS/ Weather (Davis)/ Weather (PeetBros.)
422	Output	GPS output	Off/ Waypoint/ DGPS
APRS - Basic Settings			
500	My Callsign	Registers own-station callsign	Up to 9 characters
501	Icon	Own-station icon	Car / Person/ Bicycle/ Motorcycle/ Bus etc. (total 68 icons)
502	Position Comment	Position comment	Off Duty/ Enroute/ In Service / Returning/ Committed/ Special/ PRIORITY / CUSTOM0 - CUSTOM6/ EMERGENCY !
503	Status Text	Status text	Status Text: 1 - 5 TX Rate: Off, 1/1 - 1/4 - 1/8 text: Up to 42 characters
504	Packet Path	Packet relay route	type: New-N / Relay/ Region/ Others1 - Others3 WIDE1-1: Off/ On , RELAY: Off/ On, ABBR: Up to 5 characters Total Hops: 0 - 2 - 7, PATH: Up to 79 characters
505	Data Speed	Data communications speed	1200 bps / 9600 bps
506	Data Band	Internal data band type	A Band / B Band
507	Auto Ch Setting	Automatic frequency setting	Off/ On
508	DCD Sense	DCD sense type	Busy / Detect Data/ Off (Ignore)
509	TX Delay	APRS data transmission delay time	100/ 150/ 200 / 300/ 400/ 500/ 750/ 1000 [ms]
50A	APRS Lock	APRS lock	Frequency/ PTT/ APRS Key
APRS - Beacon TX Control			
510	Method	Transmission method	Manual/ PTT/ Auto / SmartBeaconing
511	Initial Interval	Automatic transmission interval	0.2/ 0.5/ 1 / 2/ 3/ 5/ 10/ 20/ 30/ 60 [min]
512	Decay Algorithm	Automatic transmission interval extension	Off/ On
513	Prop. Pathing	Automatic relay path switching	Off/ On

No.	Display	Description	Setting Values
514	Speed	Speed output	Off/ On
515	Altitude	Altitude output	Off/ On
516	Object	Sets the object transmission	Object1 - Object3 Name: up to 9 characters, type: Live Object / Killed Object/ Live Item/ Killed Item, Method: Off/ Temp. / Auto (15min)/ Auto (30min)/ Auto (60min), N (S): Latitude, E (W): Longitude, Icon: Eyeball / Portable (Tent)/ HAMStore etc. (Total 68 kinds), Comments: up to 42 characters
517	WX TX	Weather data output	Off/ On
518	WX TX Interval	Weather data transmission interval	5/ 10/ 30/ 60 [min]
APRS - QSY Information			
520	QSY Info. in Status	QSY information in status	Off/ On
521	Tone/Narrow	Tone/Narrow	Off/ On
522	Shift/Offset	Shift/Offset	Off/ On
523	QSY Limit Distance	QSY information restriction distance	Off/ 10/ 20/ ...2490/2500 [km]
APRS - SmartBeaconing			
530	Low/High Speed	Low speed/ High speed	Slow Rate: 2 - 5 - 30 [km/h] Fast Rate: 2 - 70 - 90 [km/h]
531	Slow Rate	Low speed transmission interval time	1 - 30 - 100 [min]
532	Fast Rate	High speed transmission interval time	10 - 120 - 180 [sec]
533	Turn Angle	Turn angle	5 - 28 - 90 [deg]
534	Turn Slope	Turn slope	1 - 26 - 255 [10deg/speed]
535	Turn Time	Turn time	5 - 60 - 180 [sec]
APRS - Waypoint			
540	Format	Way point format	NMEA / MAGELLAN/ KENWOOD
541	Length	Way point name length	6-Char / 7-Char/ 8-Char/ 9-Char
542	Output	Way point output type	All / Local/ Filtered
APRS - Packet Filter			
550	Position Limit	Data reception range limit	Off/ 10/ 20/ ...2490/ 2500 [km]
551	Filter Type	Filter type	Weather/ Digipeater/ Mobile/ Object/Item/ NAVITRA/ 1-Way/ Others
APRS - Message			
560	User Phrases	Edits predefined messages	Up to 32 characters x 20 phrases
561	Auto Reply	Sets the automatic reply message	Off/ On
562	Reply To	Automatic reply message recipient	Up to 9 characters
563	Reply Delay Time	Automatic reply message wait time	0/ 10 / 20/ 30/ 60 [sec]
564	Reply Message Text	Registers the automatic reply message	Up to 50 characters
APRS - Notification			
570	RX Beep	Sets the RX beep sound	Off/ Message Only/ Mine/ All New/ All
571	TX Beep	Sets the TX beep sound	Off/ On
572	Special Call	Special call	Up to 9 characters
573	Display Area	Received notification display area	Entire Always / Entire Display/ One Line
574	Interrupt Time	RX notification display time	3/ 5/ 10 / 20/ 30/ 60 [sec]/ Infinite
575	APRS Voice	Announces the callsign of the received station	Off/ On
APRS - Digipeat			
580	Digipeat (My Call)	Sets the Digipeater	Off/ On
581	UICheck	Sets the RX UI frame relay	0 - 28 - 250 [sec]
582	UIdigipeat	Sets the UI Digipeater	Off/ On
583	UIdigi Aliases	Sets the Aliases string	Up to 9 characters x 4
584	UIflood	Sets the Uiflood Digipeater	Off/ On
585	UIflood Alias	Sets the Alias string for Uiflood	Up to 5 characters
586	UIfloodSubstitution	Sets the substitution for Uiflood	First / ID/ NOID
587	Ultrace	Sets the ULtrace Digipeater	Off/ On
588	Ultrace Alias	Sets the Alias string for Ultrace	Up to 5 characters

No.	Display	Description	Setting Values
APRS - Others			
590	PC Output	PC output	Off/ Raw Packets/ Waypoint
591	Network	Network type	APRS (APK103)/ Altnet
592	Voice Alert	Voice alert	Off/ On/ RX Only
593	VA Frequency	Voice alert frequency	67.0 - 100.0 - 254.1 [Hz]
594	Message Group Code	Message group code	Up to 9 characters x 6 codes (ALL, QST, CQ, KWD)
595	Bulletin Group Code	Bulletin group code	Up to 5 characters x 6 codes
Digital - RX History			
600	View History	Displays the RX history	-
Digital - TX/RX			
610	My Callsign	Registers own-station callsign (for DV/DR mode)	8 digits (callsign) + 4 digits (identification code) x 6 patterns
611	TX Message	Edits and selects the TX messages	Off/ 1/ 2/ 3/ 4/ 5
612	Direct Reply	Sets the direct reply	Off/ On
613	Auto Reply Timing	Auto reply timing	Immediate/ 5/ 10/ 20/ 30/ 60 [sec]
614	Data TX End Timing	Data TX end timing	Off/ 0.5/ 1/ 1.5/ 2 [sec]
615	EMR Volume Level	EMR volume level	Level 1 - Level 25 - Level 50
616	RX AFC	RX AFC	Off/ On
617	FM Auto Det. on DV	FM auto detect on DV	Off/ On
618	Data Frame Output	Data frame output	All/ Related to DSQ/ DATA Mode
619	Break Call	Break call	Off/ On
61A	Auto Reply	Auto reply	Off/ On/On (Voice)
Digital - Digital Squelch			
620	Select Type	Select type	Off/ Code Squelch/ Callsign Squelch
621	Digital Code	Digital code	00 - 99
Digital - GPS Data TX			
630	GPS Info. in Frame	GPS information in frame	Off/ On
631	Sentence	NMEA Sentence	GGA/ GLL/ GSA/ GSV/ RMC/ VTG/ APRS Sentence
632	Auto TX	Automatic transmission interval time	Off/ 0.2/ 0.5/ 1/ 2/ 3/ 5/ 10/ 20/ 30/ 60 [min]
Digital - RX Notification			
640	Display Method	Method to display RX interrupt	Off/ All/ Related to DSQ/ Mine
641	Single Display Size	RX interrupt display size (single)	Half Display/ Entire Display
642	Dual Display Size	RX interrupt display size (dual)	Half Display/ Entire Display
643	Display Hold Time	RX interrupt display hold time	0/ 3/ 5/ 10/ 20/ 30/ 60 [sec]/ Infinite
644	Callsign Announce	Announces the callsign and kerchunk status	Off/ Kerchunk/ Except Kerchunk/ Mine/ All
645	Standby Beep	Standby beep	Off/ On
Digital - DV Gateway			
650	DV Gateway Mode	DV Gateway mode setting	Off/ Direct Mode/ Terminal Mode
651	My Callsign	Registers own-station callsign (for DV Gateway mode)	Up to 8 character callsign + 6 patterns of up to 4 character identification code
Digital - Direct Mode			
660	Gateway Callsign	Registers gateway callsign	Up to 8 characters
661	Gateway RPT Server	Gateway RPT server URL	-
662	Gateway Type	Gateway type	Global/ Japan
663	UDP Hole Punch	UDP hole punch	Off/ On
664	Reflector Hosts	Reflector hosts	Auto Update/ SD Card
Digital - TERM Mode			
670	TERM Mode Select	Terminal mode select	Reflector TERM Mode/ Repeater Terminal Mode
671	RPT1	Sets the RPT1 (for DV Gateway mode)	Up to 8 characters
672	RPT2	Sets the RPT2 (for DV Gateway mode)	Up to 8 characters
673	Device Information	Sets the name	-

No.	Display	Description	Setting Values
Digital - Repeater Monitor			
680	Repeater Moni Timer	Repeater monitor timer	10/ 20/ 30/ 60 [min]
681	Repeater Hosts	Repeater hosts	Auto Update/ SD Card
IP Network - Basic Settings			
700	DHCP	DHCP	Off/ On
701	IP Address	IP address	1.0.0.0 - 192.168.0.1 - 223.255.255.255
702	Subnet Mask	Subnet mask	0.0.0.0 - 255.255.255.0 - 255.255.255.252
703	Default Gateway	Default gateway	1.0.0.0 - 223.255.255.255
704	Primary DNS Server	Primary DNS server	1.0.0.0 - 223.255.255.255
705	Secondary DNS SVR	Secondary DNS server	1.0.0.0 - 223.255.255.255
706	MAC Address	MAC address	Fixed value for each transceiver
IP Network - WLAN			
710	WLAN	WLAN	Off/ On
711	Access Point List	Access point list	-
SD Card - Export			
800	Config Data	Exports the configuration data	-
801	Config Data + V.Msg	Exports the configuration data and voice messages	-
802	Repeater List Only	Exports the repeater list	-
803	Callsign List Only	Exports the callsign list	-
804	Hotspot List Only	Exports the hotspot list	-
SD Card - Import			
810	Config Data	Imports the configuration data	-
811	Config Data + V.Msg	Imports the configuration data and voice messages	-
812	Repeater List Only	Imports the repeater list	-
813	Callsign List Only	Imports the callsign list	-
814	Hotspot List Only	Imports the hotspot list	-
SD Card - Unmount			
820	Main Unit	Unmount execute (main unit)	-
821	Operation Panel	Unmount execute (operation panel)	-
SD Card - Format			
830	Main Unit	Format execute (main unit)	-
831	Operation Panel	Format execute (operation panel)	-
SD Card - Memory Size			
840	Main Unit	Checks the available space on microSD memory card (main unit)	-
841	Operation Panel	Checks the available space on microSD memory card (operation panel)	-
SD Card - Configuration			
850	SD Card Slot	microSD memory card slot	Main Unit/ Operation Panel
Configuration - Display			
900	LCD Brightness	LCD brightness	Level 1 - Level 8
901	Auto Brightness	Auto brightness	Off/ On
902	Power-on Message	Power-on message input	Up to 16 characters
903	Single Band Display	Single band display type	Off/ GPS/ Date/ Demodulation Mode
904	Meter Type	Meter type	Type 1 - Type 3
905	Background Color	Background color select	Black/ White
906	Info. Backlight	Information Backlight	Off/ On
Configuration - Audio			
910	TX/RX EQ	Sets the TX/RX equalizer	RX EQ/ TX EQ (FM, NFM)/ TX EQ (DV)
911	TX EQ Level	Sets the TX equalizer level	0.4 kHz (-9 - +3 [dB]) / 0.8 kHz (-9 - +3 [dB]) / 1.6 kHz (-9 - +3 [dB]) / 3.2 kHz (-9 - +3 [dB])
912	RX EQ Level	Sets the RX equalizer level	0.4 kHz (-9 - +9 [dB]) / 0.8 kHz (-9 - +9 [dB]) / 1.6 kHz (-9 - +9 [dB]) / 3.2 kHz (-9 - +9 [dB]) / 6.4 kHz (-9 - +9 [dB])
913	USB Audio Out. Lvl.	USB Audio Output level	Level 1 - Level 7
914	External Speaker	External speaker	Mode1/ Mode2

MENU MODE

No.	Display	Description	Setting Values
Configuration - Accessibility			
920	Beep	Sets the beep sound	Off/ On
921	Beep Volume	Adjusts the beep volume	Level 1 - Level 5 - Level 7
922	Voice Guidance	Sets the voice guidance	Off/ Manual/ Auto1/ Auto2
923	Voice Guidance Vol.	Voice guidance volume	Level 1 - Level 5 - Level 7
924	VoiceGuidanceSpeed	Voice guidance speed	Speed 1 - Speed 4
925	Callsign Readout	Callsign readout method	Standard / Phonetics (Full)/ Phonetics (Suffix)
Configuration - Bluetooth			
930	Bluetooth	Sets the Bluetooth function	Off/ On
931	Connect	Connects the device	-
932	Device Search	Searches for device	-
933	Disconnect	Disconnects the device	-
934	Pairing Mode	Pairing Mode	-
935	Device Information	Information on built-in radio device	Up to 19 characters
936	Auto Connect	Connects the device automatically	Off/ On
Configuration - Auxiliary			
940	PF 1 Key	Registers PF1 key	Recording → Voice Message 1-4 → Voice Guidance → VOICE → Group Name → GPS → Track LOG → SHIFT → STEP → LOW → Key Lock → Lockout → M>V → T.SEL → NEW → Voice Alert → LCD Brightness → LCD Off → DTMF CH0 → EchoLink CH0 → 1750Hz Tone → M.IN → WX Channel* → BAND (PF1) → CTRL (PF2) → MONITOR → GRP.UP → MENU → MUTE → DUAL *TM-D750A only
941	PF 2 Key	Registers PF2 key	
942	Power Key	Power key	Power Key / Power Key + Voice
943	PF1 (Mic)	Registers microphone PF1 key	Recording → Voice Message 1-4 → Voice Guidance → VOICE → Group Name → GPS → Track LOG → SHIFT → STEP → LOW → Key Lock → Lockout → M>V → T.SEL → NEW → Voice Alert → LCD Brightness → LCD Off → DTMF CH0 → EchoLink CH0 → 1750Hz Tone → WX Channel* → BAND → CTRL → MONITOR → GRP.UP → MENU → MUTE → DUAL → Screen Capture → MODE → A/B (PF1 Mic) → VFO (PF3 Mic) → MR (PF2 Mic) → CALL (PF4 Mic) → MSG → LIST → BCON → REV → TONE → MHz → MARK → APRS → OBJ → ATT → POS → LOCK → ENTER → REPLY → P.MONI → WXi *TM-D750A only
944	PF2 (Mic)	Registers microphone PF2 key	
945	PF3 (Mic)	Registers microphone PF3 key	
946	PF4 (Mic)	Registers microphone PF4 key	
947	Cursor Shift	Cursor shift	Off/1.0/ 1.5/ 2.0 [sec]
Configuration - Date & Time			
950	Setting	Sets the date, time and time zone	-
951	NTP Auto Correction	Auto correction of date & time via NTP	Off/ On
952	NTP Server Address	NTP server address	time.nist.gov
953	NTP Time Correction	NTP Time Correction	-
Configuration - Lock			
960	Keys Lock Type	Keys lock type	Key Lock / Frequency Lock
961	DTMF Keys Lock	DTMF keys lock	Off/ On
962	Mic Keys Lock	Microphone key lock	Off/ On
Configuration - Units			
970	Speed, Distance	Speed and distance units	mi/h, mile (TM-D750A)/ km/h, km (TM-D750E)/ knots, nm
971	Altitude, Rain	Altitude and rainfall units	feet, inch (TM-D750A)/ m, mm (TM-D750E)
972	Temperature	Temperature unit	° F (TM-D750A)/ ° C (TM-D750E)
973	Latitude, Longitude	Latitude and longitude units	dd ° mm.mm' / dd ° mm' ss.s"
974	Grid Square Format	Grid square format	Maidenhead Grid / SAR Grid (CONV)/ SAR Grid (CELL)
Configuration - Interface			
980	USB Function	Selects the USB terminal function	COM+AF In/Out / Mass Storage
981	USB Audio In/Out	Selects the USB audio input/output	Off/ AF/ Ext. Data
982	PC Output: GPS	PC output (NMEA sentences from built-in GPS)	USB (Main Unit) / USB (Panel) / Bluetooth
983	PC Output: APRS	PC output (packet data in APRS mode)	USB (Main Unit) / USB (Panel) / Bluetooth

MENU MODE

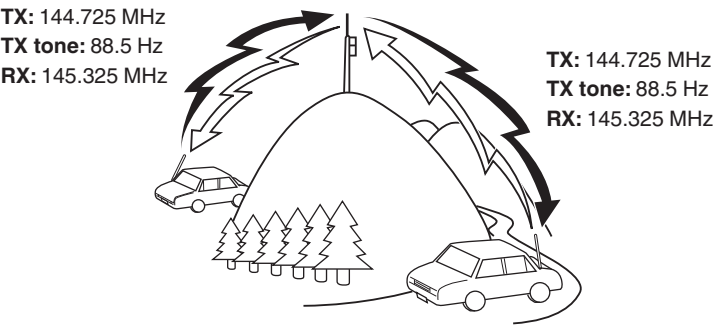
No.	Display	Description	Setting Values
984	KISS	PC input/output (packet data in KISS mode)	USB (Main Unit) / USB (Panel) / Bluetooth
985	DV/DR	PC input/output (TX and RX data in DV/DR mode)	USB (Main Unit) / USB (Panel) / Bluetooth
986	DV Gateway	PC input/output (TX and RX data in DV Gateway mode)	USB (Main Unit) / USB (Panel) / Bluetooth
987	Ext. Data Band	External data band	A Band/ B Band
988	Ext. Data Speed	External data speed	1200bps / 9600bps
989	SQLC Output Source	SQLC output source	Off/ Busy/ SQL/ TX/ Busy or TX / SQL or TX
Configuration - System			
990	Language	Language setting	English / Japanese
991	APO: Auto Power Off	Auto Power Off	Off / 30/ 60/ 90/ 120/ 180 [min]
992	Version	Firmware version	-
993	EULA	End-User License Agreement	-
994	Important Notice	Important notice	-
999	Reset	Reset	VFO Reset / Partial Reset/ PM Reset/ Full Reset



- ◆ Menu descriptions and setting values are subject to change without prior notice.
- ◆ Bold character in setting values indicates a default setting.
- ◆ The 300 series (Audio File) and 800 series (SD Card) menus are available only when a microSD memory card is inserted in the transceiver.

8 FM Repeater

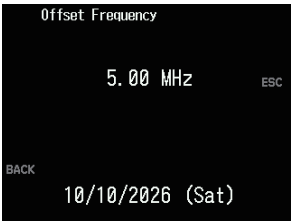
When a repeater (automatic relay station) is installed at a location with a clear line of sight, such as on top of a building or a mountain, using the repeater can significantly expand your communication range even when operating at low transmit power. Most repeaters use TX and RX frequency pairs with either a standard offset or a non-standard offset (odd split). In addition, some repeaters require reception of a tone from the transceiver for access to be granted. For details, please refer to the information on repeaters in your area.



Configuration of Offset Width

The offset frequency can be configured to a value between 0 and 29.95 MHz in 50 kHz steps. The default offset frequency on the 144 MHz band is 0.6 MHz for all type versions. The default on the 430/440 MHz band is 5.0 MHz. Select your desired operation band and frequency, then

1 Access Menu No. 140

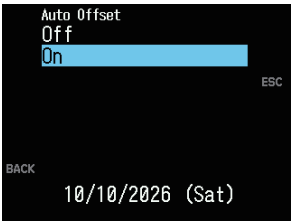


-
- ◆ The offset frequency can be configured independently in VFO mode, Memory Channel mode, and CALL mode.
 - ◆ When the offset frequency is changed, the Auto Repeater Offset function also shifts using the new offset frequency.
 - ◆ The setting cannot be changed while a split channel is being recalled.

Auto Repeater Offset

When tuned to a repeater frequency, the transceiver automatically switches the shift and tone settings. Select your desired operation band and frequency, then

1 Access Menu No. 141



When configured to “On”, tuning to one of the frequency ranges listed below automatically selects “-” (minus) shift and switches the tone setting to On (FM mode only).

.....

-
- ◆ Even if CTCSS or DCS is configured, Auto Repeater Offset takes precedence.
 - ◆ When the RX frequency falls outside the Auto Repeater Offset frequency range, the Tone and Shift functions are automatically turned off.
 - ◆ Auto Repeater Offset does not operate under the following conditions:
 - When Reverse is On.
 - In DV/DR mode.
 - When the frequency has been changed in Memory Channel mode or CALL mode.

Tone

This function adds a tone frequency to the TX signal.

Turn on the Tone function

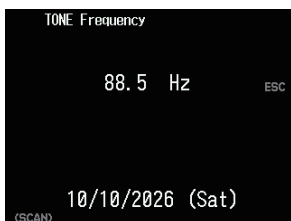
- 1 Select A Band or B Band
- 2 Press [TONE] to turn on the Tone function
 - Each press of [TONE] changes the settings as follows:
Tone (**T**) → CTCSS (**CT**) → DCS (**DCS**) → Cross Tone (**D/O** : Initial value) → OFF (Light off)
If APRS is On and Voice Alert is configured, Voice Alert On will also appear in the cycle above.
 - When the Tone function is On, the “ **T** ” icon is displayed.



- ◆ The Tone, CTCSS, and DCS functions cannot be turned on at the same time.
- ◆ The tone setting can be configured independently in VFO mode, Memory Channel mode, and CALL mode.
- ◆ Turning the Tone function on or off in Memory Channel mode or CALL mode results in a temporary change. If the change is not written to the respective channels, the original setting is restored the next time the channel is recalled.

Tone Frequency

- 1 Turn on the Tone function
- 2 Press [F], followed by [T.SEL]
 - The current tone frequency is displayed and flashes. The default frequency setting is 88.5 Hz.



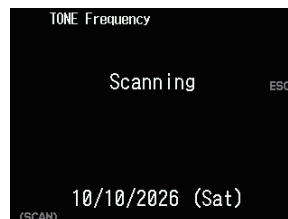
- 3 Select a frequency using the [ENC] control

- 4 Press the [ENC] control to apply the frequency setting
Selectable tone frequencies

No.	Frequency [Hz]	No.	Frequency [Hz]	No.	Frequency [Hz]
01	67.0	18	118.8	35	183.5
02	69.3	19	123.0	36	186.2
03	71.9	20	127.3	37	189.9
04	74.4	21	131.8	38	192.8
05	77.0	22	136.5	39	196.6
06	79.7	23	141.3	40	199.5
07	82.5	24	146.2	41	203.5
08	85.4	25	151.4	42	206.5
09	88.5	26	156.7	43	210.7
10	91.5	27	159.8	44	218.1
11	94.8	28	162.2	45	225.7
12	97.4	29	165.5	46	229.1
13	100.0	30	167.9	47	233.6
14	103.5	31	171.3	48	241.8
15	107.2	32	173.8	49	250.3
16	110.9	33	177.3	50	254.1
17	114.8	34	179.9		

Tone Frequency ID Scan

- 1 Press [TONE] to turn on the Tone function
 - The “ **T** ” icon appears on the display.
- 2 Press [F], then press and hold [T.SEL] to start tone frequency ID scan
 - Scanning starts, and “Scanning” appears flashing on the display.
 - To stop the scan, press [ESC].
 - When a tone frequency is identified, the identified frequency appears flashing on the display.



- 3 Press the [ENC] control to apply the identified frequency as the setting

1750 Hz Tone TX

This function transmits a 1750 Hz tone frequency when the PF key assigned to [1750Hz トーン] is pressed.

To assign 1750 Hz TX to a PF Key:

- Access Menu No. 940 (PF 1) or No. 941 (PF 2)

To Transmit:

- Press the PF key assigned to [1750Hz トーン]
The transceiver automatically enters TX mode and transmits a 1750 Hz tone.
Releasing the PF key stops transmission of the 1750 Hz tone.

1750 Hz Tone TX Hold

After transmitting a 1750 Hz tone, the transceiver remains in TX mode for two seconds.

■ To turn TX Hold On:

- 1 Access Menu No. 142
Select "Off" if you do not want to enable TX Hold.



- ◆ While remaining in the transmit mode, the transceiver does not continuously transmit a 1750 Hz tone.

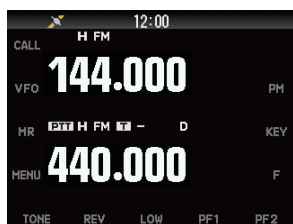
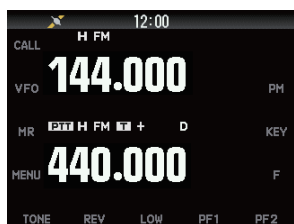
Shift

This function shifts the TX frequency relative to the RX frequency by the offset amount.

Shift Direction

By selecting the offset direction, you can configure the TX frequency to a value higher (+) or lower (–) than the RX frequency.

- 1 Select A Band or B Band
- 2 Press [F], followed by [SHIFT]
Each time you press [F] and [SHIFT], the shift direction changes as follows:
+ Shift ("+" is displayed) → - Shift ("–" is displayed) → Shift OFF (neither "+" nor "–" is displayed)



- ◆ The shift direction can be configured independently in VFO mode (for each frequency band), Memory Channel mode, and CALL mode.
- ◆ Configuring the shift direction in Memory Channel mode or CALL mode results in a temporary change. If the change is not written to the respective channels, the original setting is restored the next time the channel is recalled.

Reverse

After configuring the RX and TX frequencies separately, you can use the Reverse function to swap the frequencies.

To turn on Reverse function:

- 1 Press [REV]
Each press toggles the function On/Off. When the Reverse function is On, the "R" icon is displayed.



- ◆ The Reverse function cannot be turned on or off during transmission.
- ◆ The Auto Repeater Offset function does not operate when the Reverse function is On.
- ◆ When the Reverse function is On and the TX frequency falls outside the permitted TX range, pressing [PTT] will output an error tone and transmission will not be possible.
- ◆ When the Reverse function is On and the RX frequency falls outside the RX range, an error tone will be output and the function will not operate.



- ◆ When direct communication is possible, it is recommended to communicate on an unused frequency without using a repeater.
- ◆ The Reverse function can be configured to On in simplex channels, but it will not operate.

9 Memory Channel

This unit has a total of 1000 memory channels for registering data such as RX frequencies, TX frequencies, CTCSS frequencies, and DCS codes (the total number is 1,102 channels after including 100 program scan memory channels, a priority scan channel, and an APRS frequency setting (AP) channel).

Simplex or Split

Each memory channel can be used as a simplex channel or a split channel. When used as a simplex channel, only one frequency is stored. When used as a split channel, two frequencies are stored separately. Select the appropriate application for each channel according to the intended operation.

The following operations are possible in simplex channels:

- Repeater operation using a simplex frequency
- Repeater operation using the standard offset (when the offset direction is stored)

Data That Can be Registered in One Memory Channel

Registered Item	Simplex Channel	Split Channel	APRS Channel
RX/TX frequency	○	×	○
RX/TX frequency step size	○	×	○
RX-only frequency	×	○	×
TX-only frequency	×	○	×
RX-only frequency step size	×	○	×
TX-only frequency step size	×	○	×
Offset	○	×	×
Tone On/Off	○	○	×
Tone frequency	○	○	×
CTCSS On/Off	○	○	×
CTCSS frequency	○	○	×
DCS On/Off	○	○	×
DCS code	○	○	×
Shift	○	×	×
Reverse On/Off	○	×	×
Memory channel lockout	○	○	×
Memory channel name	○	○	○
Modulation/demodulation mode	○	○	×
			(FM only)
Cross tone	○	○	×
(Digital squelch) type *	○	×	×
(Digital squelch) digital code *	○	×	×
Destination Callsign *	○	×	×
Access repeater Callsign *	○	×	×
Destination repeater Callsign *	○	×	×



- ◆ Lockout On/Off cannot be registered in program scan memory or priority scan memory.
- ◆ Items marked with an asterisk (*) are data for digital mode (DV/DR).

Memory Channel List

You can display a list of the memory channels and view their details when registering memory channels or operating in Memory Channel mode. From this display, you can select a channel to register or operate, as well as perform operations such as editing memory names.

Using the Memory Channel List

Memory channels can be displayed on the memory channel list screen of this unit. You can check saved channels and recall new channels. There is also an option to assign a name to each memory channel.

1 Press [MR] to enter Memory Channel mode

2 Press [ENC] control

The memory channel list is displayed. You can also access the memory channel list from Menu No. 200.

Memory Channel List		0
TOP	0: 144.000 FM	
1:		
GRP ▲	2: 145.170 FM	ESC
	3: 440.575 FM	
GRP ▼	4: 446.100 DV	
	5:	
BACK		
	10/10/2026 (Sat)	
EDIT	M>V	DISP
		B CLR
		CLEAR

Memory Channel Types

Display	Type
"0" to "999"	Memory Channel
"LO" to "U0" to "L49" to "U49"	Program scan memory
"Pri"	Priority scan memory
"AP"	APRS Channel
"A1" to "A10"	Weather channels (TM-D750A only)
"C"	CALL Channel

3 Select a channel using the [ENC] control

Channel numbers "0" to "999" can also be selected by entering a three-digit number using the keypad. When entering a channel number with two digits or fewer, you can also press the [ENC] control after entering the channel number to select it.

Key	Action
[TOP]	Moves the cursor to the top of the memory channel list.
[GRP ▲]	Moves the cursor to the top of the previous memory group.
[GRP ▼]	Moves the cursor to the top of the next memory group.

4 Press [ENC] control

The selected channel is configured, and the display returns to the frequency screen.

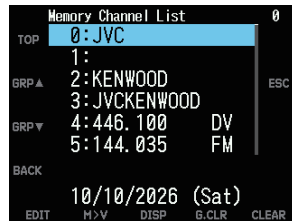
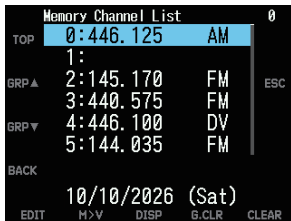
Switching Memory Name Display

You can switch the memory channel list display to show the Frequency or Memory Name.

1 Access Menu No. 200

2 Press [DISP]

Each press toggles the display between Frequency and Memory Name.



Registering Memory Channels (Simplex)

1 Select the frequency, mode, and other settings to be registered on the operating band



2 Press [F], followed by [M.IN]

The memory channel registration screen is displayed.

3 Select the memory channel number to register using the [ENC] control



4 Press [ENC] control

The simplex channel is registered.



Registering Memory Channels (Split)

To change the RX or TX frequency, first register the new RX frequency, followed by registering the TX frequency. It is not possible to register the TX frequency only.

1 Register the RX frequency in advance

Split channel registration can only be performed on memory channels that have already been registered.

2 Display the TX frequency on the operating band



3 Press [F], followed by [M.IN]

The memory channel registration screen is displayed.

4 Select the memory channel number to register using the [ENC] control



5 Press [SPLIT]

The split channel is registered.



◆ Frequency data with different bands for RX and TX can only be written within the same frequency band or between a combination of 144 MHz and 430 MHz bands.

◆ Combinations with different RX and TX modes cannot be registered.

Clearing a Memory Channel

You can choose to delete only a specific channel from the registered memory channels.

1 Access Menu No. 200

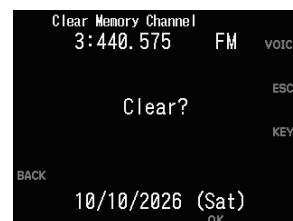
The memory channel list is displayed.

2 Select a channel to clear using the [ENC] control and press [CLEAR]

The clear memory channel confirmation screen is displayed.

3 Press [OK]

The selected memory channel is cleared. To clear another memory channel, repeat the procedure from step 2.



Recalling a Memory Channel [MR Mode]

To recall memory channels, you can either recall one by one in order or make a selection from the memory channel list.

To recall memory channels one by one:

- 1 Press [MR] to enter Memory Channel mode
- 2 Select a memory channel number using the [ENC] control

To recall memory channels from the memory channel list:

- 1 Press [MR] to enter Memory Channel mode
- 2 Press [ENC] control
The memory channel list is displayed.
- 3 Select a channel using the [ENC] control or enter a three-digit memory channel number using the keypad
The memory channel corresponding to the entered number is displayed at the top of the list. When entering a memory channel number with two digits or fewer, press the [ENC] control after entering the number.
- 4 Press [ENC] control
The selected channel is recalled, and the display returns to the frequency screen.

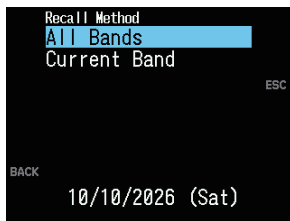


- ◆ When a split channel is recalled, “±” appears on the display.
- ◆ Split channels with different RX and TX frequency settings cannot be recalled.

Memory Recall Method

When recalling memory channels, you can select whether to recall from all bands or within the currently recalled frequency band.

- 1 Access Menu No. 202



- 2 Select “All Bands” or “Current Band”

“All Bands” : All registered memory channels can be recalled.
 “Current Band” : Only memory channels within the frequency band currently selected in VFO mode can be recalled for both A Band and B Band.



- ◆ This setting also applies to memory scan and memory group scan.

Editing Memory Channel

You can configure group settings for each memory channel, register memory names, and configure lockout settings for memory scanning.

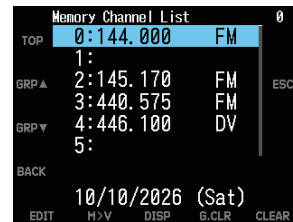
Configuring Groups

Each memory channel can be assigned to one of Groups 0 to 29. When a memory channel is newly registered, it is automatically assigned to a group based on the hundreds digit of the channel number (for example, CH.0 is assigned to Group 0, CH.100 is assigned to Group 1, and CH.200 is assigned to Group 2).

By configuring groups, you can recall memory channels by group and perform memory channel scans by group.

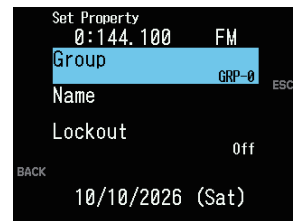
- 1 Display the memory channel list

In Memory Channel mode, press the [ENC] control or access Menu No. 200 to call up the memory channel list.



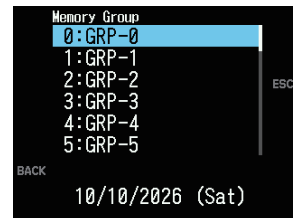
- 2 Select a channel and press [EDIT]

The memory channel edit menu is displayed.



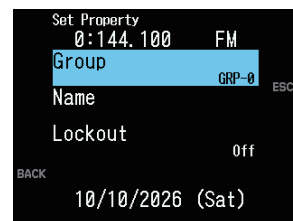
- 3 Select “Group” and press [ENC] control

The memory group selection screen is displayed.



- 4 Make a selection from Group 0 (GRP-0) to Group 29 (GRP-29) and press the [ENC] control

The selected group is configured



- 5 Press [BACK] or [ESC]

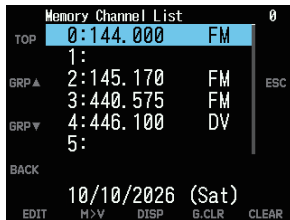
Pressing [BACK] returns the display to the memory channel list. To continue configuring another memory channel group, repeat the procedure from step 2. Pressing [ESC] returns the display to the frequency screen.

Registering a Memory Name

You can assign a memory name of up to eight full-width characters (or 16 half-width characters) to each memory channel. This is useful when using repeaters, as it allows you to search by Callsign or location name.

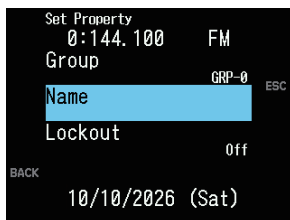
1 Display the memory channel list

In Memory Channel mode, press the [ENC] control or access Menu No. 200 to call up the memory channel list.



2 Select a channel and press [EDIT]

The memory channel edit menu is displayed.



3 Select "Name" and press [ENC] control

The memory name edit screen is displayed.



4 Edit the name

5 Press [ENC] control

The edited memory name is registered.

6 Press [BACK] or [ESC]

Pressing [BACK] returns the display to the memory channel list. To continue registering the memory name for another memory channel group, repeat the procedure from step 2. Pressing [ESC] returns the display to the frequency screen.

CALL Channel Memory (Simplex)

CALL Channel Memory (Simplex) registers frequency and function settings to a CALL channel. It will be useful to store frequently used frequencies for quick access.

1 Display the frequency or function settings you want to register

2 Press [F], followed by [C.IN]

Registration is complete. The display returns to the frequency screen.



- ◆ One CALL channel can be registered for each demodulation mode in the 144 MHz and 430 MHz bands.
- ◆ For more information on items that can be registered, please refer to "Registering Memory Channels (Simplex)" (p. 35).

CALL Channel Memory (Split)

CALL Channel Memory (Split) registers different RX and TX frequencies to a CALL channel.

1 Register the RX frequency using "CALL Channel Memory (Simplex)"

Split channel registration can only be performed on memory channels that have already been registered.

2 Display the TX frequency you want to register

3 Press [F]

4 Press [C.IN] while holding down [PTT]

Registration is complete. The display returns to the frequency screen.



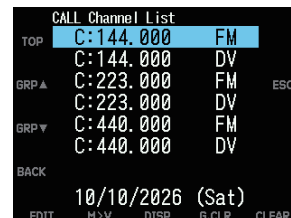
- ◆ A TX frequency in a different band from the RX frequency cannot be registered.
- ◆ The TX offset status and reverse status cannot be saved to a split CALL channel.

CALL Channel List

You can use this function to select a CALL channel from the menu. The selected channel can also be edited.

1 Access Menu No. 204

The CALL channel list is displayed.



2 Select a CALL channel

3 Press [ENC] control

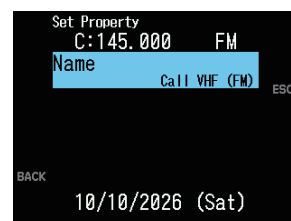
The CALL channel is accessed.

Editing a CALL Channel Name

1 Access Menu No. 204

2 Select the CALL channel whose name you want to change, then press [EDIT]

The CALL channel edit menu is displayed.



3 Press the [ENC] control and edit the CALL channel name



4 Press [ENC] control

The CALL channel name is registered.

Memory Group

You can organize and manage 1,000 memory channels in 30 groups.

Switching Memory Group

You can switch the memory group to recall only the memory channels within that group.

- 1 Press [MR] to enter Memory Channel mode
- 2 Press [F], followed by [BAND SEL]
Pressing [F] followed by [BAND SEL] each time advances to the next memory group.

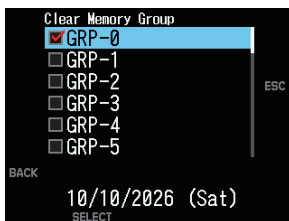


- ◆ Upon switching the memory group, the group name appears in the memory name display area for approximately two seconds.
- ◆ Memory groups that do not contain any configured memory channels are skipped.
- ◆ You can also switch memory groups by pressing the PF key that is assigned to [GRP.UP].
- ◆ In Memory Channel mode, press the [ENC] control to display the memory channel list screen, then press [GRP▲] or [GRP▼] to move the cursor to the top of the previous or next memory group.

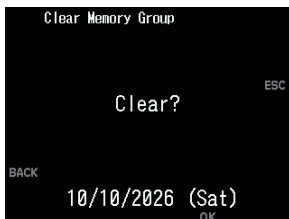
Clearing on a Memory Group Basis

This function clears memory channels that are no longer in use on a memory group basis.

- 1 Access Menu No. 200
The memory channel list is displayed.
- 2 Press [G.CLR]
- 3 Select the group you want to clear, then press [SELECT] to select the check box



- 4 Press [ENC] control
The clear memory group confirmation screen is displayed.

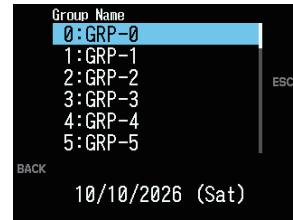


- 5 Press [OK]
The specified group is cleared.

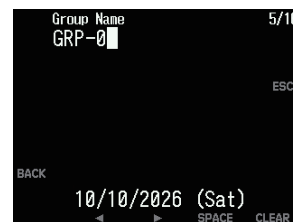
Memory Group Names

You can assign a name to each of the 30 memory groups. Group names can contain up to eight full-width characters (or 16 half-width characters).

- 1 Access Menu No. 201
The group name screen is displayed.



- 2 Select the group you want to name, then press the [ENC] control
The group name input screen is displayed.



- 3 Edit the group name
- 4 Press [ENC] control
The edited memory group name is registered and the display returns to the group name screen.

Memory Shift

This function copies the contents of a memory channel or CALL channel to VFO.

Shifting Memory from the Frequency Screen

- 1 Press [MR] or [CALL] to enter Memory Channel mode or CALL Channel mode
- 2 Recall the memory channel you want to copy, then switch to VFO
This step is not necessary when selecting a CALL channel.
- 3 Press [F], followed by [M > V]
The contents are copied to VFO, and the unit enters VFO mode.
 - The entire contents of the memory channel or CALL channel are copied to VFO. When the transfer is complete, the unit enters VFO mode.
 - To copy the TX frequency from a split memory channel or CALL channel, configure the Reverse function to On, then press [F] followed by [M > V].

Shifting Memory from the Memory Channel List

- 1 Access Menu No. 200
The memory channel list is displayed.
- 2 Select the memory channel to shift to VFO
- 3 Press [F], followed by [M > V]
The contents are copied to VFO, and the unit enters VFO mode.

Shifting Memory from the CALL Channel List

- 1 Access the CALL channel list from Menu No. 204
- 2 Select the CALL channel you want to copy to VFO
- 3 Press [F], followed by [M > V]
The contents are copied to VFO, and the unit enters VFO mode.

10 PM (Programmable Memory)

PM (Programmable Memory) is a function that registers the current operating settings as they are to one of the five channels.

The following settings cannot be registered to PM.

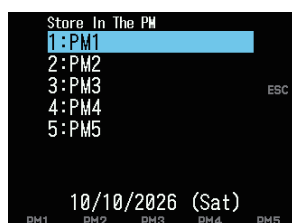
- Memory Name
- Memory Channel Lockout
- Repeater Mode
- Key Lock
- Memory Channel/CALL Channel/APRS Channel/Program Scan Memory
- DTMF Memory
- EchoLink Memory
- Mic. Sensitivity
- SQLC Data Output Logic
- Position Memory
- APRS Station List
- APRS Message List
- Repeater List
- Hotspot List
- Callsign List
- D-STAR RX History
- D-STAR TX History
- SD Card Slot Selection

Examples of Use

- During the day, you may want to brighten the LCD display and increase the beep volume. At night, however, you may prefer the opposite settings, but changing the settings manually can be cumbersome, and it can be difficult to remember all the required steps. With the PM function, you can switch between these settings easily.
- In cases such as when you want to limit the frequency tuning range to only the repeater operating band or only the packet operating band, configuring and canceling each setting individually can be a hassle. Once you have stored each operating state in the memory, you can easily recall it using the PM function.

Registering PM Channel Manually

- 1 Display the settings and operating state of the function you want to register to PM
- 2 Press [F], followed by [PM.IN]



- 3 Rotate the [ENC] control to select the channel number (1 to 5) to which you want to write the data, then press the [ENC] control

You can also register the data by pressing the key corresponding to the desired channel number (1 to 5).

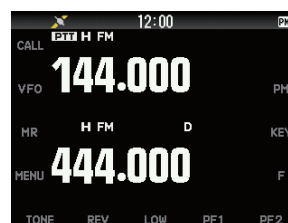
The current state is registered to the selected channel. Any data that is already registered to that channel will be overwritten.

- Pressing any key other than 1 to 5 cancels the registration and returns the unit to its previous state.

- 2 Rotate the [ENC] control to select the channel number (1 to 5) you want to recall, then press the [ENC] control

You can also recall the data by pressing the key corresponding to the registered channel number (1 to 5).

The power-on message is displayed once, and the selected channel is then recalled. At this time, the icon for the selected PM channel number appears in the common icon display area.



- Selecting "Off" returns the unit to the state it was in before the PM channel was recalled.



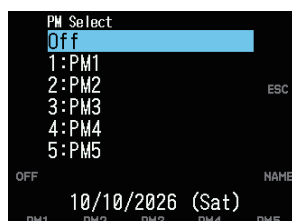
- ◆ PM cannot be recalled while transmission is in progress.
- ◆ This function does not operate in the Channel Number Display mode.

Recalling a PM Channel

This function recalls the PM channel containing the operating state you want to use.

- 1 Press [PM]

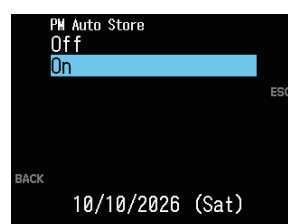
Memory channel numbers 1 to 5 and [OFF] appear in the operation guide display area.



Registering PM Channel Automatically

When Automatic PM Channel Registration is configured to On, the current settings are automatically registered to the currently displayed PM channel. The default setting for Automatic PM Channel Registration is [ON].

- 1 Access Menu No. 240



"On" : Turns on the Automatic PM Channel Registration function.

"Off" : Turns off the Automatic PM Channel Registration function.

- The displayed icon changes depending on whether Automatic PM Channel Registration is On or Off. (Example: ON: **PM1**, OFF: **PM1**)



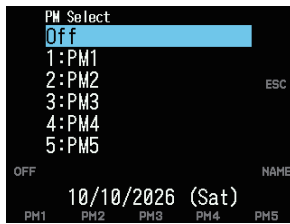
- ◆ Automatic PM channel writing is performed at the following timings.

- When a change in PM channel is performed by a PM recall operation, the current settings are automatically written to the previously selected PM channel before the unit switches to the new PM channel.
- When the power is turned off, the current settings are automatically written to the currently selected PM channel.
- When PM mode is configured to "Off", the current settings are automatically written to the currently selected PM channel before the PM mode turns off.

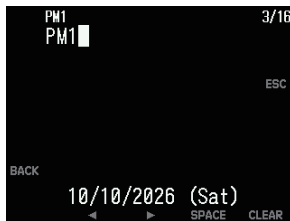
Configuration of PM Name

You can assign a name to each of the five PM. A PM name can contain up to eight full-width characters (16 single-byte characters).

- 1 Press [PM]



- 2 Rotate the [ENC] control to select the channel number (1 to 5) you want to recall, then press [NAME]
The PM name input screen is displayed.



- 3 Edit the PM name

- 4 Press [ENC] control

The edited PM name is registered and the display returns to the PM name screen.

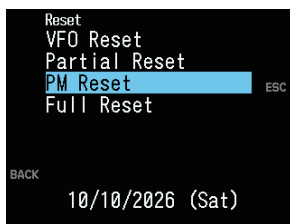
PM Reset

This function restores the PM channel settings to their default values.

- 1 Access Menu No. 999

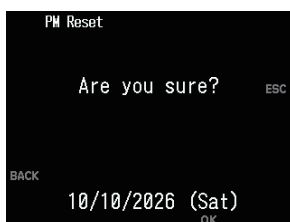


- 2 Rotate the [ENC] control to select [PM Reset]



- 3 Press [ENC] control

A confirmation message is displayed.



- 4 Press [OK]

PM is now reset.

- Press [ESC] to exit without resetting.

11 Scan

Scan is a function that automatically changes the frequency to search for receivable signals and receives a signal when one is found. After reception, scanning resumes according to the configured Scan Resume condition.

Types of Scan

The following scan types are available on this unit:

- Band Scan: Scans the entire band.
- MHz Scan: Scans a 1 MHz range.
- Program Scan: Scans a specified range.
- Memory Scan: Scans the memory channels sequentially.
- Memory Group Scan: Scans the memory channels within a memory group.
- CALL Scan: Alternately scans a CALL channel and other frequencies.
- Priority Scan: Alternately scans the priority channel (Pri) and other frequencies.
- Repeater Scan (D-STAR): Scans repeaters in Digital mode.

Operations Common to All Scan Types

- During scanning, the MHz dot flashes.
- Rotating the [ENC] control clockwise during scanning changes scan to a direction that increases the frequency display or channel number.
- Rotating the [ENC] control counterclockwise during scanning changes scan to a direction that decreases the frequency display or channel number.
- When a signal is found, scanning pauses to receive the signal. After the signal is received, scanning resumes according to the selected Scan Resume condition.



- ◆ If the squelch threshold level is set too low, scanning may stop more frequently. In this case, increase the threshold level.
- ◆ While CTCSS or DCS is On, if scanning pauses when a signal is found, the squelch opens if the CTCSS frequency or DCS code matches. Scanning resumes if there is no match.
- ◆ If Monitor Type is configured to "SQL Off", pressing the PF key assigned to [MONITOR] during scanning pauses the scan and opens the squelch. Pressing the PF key assigned to [MONITOR] again resumes scanning.

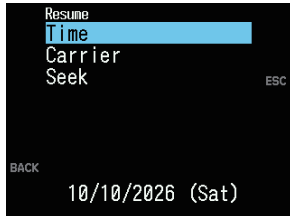
Selecting a Scan Resume Method

Make a selection from one of the three condition types for resuming the scan after it has paused upon detecting a receivable signal during scanning.

1 Access Menu No. 130



- ◆ In Digital (DV/DR) mode, recall Menu No. 131 to configure the settings.



Time-Operated mode

: When the squelch opens, scanning pauses and resumes after five seconds (default setting) regardless of the squelch state.

Carrier-Operated mode

: When the squelch opens, scanning pauses and resumes when the squelch has remained closed for at least two seconds (default setting).

Seek mode

: When the squelch opens, scanning stops and does not resume.

Time Setting in Time-Operated Mode

Select the time before scanning resumes while in the Time-Operated mode.

1 Access Menu No. 132

Make a time selection between 1 and 10 (sec)



Time Setting in Carrier-Operated Mode

Select the time before scanning resumes while in the Carrier-Operated mode.

1 Access Menu No. 133

Make a time selection between 1 and 10 (sec)



Band Scan

This function scans the programmable VFO range using the configured frequency step size.

- 1 Select your desired operating band and frequency
- 2 Press and hold [VFO] to start band scan



- Scanning starts at the current frequency.
- During scanning, the dot at the 1 MHz position flashes.
- To change the scan direction, rotate the [ENC] control clockwise (upward scan) or counterclockwise (downward scan).



- ◆ Program scan is performed when scanning is started within a frequency range configured in the program scan memory.
- ◆ In DR mode, pressing and holding [VFO] displays the DR Scan Menu screen. (p. 114)

3 Press [VFO] to stop band scan

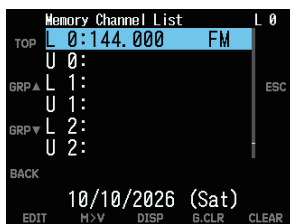
Program Scan

You can perform scan within a specific frequency range by registering that range in the program scan memory in advance.

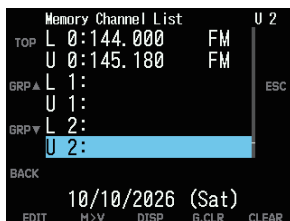
Registering Program Scan Memory

Example: Registering the 145 MHz band to channel L0/U0

- 1 Select the band to be scanned (A Band or B Band)
- 2 Press [VFO] to enter VFO mode
- 3 Display the lower or upper frequency limit of the range to be scanned
- 4 Press [F], followed by [M.IN]
The memory channel registration screen appears.
- 5 Select channel [L0] when you are configuring the lower frequency limit, and channel [U0] when configuring the upper frequency limit
- 6 Press [ENC] control
The frequency is registered in the memory channel. (The illustration below shows an example in which the lower frequency limit is configured in L0.)



- 7 Register the corresponding upper or lower frequency limit
Repeat Steps 3 to 6. Memory channels L1/U1 through L49/U49 can be registered in the same manner.



- ◆ Program scan memory channels (L0/U0 through L49/U49) are located after Memory Channel No. 999.
- ◆ Configure the frequencies so that the lower frequency is lower than the upper frequency.

Performing Program Scan

- 1 Tune to a frequency within a program scan memory range
When the VFO frequency falls within a frequency range registered in the program scan memory, an indication such as "Program No. 0" appears below the frequency display. (The illustration below shows an example where the VFO frequency falls within the frequency range configured for program scan memory L0/U0.)



- 2 Press and hold [VFO] to start program scan
 - Scanning starts at the current frequency.
 - During scanning, the dot at the 1 MHz position flashes.
 - To change the scan direction, rotate the [ENC] control clockwise (upward scan) or counterclockwise (downward scan).
- 3 Press [VFO] to stop program scan



- ◆ If there is overlap in the frequency ranges registered in the program scan memory, the frequency range of the smaller program scan memory number is applied.
- ◆ Pressing and holding [VFO] for one second or longer while the VFO frequency is outside any program scan memory frequency range starts band scan.

MHz Scan

This function scans the 1 MHz range corresponding to the displayed frequency using the configured frequency step size. The current frequency step size is used to monitor a 1 MHz segment of the band. The current 1 MHz value is used as the scan range limit. For example, if the current frequency is 433.980 MHz, the scan range will be 433.000 MHz to 433.980 MHz (the exact upper limit varies depending on the current frequency step size).

- 1 Select the band to be scanned (A Band or B Band)
- 2 Press [VFO] to enter VFO mode
- 3 Rotate the [ENC] control to select a frequency within the 1 MHz range
- 4 Press and hold the [ENC] control to start MHz scan



- Scan starts at the current frequency.
- During scanning, the dot at the 1 MHz position flashes.
- To change the scan direction, rotate the [ENC] control clockwise (upward scan) or counterclockwise (downward scan).

- 5 Press the [ENC] control to stop MHz scan

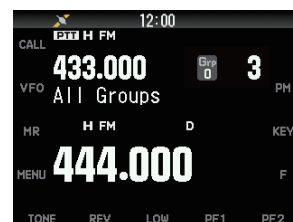


- ◆ MHz scan cannot be performed in CALL mode.
- ◆ Performing the above steps while in Memory Channel mode starts memory group scan.

Memory Scan

This function scans all callable channels registered in the memory channels in sequence.

- 1 Press and hold [MR] to start memory scan



- Scanning starts at the current frequency.
- During scanning, the dot at the 1 MHz position flashes.
- To change the scan direction, rotate the [ENC] control clockwise (upward scan) or counterclockwise (downward scan).

- 2 Press [MR] to stop memory scan



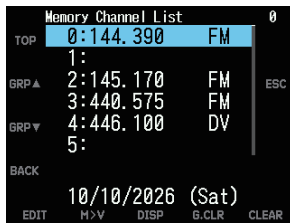
- ◆ Locked-out memory channels are skipped during scanning.
- ◆ Scanning will not be performed if there are fewer than two memory channels available for scanning.
- ◆ The Program Scan Memory, Priority Channel, and APRS Channel are excluded from the Memory Scan.
- ◆ If the memory recall method is configured to "Current Band", only memory channels with the same frequency band as the current memory channel are scanned. All other memory channels will be skipped.

Memory Channel Lockout

This is a function that excludes specific memory channels so that they are skipped during memory scan.

1 Access Menu No. 200

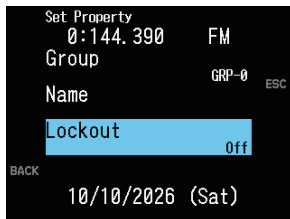
The memory channel list is displayed.



2 Select the channel you want to lock out

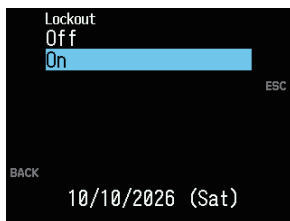
3 Press [EDIT]

The memory channel edit menu is displayed.



4 Select [Lockout] and press [ENC] control

5 Select [On] and press [ENC] control



Memory channel lockout is now configured. When a memory channel with the Memory Channel Lockout function configured to On is recalled, <L> appears to the right of the channel number.



Memory Group Scan

This function scans only memory channels of the memory group (GRP-0 to GRP-29 and the train channel) in which the selected memory channel number is registered.

1 Press [MR] to enter Memory Channel mode

2 Rotate the [ENC] control to display the memory channel number of the group you want to scan

3 Press and hold the [ENC] control to start memory group scan



- Scanning starts at the current memory channel.
- During scanning, the dot at the 1 MHz position flashes.
- To change the scan direction, rotate the [ENC] control clockwise (upward scan) or counterclockwise (downward scan).

4 Press the [ENC] control to stop memory group scan



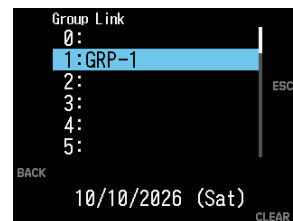
- ◆ Locked-out memory channels are skipped during scanning.
- ◆ Scanning will not be performed if there are fewer than two memory channels available for scanning within the group to be scanned.
- ◆ If the memory recall method is configured to "Current Band", only memory channels with the same frequency band as the current memory channel are scanned. All other memory channels will be skipped.

Memory Group Link

This function combines multiple memory groups together and treats them as a single memory group during a memory group scan. Up to 30 memory groups can be combined (linked) together arbitrarily.

1 Access Menu No. 203

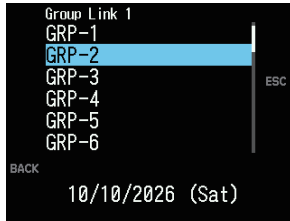
The group link list is displayed.



2 Select a group link number

If there are memory groups that have already been linked, press [CLEAR] to remove the link.

- 3 Press [ENC] control
The memory group selection screen is displayed.



- 4 Select the group to link and press the [ENC] control
- 5 Repeat Steps 2 to 4
- 6 Press [ESC]
The display returns to the frequency screen.



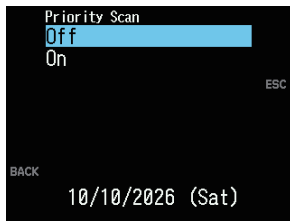
Priority Scan

This function checks the frequency registered in the priority channel once every three seconds, and if the frequency is busy, the priority channel is displayed to allow communication on that frequency.



- ◆ A frequency needs to be registered in the priority channel "Pri" in advance.

- 1 Access Menu No. 134
"On" : Turns on the Priority Scan function.
"Off" : Turns off the Priority Scan function.



- ◆ When priority scan is On, <P> is displayed.
- ◆ When the priority channel becomes busy, the display switches to show the priority channel frequency. You can communicate with the other station in this state.
- ◆ If no signal is present and there is no key operation for three seconds, scanning resumes.
- ◆ Register a frequency receivable on the B Band in the priority channel.
- ◆ Priority scan cannot be turned on in the following cases:
 - When operating in single A-band mode.
 - When both the A-band modulation/demodulation mode and priority channel modulation/demodulation mode are in DV mode or DR mode.

CALL Scan

This function alternately scans the CALL channel and VFO frequency, or the CALL channel and the frequency of the last recalled memory channel.

- 1 Select a VFO frequency or memory channel
- 2 Press and hold [CALL] to start CALL scan
 - During scanning, the dot at the 1 MHz position flashes.
 - When scanning with a memory channel, the CALL channel in the same band as the selected memory channel is used for scanning.
- 3 Press [CALL] to stop CALL scan



- ◆ The selected memory channel is scanned even if it is locked out from scanning.

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1

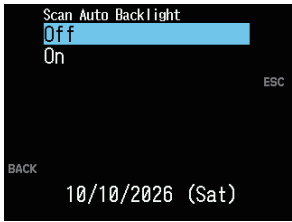
1



Scan Auto Backlight

This function illuminates the backlight for approximately two seconds when scanning pauses. It operates during all scan types.

- 1 Access Menu No. 135
 - “On” : Turns on the Scan Auto Backlight function.
 - “Off” : Turns off the Scan Auto Backlight function.



- ◆ The illumination time of Scan Auto Backlight cannot be changed.

12 CTCSS/DCS/Cross Tone

What is CTCSS (Continuous Tone Coded Squelch System)?

This function transmits a CTCSS frequency together with the voice signal. When the CTCSS frequencies of your station and the other station match, the squelch opens and signals can be received. 50 types of CTCSS frequencies are available for selection. A CTCSS frequency can be configured for each frequency band.

What is DCS (Digital Coded Squelch)?

This function transmits a DCS code together with the voice signal. When the DCS code of your station and the other station match, the squelch opens and signals can be received. 104 types of DCS codes are available for selection. A DCS code can be configured for each frequency band.



- ◆ When using CTCSS or DCS, assign the Monitor [MONITOR] function to a PF key (Menu Nos. 940 to 946) so that you can check whether the frequency on which you intend to transmit is in use.

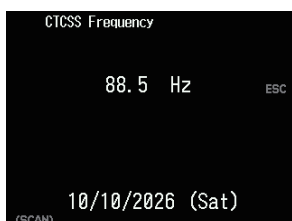
CTCSS

Using CTCSS

- 1 Select the desired band
- 2 Press [TONE] twice to activate the CTCSS function
 - When the CTCSS function is On, the “CT” icon appears on the display.
 - Each press of [TONE] changes the settings as follows:
Tone () → CTCSS (**CT**) → DCS (**DCS**) → Cross Tone (**D/O** : Initial value) → OFF (Light off)
If APRS is On and Voice Alert is configured, Voice Alert ON will be added to the above cycle.



- 3 Press [F], followed by [T.SEL]
 - The current CTCSS frequency is shown on the display and flashes. The default frequency is 88.5 Hz.



- 4 Select the desired CTCSS frequency
 - Refer to the table below for the selectable frequencies.
- 5 Press the [ENC] control to complete configuration of the settings
- 6 When receiving: The transceiver squelch opens only when the selected CTCSS tone is received
When transmitting: Press and hold [PTT], then speak into the microphone
 - To cancel CTCSS, press [TONE] until “CT” is no longer shown on the display.

No.	Frequency [Hz]	No.	Frequency [Hz]	No.	Frequency [Hz]
01	67.0	18	118.8	35	183.5
02	69.3	19	123.0	36	186.2
03	71.9	20	127.3	37	189.9
04	74.4	21	131.8	38	192.8
05	77.0	22	136.5	39	196.6
06	79.7	23	141.3	40	199.5
07	82.5	24	146.2	41	203.5
08	85.4	25	151.4	42	206.5
09	88.5	26	156.7	43	210.7
10	91.5	27	159.8	44	218.1

No.	Frequency [Hz]	No.	Frequency [Hz]	No.	Frequency [Hz]
11	94.8	28	162.2	45	225.7
12	97.4	29	165.5	46	229.1
13	100.0	30	167.9	47	233.6
14	103.5	31	171.3	48	241.8
15	107.2	32	173.8	49	250.3
16	110.9	33	177.3	50	254.1
17	114.8	34	179.9		



- ◆ The CTCSS function cannot be turned on at the same time with the Tone function and DCS function.

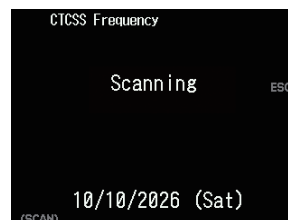


- ◆ CTCSS can be configured independently in VFO mode, Memory Channel mode, and CALL mode.
- ◆ Turning the CTCSS function on or off in Memory Channel mode or CALL mode results in a temporary change.

CTCSS Frequency Scan

This function scans all CTCSS frequencies to identify the incoming CTCSS frequency of a received signal. It is useful when you cannot remember the CTCSS frequency being used by other members of your group.

- 1 Press [TONE] twice to activate the CTCSS function
 - When the CTCSS function is On, the “CT” icon appears on the display.
 - Each press of [TONE] changes the settings as follows:
Tone () → CTCSS (**CT**) → DCS (**DCS**) → Cross Tone (**D/O** : Initial value) → OFF (Light off)
If APRS is On and Voice Alert is configured, Voice Alert ON will be added to the above cycle.
- 2 Press [F], then press and hold [T.SEL]
 - Scanning starts, and “Scanning” appears flashing on the display.
 - To stop the scan, press [ESC].
 - When a CTCSS frequency is identified, the identified frequency is shown on the display and flashes.



- 3 Press the [ENC] control to program the identified frequency in place of the currently configured CTCSS frequency
 - The CTCSS function remains on. To cancel CTCSS, press [TONE] until CT is no longer shown on the display.

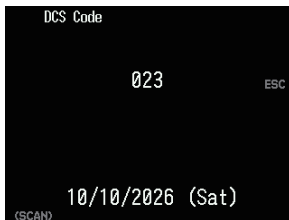
DCS

Using DCS

- 1 Select the desired band
- 2 Press [TONE] three times to activate the DCS function
 - When the DCS function is On, the “**DCS**” icon appears on the display.
 - Each press of [TONE] changes the settings as follows:
Tone (**T**) → CTCSS (**CT**) → DCS (**DCS**) → Cross Tone (**D/O** : Initial value) → OFF (Light off)
If APRS is On and Voice Alert is configured, Voice Alert ON will be added to the above cycle.



- 3 Press [F], followed by [T.SEL]
 - The current DCS code is shown on the display and flashes.



- 4 Select the desired DCS code
 - Refer to the table below for the selectable codes.
- 5 Press the [ENC] control to complete configuration of the settings
- 6 When receiving: The transceiver squelch opens only when the selected DCS tone is received
When transmitting: Press and hold [PTT], then speak into the microphone
 - To cancel DCS, press [TONE] until DCS is no longer shown on the display.

DCS code							
023	025	026	031	032	036	043	047
051	053	054	065	071	072	073	074
114	115	116	122	125	131	132	134
143	145	152	155	156	162	165	172
174	205	212	223	225	226	243	244
245	246	251	252	255	261	263	265
266	271	274	306	311	315	325	331
332	343	346	351	356	364	365	371
411	412	413	423	431	432	445	446
452	454	455	462	464	465	466	503
506	516	523	526	532	546	565	606
612	624	627	631	632	654	662	664
703	712	723	731	732	734	743	754



- ◆ The DCS function cannot be turned on at the same time with the Tone function and CTCSS function.

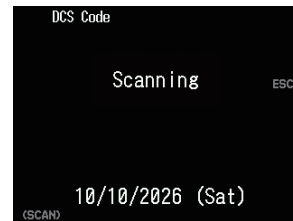


- ◆ DCS can be configured independently in VFO mode, Memory Channel mode, and CALL mode.
- ◆ Turning the DCS function on or off in Memory Channel mode or CALL mode results in a temporary change.

DCS Code Scan

This function scans all DCS codes to identify the incoming DCS code of a received signal. It is useful when you cannot remember the DCS code being used by other members of your group.

- 1 Press [TONE] three times to activate the DCS function
 - When the DCS function is On, the “**DCS**” icon appears on the display.
 - Each press of [TONE] changes the settings as follows:
Tone (**T**) → CTCSS (**CT**) → DCS (**DCS**) → Cross Tone (**D/O** : Initial value) → OFF (Light off)
If APRS is On and Voice Alert is configured, Voice Alert ON will be added to the above cycle.
- 2 Press [F], then press and hold [T.SEL]
 - Scanning starts, and “Scanning” appears flashing on the display.
 - To stop the scan, press [ESC].
 - When a DCS code is identified, the identified code is shown on the display and flashes.



- 3 Press the [ENC] control to program the identified code in place of the currently configured DCS code
 - The DCS function remains on. To cancel DCS, press [TONE] until DCS is no longer shown on the display.

Cross Tone

Using Cross Tone

This function allows separate signal types to be configured for transmission and reception when accessing a repeater that uses different encoding and decoding signals.

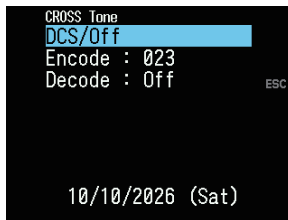
To turn on the Cross Tone function:

- 1 Press [TONE] four times to activate the Cross Tone function
 - When the Cross Tone function is On, the “D/O” icon (default setting) appears on the display.
 - Each press of [TONE] changes the settings as follows:
 Tone (**T**) → CTCSS (**CT**) → DCS (**DCS**) → Cross Tone (**D/O** : Initial value) → OFF (Light off)
 If APRS is On and Voice Alert is configured, Voice Alert ON will be added to the above cycle.

Configuring Cross Tone

Display “D/O”, “T/D”, “D/C” or “T/C”, followed by the steps below.

- 1 Press [F], followed by [T.SEL]
Enters the cross tone configuration mode.
- 2 Make a selection using the [ENC] control



Setting	Encode	Decode	Display
DCS/Off	DCS	Off	D/O
TONE/DCS	Tone	DCS	T/D
CTCSS	DCS	CTCSS	D/C
TONE/CTCSS	Tone	CTCSS	T/C

- 3 Press the [ENC] control to configure cross tone for the selected combination



- ◆ The Cross Tone function cannot be turned on at the same time with the Tone function, CTCSS function and DCS function.



- ◆ Cross tone can be configured independently in VFO mode, Memory Channel mode, and CALL mode.
- ◆ Turning the Cross Tone function on or off in Memory Channel mode or CALL mode results in a temporary change.

13 DTMF

DTMF (Dual Tone Multi Frequency) is the touch-tone sound heard on devices such as telephones. It is a code that combines two frequencies. DTMF is used when accessing node stations of VoIP radio systems such as EchoLink, or when sending control commands to a node station.

MANUAL DIALING

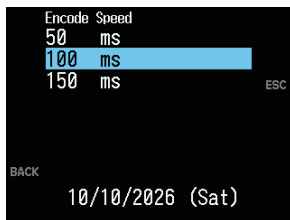
Transmit DTMF signals using a 16-key microphone keypad.

- 1 Select your desired operation band and frequency
- 2 Press a 16-key microphone key while pressing [PTT]
 - The corresponding DTMF tones are transmitted.
 - If the DTMF Hold function is activated, you do not need hold down [PTT] while pressing keys. After transmitting the first tone (by pressing [PTT] and the first key), pressing additional keys will keep the transceiver in transmit mode for 2 seconds.

DTMF Memory TX Speed Setting

You can switch the speed for transmitting the DTMF memory.

- 1 Access Menu No. 160

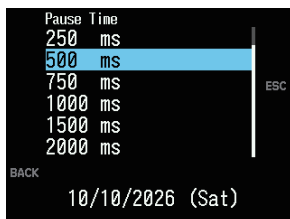


- 2 Select "50", "100", or "150" msec

DTMF Memory Pause Time Setting

You can change the pause duration stored in DTMF Memory channels.

- 1 Access Menu No. 161

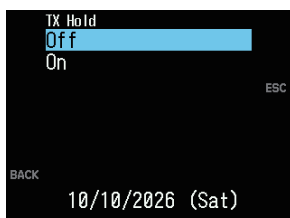


- 2 Select "100", "250", "500", "750", "1000", "1500", or "2000" msec

DTMF TX Hold

This function keeps the transmission active for two seconds after you release the PTT while sending DTMF signals. When set to On, you can still press the 16-key keypad to output DTMF tones continuously even after releasing the PTT.

- 1 Access Menu No. 162



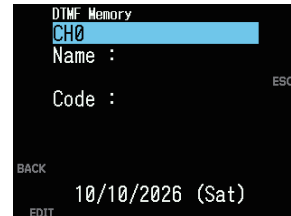
- 2 Select "Off" or "On"
"Off" : Does not maintain the transmit state.
"On" : Maintains the transmit state.

AUTOMATIC DIALER

There are 10 dedicated DTMF memory channels available to store DTMF codes. You can store up to 16 digits in each channel.

Storing a DTMF Code in Memory

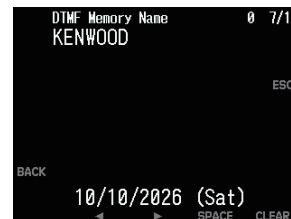
- 1 Access Menu No. 163
Enters the DTMF memory setting mode.



- 2 Use the [ENC] control to select the channel you want to register (CH0 to CH9), followed by pressing [EDIT]
The name input screen appears.



- 3 Enter the memory name



- 4 Press [ENC] control
The DTMF memory code input screen appears.



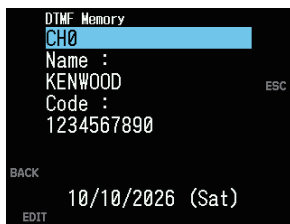
- 5 Enter the DTMF memory code



6 Press [ENC] control

DTMF memory channel is stored.

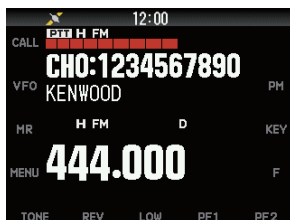
- If you want to store another DTMF memory channel, repeat the procedure from step 2.



- You can enter a pause (shown as a blank space) in the DTMF memory. In Step 5, select " " (blank space). Use the [ENC] control to select " " (blank space).

Transmitting a Stored DTMF Code

- While transmission is in progress, press the [ENC] control. The last called DTMF Memory channel number and name appears on the display. If no name has been saved for the channel, the DTMF code appears.



- While holding down the [PTT], select the memory channel number for transmission. Make a selection using the [ENC] control. You can also directly enter a memory channel number using the keypad.
- While holding down the [PTT], press the [ENC] control. The DTMF signal is being transmitted. Even after releasing the [PTT], transmission continues until memory transmission is completed.

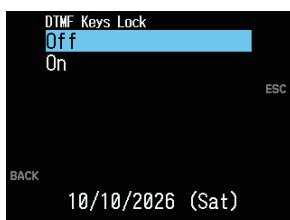


- When you select an unregistered memory channel and press the [ENC] control, the display returns to the frequency display.

DTMF Key Lock

This function locks the DTMF TX key to prevent transmission if it is pressed accidentally while transmission is in progress. Turn this function on when you want to lock the DTMF keys.

- Access Menu No. 961



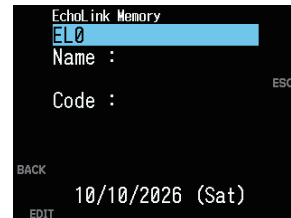
- Set the key lock to "On" or "Off"

Storing EchoLink Memory

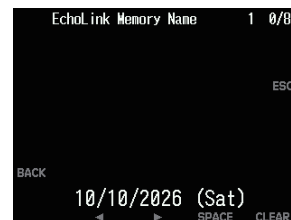
There are dedicated EchoLink DTMF memory channels (10 channels) available apart from the conventional DTMF memory channels. You can use them to register Callsigns, node numbers, and control commands. "Connect by call" and "Query by call" used in EchoLink are also possible through simple operations by using the Callsign/DTMF auto conversion function.

- Access Menu No. 164

Enters the EchoLink memory setting mode.

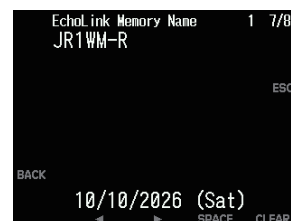


- Use the [ENC] control to select the channel you want to register (CH0 to CH9), followed by pressing [EDIT]. The name input screen appears.



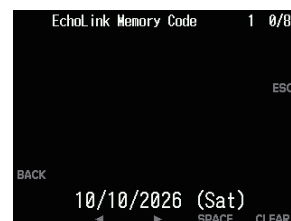
- Enter the memory name

Enter information such as the Callsign or conference name (for board rooms that support round QSO) of the other station which is connected via EchoLink, or the control command name, into the EchoLink memory name.



- Press [ENC] control

Enters the EchoLink memory code input mode. Enter the node number of the other station or conference which are connected via EchoLink, or the DTMF code of the control command, etc., into the EchoLink code.



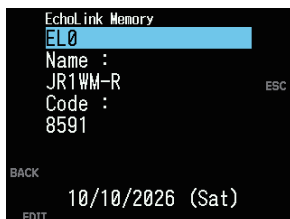
5 Enter the EchoLink memory code



6 Press [ENC] control

The EchoLink memory code is now registered.

- If you want to register another EchoLink memory channel, repeat the procedure from step 2.



Callsign-DTMF Code Conversion Table

When a non-alphanumeric character is used (such as “-” and “/”), DTMF conversion stops at the character before that non-standard character.

	1	2	3	4	5	6	7	8	9	0
0	1	2	3	4	5	6	7	8	9	0
1	Q	A	D	G	J	M	P	T	W	/
2	Z	B	E	H	K	N	R	U	X	/
3	/	C	F	I	L	O	S	V	Y	/

Transmitting EchoLink Memory

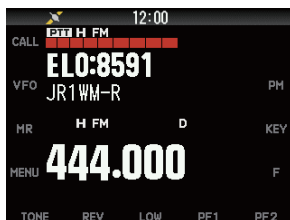
1 Press and hold [PTT]

2 While transmission is in progress, press the [ENC] control

The last called EchoLink DTMF memory channel number and name appear on the display.

3 While holding down the [PTT], select the memory channel number for transmission

Make a selection using the [ENC] control. You can also directly enter a memory channel number using the keypad.



4 While holding down the [PTT], press the [ENC] control

The saved memory code is transmitted.



- ◆ When you select an unregistered memory channel and press the [ENC] control, the display returns to the frequency display.
- ◆ Pressing the [C] key on the keypad before pressing the [ENC] control in step 2 above transmits the DTMF code that is converted as the EchoLink “Connect by Call” function. (Example: In the case of JR1WM) “C”51 72 11 91 61 #” (“#” is automatically added at the end)
- ◆ Pressing the [0][7] keys in sequence before pressing the [ENC] control in Step 2 above transmits the DTMF code that is converted as the EchoLink “Query by Call” function. (Example: In the case of JR1WM) “0”7”51 72 11 91 61 #” (“#” is automatically added at the end)
- ◆ When only the EchoLink memory name has been registered, the DTMF code that is converted as the EchoLink “Connect by Call” function will be transmitted. (Example: In the case of JR1WM) “C 51 72 11 91 61 #” (“C” is automatically added at the beginning and “#” at the end)

14 Other Operations

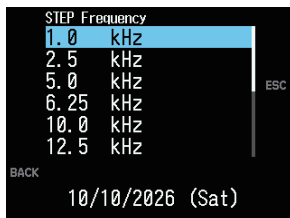
Frequency Step Size

This function configures the minimum step size used when changing frequencies in VFO mode.

Changing the Frequency Step Size

Select your desired operation band and frequency, then

- 1 Press [F], followed by [STEP]



- 2 Select a frequency using the [ENC] control
The following frequency step sizes can be selected:
1/ 2.5/ 5/ 6.25/ 8.33/ 10/ 12.5/ 15/ 20/ 25/ 30/ 50/ 100 [kHz]
- 3 Press [ENC] control
The frequency step size is now configured.



- ◆ A frequency step size can be configured for each frequency band.
- ◆ 8.33 [kHz] can be selected only in the 118 MHz band. An 8.33 [kHz] step size means a 25/3 [kHz] step size.



- ◆ This setting cannot be configured in modes other than VFO mode.
- ◆ When the frequency step size is changed, the digits corresponding to 10 [kHz] and lower may be adjusted.

Attenuator (ATT)

When the signal of the other station is too strong, or when a strong signal nearby makes it difficult to hear the desired signal, turning on the attenuator may make the signal easier to hear.

- 1 Press [F], followed by [ATT]
Each press toggles the function On/Off. When set to On, <ATT> is displayed in the operating band section of the display.



Programmable VFO

This function allows you to configure the VFO frequency tuning range (lower and upper frequency limits) in 1 MHz units separately for each band.

- 1 Set the desired band to VFO mode and select the frequency band
Select the frequency band for which you want to change the frequency tuning range.
- 2 Access Menu No. 100
Enters the lower frequency limit configuration mode.



- 3 Use the [ENC] control to change the lower frequency limit, then press [▶]

The lower frequency limit is configured, and the unit enters the upper frequency limit configuration mode.



- 4 Change the upper frequency limit using the [ENC] control



- 5 Press [ENC] control
The frequency range is now configured.



- ◆ If the upper and lower frequency limits are configured to the same value such as "144 - 144 MHz", the resulting frequency tuning range will be "144.000-144.995 MHz".



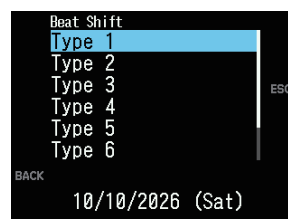
- ◆ The lower frequency limit cannot be higher than the upper frequency limit. Likewise, the upper frequency limit cannot be lower than the lower frequency limit.
- ◆ If the current VFO frequency is configured to a value outside the programmable VFO frequency range, operating the [ENC] control will cause the VFO frequency to be adjusted back within the programmable VFO range.

Beat Shift

This unit is controlled by a microprocessor, and thus reception may sometimes be affected by factors such as harmonics from the CPU clock. To prevent interference, select a beat shift setting from "Type 1" to "Type 8".

Configuring Beat Shift

- 1 Access Menu No. 101



- 2 Make a selection from "Type 1" to "Type 8"



- ◆ Beat shift settings cannot be registered in memory channels.
- ◆ Beat shift is effective only for internal beats caused by CPU clock harmonics.

FM Narrow

This function switches the FM mode bandwidth between normal and narrow.

1 Press [F] followed by [MODE] to enter FM mode

2 Access Menu No. 102

“On” : Narrow FM mode is enabled.

“Off” : Normal FM mode is enabled.



◆ When FM Narrow is On, the mode always becomes “NFM” if FM is selected when switching the demodulation mode.

MONITOR Type

This function configures the operating conditions of the Monitor function.

Make a selection from “SQL Off” and “CTCSS/DCS Off”.

1 Access Menu No. 106

“SQL Off” : Turns off CTCSS/DCS and opens the squelch. Audio is also output from the DATA connector.

“CTCSS/DCS Off” : Turns off only CTCSS/DCS. However, this does not deactivate the digital code squelch in DV mode. Only audio that matches CTCSS/DCS is output from the DATA connector.



◆ When using the Monitor function, assign [MONITOR] to a PF key (Menu Nos. 940 to 946).

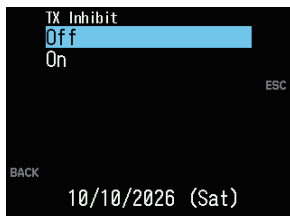
TX Inhibit

This helps to prevent transmission when [PTT] is accidentally pressed.

1 Access Menu No. 110

“Off” : Deactivates TX Inhibit.

“On” : Prevents transmission even when [PTT] is pressed.



- ◆ When TX Inhibit is On, pressing [PTT] displays “TX Inhibit” on the screen, sounds an error tone, and transmission is blocked.
- ◆ When TX Inhibit is On, all transmissions are disabled, including those by the VOX function, external terminals (such as the DATA terminal), and APRS beacons.

Time-out Timer

This function automatically stops transmission if continuous transmission exceeds the configured time.

It helps to prevent continuous transmission caused by accidental operation and reduce heat buildup from prolonged transmission. This function cannot be turned off.

Changing the Time-out Timer Duration

1 Access Menu No. 111

Make a selection from “0.5”, “1.0”, “1.5”, “2.0”, “2.5”, “3.0”, “3.5”, “4.0”, “4.5”, “5.0” and “10.0” (min)

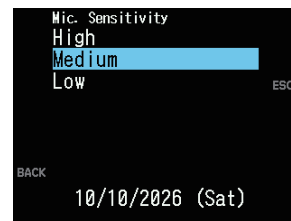


◆ When accessing a VoIP wireless node station, such as EchoLink, it is recommended to choose an appropriate setting to avoid transmission beyond the continuous communication time limit of the node station.

Microphone Sensitivity

This function switches the microphone input sensitivity.

1 Access Menu No. 112



2 Make a selection from “High”, “Medium” and “Low”

RX Filter

This function reduces interference and noise in AM mode to improve audio readability.

AM High Cut

1 Press [F] followed by [MODE] on the band you want to configure to enter AM mode

2 Access Menu No. 120

Configure a value between 3.0, 4.5, 6.0, and 7.5 (kHz). Low cut is fixed at 200 Hz.



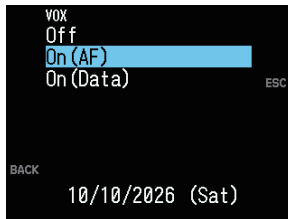
VOX

This function switches to transmission simply by speaking into the microphone, without having to press [PTT].

Turning on the VOX Function

1 Access Menu No. 150

- “On (AF)” : Transmits the audio input to the microphone or USB audio. It also transmits audio other than the human voice.
- “On (Data)” : Transmits the audio input to the USB audio or DATA terminal.
- “Off” : Deactivates VOX.

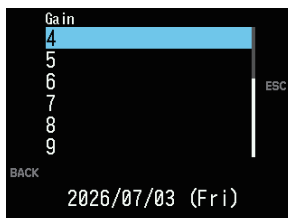


- ◆ When VOX is turned on, the VOX icon <VOX> lights up.
- ◆ In Menu mode, the VOX function is temporarily disabled.
- ◆ The VOX function may cause a slight delay in transmission. The very beginning of your message may not be transmitted in some cases.
- ◆ When the VOX function is On, the ASC function turns off.

Adjusting VOX Gain

To ensure the VOX function can be used smoothly, the VOX gain level needs to be adjusted appropriately. This function controls the VOX circuit according to the level to detect the presence of your voice.

1 Access Menu No. 151



2 Select the VOX gain using the [ENC] control

You can adjust the setting within the range of “0” to “9”. The VOX gain levels are as follows:

Gain:9 (Transmits even with a quiet voice)

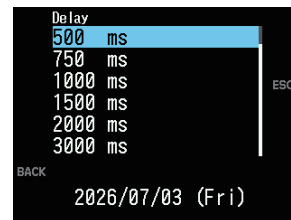


Gain:0 (Does not transmit)

VOX Delay Time

This function configures the time it takes to switch from transmission back to reception after audio input stops when transmitting with the VOX function.

1 Access Menu No. 152



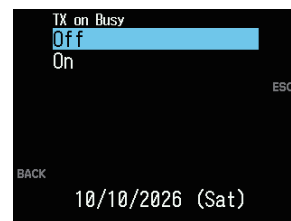
2 Select the VOX delay time using the [ENC] control

Make a selection from “250”, “500”, “750”, “1000”, “1500”, “2000” and “3000” (ms).

VOX on Busy

This function allows you to configure the transceiver to force VOX transmission even if it is receiving a signal.

1 Access Menu No. 153



2 Select “Off” or “On”

- “Off” : Does not perform VOX transmission when the operating band is busy.
- “On” : Performs VOX transmission even when the operating band is busy.



- ◆ Transmission using [PTT] and 1750 Hz tone transmission are possible regardless of this setting.
- ◆ The VOX function transmits when audio is input to the microphone. It also transmits audio other than the human voice.
- ◆ When the VOX function is On, the VOX gain and VOX delay time are displayed on the non-operating band, but reception on the non-operating band is not deactivated.
- ◆ Even when the VOX function is On, you can switch the operating band using the [BAND SEL] key.
- ◆ As there is a time lag between audio input to the microphone and transmission, the very beginning of the audio may not be transmitted in some cases.
- ◆ When switching from transmission back to reception, transmission can be maintained for the configured time (refer to “VOX Delay Time” (p. 54)).



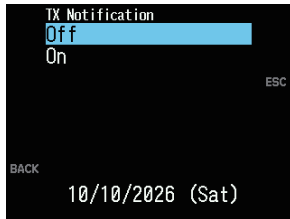
- ◆ Always connect a headset before turning on the VOX function. If you turn it on without connecting a headset, the received audio signal may trigger transmission in some cases.
- ◆ When entering Menu mode while the VOX function is On, the VOX function is not activated.
- ◆ Set VOX on the headset to Off (PTT) and sensitivity adjustment VR to the minimum during use.

TX Notification

This function flashes the backlight and sounds a beep during transmission. By using the flashing backlight and beep to indicate that transmission is in progress, continuous transmission caused by accidental operation can be prevented.

1 Access Menu No. 113

- “Off” : Turns off the TX Notification function.
- “On” : Turns on the TX Notification function.



10 seconds after transmission starts, the backlight flashes three times, and then flashes at 10-second intervals thereafter. The TX notification tone sounds when the backlight flashes.

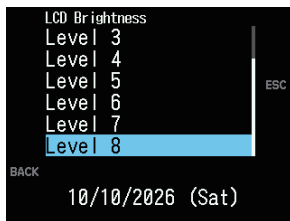
Display Illumination

You can switch the display brightness in one of the nine levels (including Off). The default setting is [Level 8]. When the Auto Brightness function is configured to On, the display becomes two levels brighter than the configured brightness for approximately five seconds during key operation or transmission.

Adjusting the Brightness

1 Access Menu No. 900

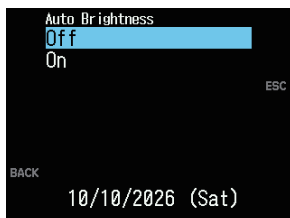
Configure the setting using a value from “Level 1” to “Level 8”. The larger the number, the brighter the display becomes.



Auto Brightness Function

1 Access Menu No. 901

- “On” : Turns on the Auto Brightness function.
- “Off” : Turns off the Auto Brightness function.



- ◆ The brightness of the keys and control lights is also synchronized.
- ◆ When the Menu No. 900 (LCD Brightness) setting is configured to “Level 7”, the display becomes one level brighter. When configured to “Level 8”, the brightness remains unchanged.

Power-on Message

This function allows you to display a message, such as your Callsign, on the display for approximately two seconds when the power is turned on. You can enter a message of up to eight full-width or 16 half-width characters.

Registering a Power-on Message

1 Access Menu No. 902

2 Enter the characters



3 Press [ENC] control

The power-on message is registered. Pressing [BACK] returns to the frequency display.



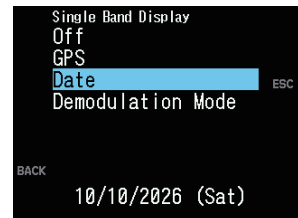
- ◆ You can use the Memory Control Program MCP-D750 to change the bitmap image that appears when the power is turned on.

Single Band Display

This function allows you to change the information being displayed during single band display.

Selecting the Information to Display

1 Access Menu No. 903

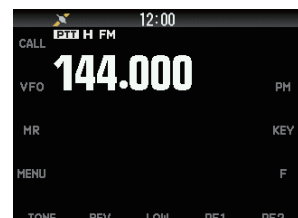


2 Make a selection from “Off”, “GPS”, “Date” and “Demodulation Mode”



- ◆ When selecting GPS, turn on the built-in GPS.

“Off”: The area around the band that is not displayed becomes blank.

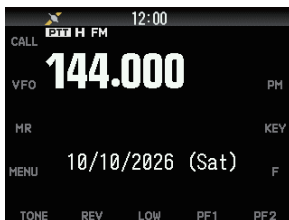


[GPS]: The displayed information is as follows.

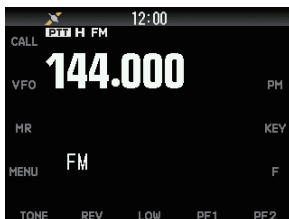
- Compass: Direction to the target point (your station's direction if the target point is off)
- Latitude and longitude of your station
- alt: Altitude of your station (The unit varies depending on the menu settings.)
- Relevant information is displayed until the target point is reached (This is not displayed when the target point is off.)
- Target point name
- Angle
- Distance to the target point (The unit varies depending on the menu settings.)



“Date”: Displays the date.



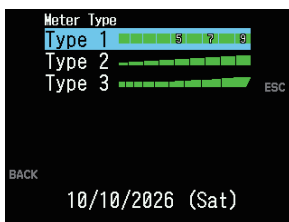
“Demodulation Mode”: Displays the demodulation mode.



Meter Type

This function allows you to change the shape of the S-meter and RF meter.

- 1 Access Menu No. 904

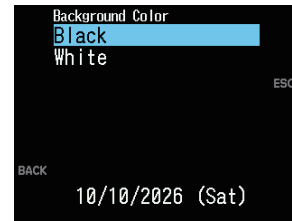


- 2 Make a selection from “Type 1”, “Type 2” and “Type 3”

Display Background Color

Select a display background color from “Black” and “White”.

- 1 Access Menu No. 905



- 2 Select “Black” or “White”

LCD Off

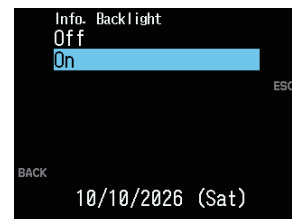
This function turns off the LCD backlight and display. It allows you to keep the LCD turned off during continuous operation as an IGate station or node station.

- 1 Assign “LCD Off” to a PF key
- 2 Press the PF key assigned to “LCD Off”
The LCD turns off.
 - Pressing the PF key to which “LCD Off” is assigned again or any key other than the [P] Power switch turns the LCD back on.

Information Backlight

This function configures whether or not to brighten the backlight by two levels when information is received via an APRS or D-STAR interrupt display.

- 1 Access Menu No. 906



- 2 Select “Off” or “On”
 - “Off” : The backlight brightness does not change when information is received.
 - “On” : Increases the backlight brightness by two levels for five seconds when information is received.

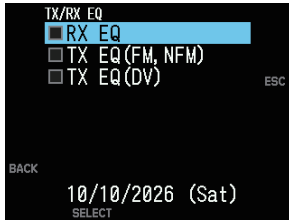


◆ When the Menu No. 900 (LCD Brightness) setting is configured to “Level 7”, the display becomes one level brighter. When configured to “Level 8”, the brightness remains unchanged.

Audio Equalizer (TX/RX)

This function configures the TX/RX equalizers.

- 1 Access Menu No. 910



- 2 Press the [ENC] control to make a selection
Each time you press the control, the check mark switches. Checking the box turns on the equalizer function, and unchecking it turns off the function. Select an item using [UP]/[DWN] or the [ENC] control.

- RX Equalizer** : Reception Equalizer
Turns on/off the equalizer function of the received audio.
- TX Equalizer (FM, NFM)** : Transmission Equalizer (Analog Voice)
Turns on/off the equalizer function of the analog transmission audio.
- TX Equalizer (DV)** : Transmission Equalizer (Digital Voice)
Turns on/off the equalizer function of the digital transmission audio.

- 3 Press [ENC] control
Applies the settings.

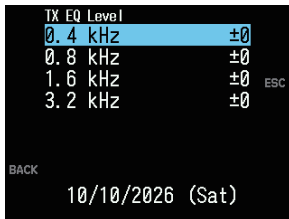
TX Equalizer

This function allows you to change the transmitting audio frequency characteristics. You can configure the level for the frequency characteristics of the audio to be transmitted in four frequency bands.

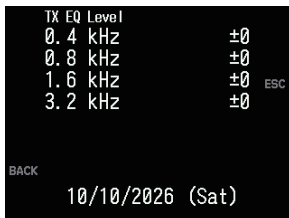
Variable range for each band (Default: ± 0 dB)

Frequency Band [kHz]	Variable Range [dB]
0.4	-9 to ± 0 to +3
0.8	-9 to ± 0 to +3
1.6	-9 to ± 0 to +3
3.2	-9 to ± 0 to +3

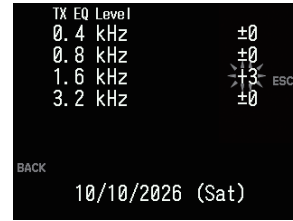
- 1 Access Menu No. 911



- 2 Select a frequency band and press the [ENC] control



- 3 Use the [ENC] control to change the level, then press the [ENC] control
The level of the selected frequency band flashes.



- 4 Press [BACK]
The display returns to the frequency screen.

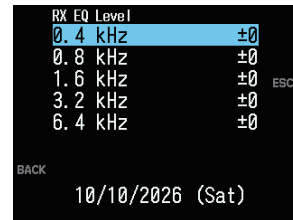
RX Equalizer Adjustment

This function allows you to change the receiving audio frequency characteristics. You can configure the level for the frequency characteristics of the received audio in five frequency bands.

Variable range for each band (Default: ± 0 dB)

Frequency Band [kHz]	Variable Range [dB]
0.4	-9 to ± 0 to +9
0.8	-9 to ± 0 to +9
1.6	-9 to ± 0 to +9
3.2	-9 to ± 0 to +9
6.4	-9 to ± 0 to +9

- 1 Access Menu No. 912



- 2 Select a frequency band and press the [ENC] control



- 3 Use [UP]/[DWN] or the [ENC] control to change the level, then press the [ENC] control



- 4 Press [MENU]
The display returns to the frequency screen.



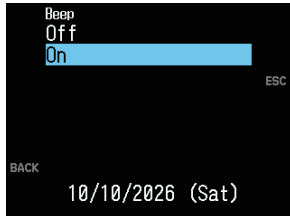
◆ The upper limit of the digital audio band is 4 kHz. For this reason, when the demodulation mode is DV/DR mode, the 6.4 kHz setting is not reflected in the received audio.

Key Beep

You can configure whether to turn on/off the beep that sounds during key operations.

Configuring Key Beep

- 1 Access Menu No. 920



- 2 Select "Off" or "On"

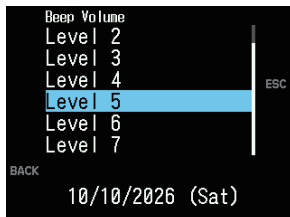


- ◆ Even when the key beep is configured to "Off", a beep sounds one minute before the power turns off if the Auto Power Off function is On.
- ◆ Even when the key beep is configured to "Off", a beep sounds after transmission has exceeded the maximum time allowed by the Time-out Timer.

Beep Volume

This function configures the beep volume. You can configure the volume level to a value between "Level 1" and "Level 7". The larger the value, the louder the volume becomes.

- 1 Access Menu No. 921



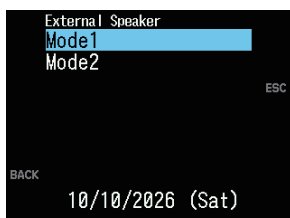
- 2 Make a selection from "Level 1" to "Level 7"

External Speaker Output Mode

When an external speaker is connected, this function allows you to select whether the audio from A Band or B Band is to be output from the internal speaker or external speaker.

- 1 Access Menu No. 914

Make a selection from "Mode1" and "Mode2".



The band from which audio is output varies as follows, depending on the menu settings and how the external speaker is connected.

Menu Setting	External Speaker Connection	Audio Output		
		Internal Speaker	External Speaker SP1	External Speaker SP2
Mode1	None	A, B	-	-
	Connected to SP1 only	×	A, B	-
	Connected to SP2 only	A	-	B
	Connected to both SP1 and SP2	×	A	B
Mode2	None	A, B	-	-
	Connected to SP1 only	×	A, B	-
	Connected to SP2 only	B	-	A
	Connected to both SP1 and SP2	×	B	A



- ◆ When an external speaker is connected to SP1 only, audio from both A Band and B Band is output from the external speaker SP1, and no audio is output from the internal speaker.
- ◆ When an external speaker is connected to SP2 only, audio of A Band is output from the internal speaker, and audio of B Band is output from the external speaker SP2.
- ◆ When external speakers are connected to both SP1 and SP2, audio of A Band is output from the external speaker SP1, and audio of B Band from external speaker SP2, and no audio is output from the internal speaker.

Band Mask

This function restricts the frequency bands that can be recalled on the A Band or B Band.

When switching frequency bands, you can hide (mask) the frequency bands that are not used.

- 1 Turn off the power once
- 2 Press and hold [BAND SEL] for the frequency band where you want to configure the band mask and the [ON] Power switch at the same time for approximately 10 seconds without releasing your fingers
If you continue to hold them down after the KENWOOD logo and image are displayed, a startup tone sounds and the band mask settings screen appears. When the band mask settings screen appears, release your fingers. (The screen shown in the example is when B Band is selected.)



- 3 Select the frequency band that is not used
- 4 Press [SELECT] to uncheck the box
The unchecked frequency band is now masked.
- 5 Press [ESC]
The display returns to the frequency screen.

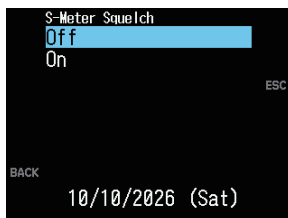


- ◆ Under the following conditions, performing Step 2 outputs an operation error tone and prevents you from entering the band mask settings screen.
 - When key lock is active • In Channel Display mode
 - When power-on password protection is active
- ◆ When there is a change in the status of the band mask, the transceiver status changes as follows:
 - Switches to VFO mode
 - All scan functions are forced off
- ◆ It is not possible to uncheck all frequency bands for either the A Band or B Band.
- ◆ Memory channels and CALL channels in frequency bands masked by the band mask cannot be recalled.
- ◆ In PM mode, if Auto PM Store is On, you can enter the band mask selection screen, and the band mask status can be memorized for each PM. In PM mode, if Auto PM Store is Off, you cannot enter the band mask selection screen.

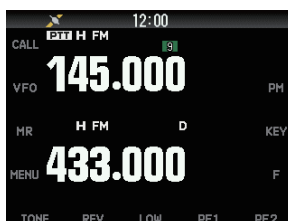
S-Meter Squelch

This function allows you to configure the squelch opening level for each band in synchronization with the S-meter. The default setting is [Off]. Normally, the squelch is configured based on the noise level (the default setting is noise squelch). However, S-meter squelch is effective for noisy environments.

- 1 Select Menu No. 103, and configure S-Meter Squelch to "On"



- 2 While watching the S-meter, rotate [BAND SEL A] or [BAND SEL B] for the band you want to configure



Configure the level at which the squelch opens (In the example, it is aligned to S-9).

There are 10 levels from 0 to 9 (including open). The lower the level, the easier the squelch opens. The higher the level, the easier the squelch closes.



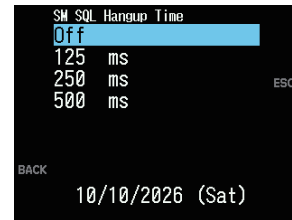
- ◆ You will not hear any audio unless a signal stronger than the configured S-meter level is received.
- ◆ When the S-meter squelch is "On", the threshold level is also displayed.
- ◆ Even if the S-meter squelch is configured to "On", the S-meter is hidden during reception in Terminal mode.

S-Meter Squelch Hang-up Time

When the S-meter squelch opening level is high, audio may be clipped in response to signal fluctuations. To prevent this from occurring, this function allows you to select the time it takes for the S-meter squelch to close (hang-up time). The default setting is [Off].

- 1 Access Menu No. 104

Make a selection from "Off", "125", "250" and "500" (ms).



- ◆ Hang-up time cannot be configured for each band.

Mute

This function reduces the RX volume of the non TX band when RX signal enters the TX band while RX audio from the non TX band is being output from the speaker, or when the TX band is transmitting on a frequency band different from that of the non TX band.

- 1 Press [F] followed by [MUTE] during reception

Each press toggles the mute function between On and Off.

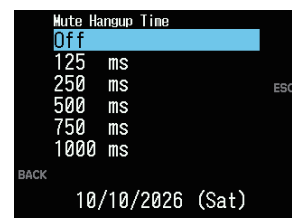
- When mute is turned on, the mute icon <M> pict lights up.

Mute Hang-up Time

While mute is activated, this function allows you to select a delay time before the mute operation is deactivated after the TX band squelch closes or after transmission ends. Configure this setting when the squelch opens and closes frequently and the mute function activates repeatedly during mobile operation, which may be irritating to the ear. The default setting is [Off].

- 1 Access Menu No. 105

Make a selection from "Off", "125", "250", "500", "750" and "1000" (ms).

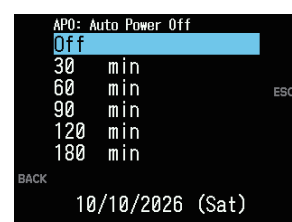


Auto Power Off (APO)

The Auto Power Off function detects key and [ENC] control operations, and turns off the power of this unit when it is not in use.

Auto Power Off Time

- 1 Access Menu No. 991



- 2 Configure the APO time limit to “30”, “60”, “90”, “120”, or “180” minutes, or to “Off”
 - When the configured time elapses without any operation, the power turns off (the default setting is “Off”). In this case, “APO” flashes on the display and a warning tone sounds one minute before it powers off.



- ◆ The warning tone sounds when APO is activated, even if the key beep is configured to “Off”.
- ◆ APO does not function while scanning is in progress.

Programmable Function (PF) Keys

[PF1] and [PF2] keys on the main unit, and [PF1], [PF2], [PF3] and [PF4] keys on the microphone are programmable function keys that allow you to configure the functions you want to use.

■ Assignable Functions

Function	Description
Recording	Recording On/Off
Voice Message 1	Plays back and transmits Voice Message 1
Voice Message 2	Plays back and transmits Voice Message 2
Voice Message 3	Plays back and transmits Voice Message 3
Voice Message 4	Plays back and transmits Voice Message 4
Voice Guidance Setting	Recalls Voice Guidance
VOICE	Voice Guidance sound
Group Name	Recalls memory group name settings
GPS	GPS On/Off
Track Log	Track Log On/Off
SHIFT	Switches the Shift direction
STEP	Recalls the frequency step size configuration mode
LOW	Switches TX output
Key Lock	Key Lock On/Off
Lockout	Memory Channel Lockout On/Off
M>V	Copies contents of a memory channel to VFO
T.SEL	Recalls the configuration mode for each signaling type
NEW	Recalls the Destination Callsign Input mode for creating a new APRS message
Voice Alert	Recalls Voice Alert settings
LCD Brightness	Switches the backlight brightness (LCD, keys, and controls)
LCD Off	LCD Off
DTMF CH0	Recalls and transmits DTMF Memory 0 (effective only during reception)
EchoLink CH0	Recalls and transmits EchoLink Memory 0 (effective only during reception)
1750 Hz Tone	Transmits the 1750 Hz tone (effective only during reception)
M.IN	Switches Memory Write Display mode
BAND	Switches the frequency band (upward)
CTRL	Switches the operating band
MONITOR	Monitor On
GRP.UP	Switches the memory group (upward)
MENU	Accesses a menu
MUTE	Switches the mute function On/Off
DUAL	Switches between dual band and single band
Screen Capture	Saves the image of the currently displayed screen to an SD card.
MODE	Switches the mode
A/B	Switches between A Band and B Band
VFO	Recalls VFO mode
MR	Recalls Memory Channel mode
CALL	Recalls CALL Channel mode
MSG	Displays APRS message list
LIST	Displays APRS station list
BCON	Transmits beacons
REV	Configures the Reverse function

Function	Description
TONE	Configures the Tone function
MHz	Recalls MHz mode
MARK	Registers a position memory
APRS	Recalls APRS
OBJ	Transmits object beacons
ATT	Configures ATT
POS	Configures My Position
LOCK	Turns on Key Lock
ENTER	Recalls Direct Frequency Input mode
REPLY	Replies to an APRS message
P.MONI	Displays the packet monitor
WXi	Displays your station's weather station



- ◆ The functions from “Screen Capture” through “WXi” can only be assigned to the [PF1], [PF2], [PF3], and [PF4] keys on the microphone.

Registering Functions to PF Keys on the Main Unit

This unit has two PF keys: PF1 and PF2. You can assign frequently used functions to these two keys.

- 1 Access Menu No. 940 (PF1) or No. 941 (PF2)



- 2 Select the function you want to register

Registering Functions to PF Keys on the Microphone

You can control this unit by configuring the functions of this unit on the keys of the MC-62 (p. 19). Additionally, turning the lock switch on locks each key.

The default setting is .as follows:

- [PF1] : “12-10-1”
 [PF2] : “12-10-3”
 [PF3] : “12-10-2”
 [PF4] : “12-10-4”

- 1 Access Menu No. 943 [PF1 (Mic)], 944 [PF2 (Mic)], 945 [PF3 (Mic)], or 946 [PF4 (Mic)]



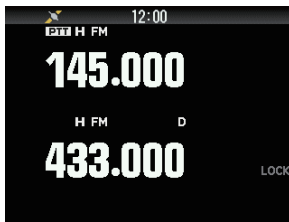
- 2 Select the function you want to register

Key Lock

You can lock the keys to prevent key inputs even if something touches the keys.

1 Press and hold [F] to toggle On/Off

When the Reverse function is On, the "mO" icon is displayed.



Configuring Keys Lock Type

This function allows you to select whether to lock only the keys or only the frequency when activating the key lock.

1 Access Menu No. 960



2 Select "Key Lock" or "Frequency Lock"

- "Key Lock" : Locks all inputs from keys on the front panel. (Press and hold [F] to unlock the keys.)
- "Frequency Lock" : Locks changes to frequencies or memory channels. (Press and hold [F] to unlock the keys.)

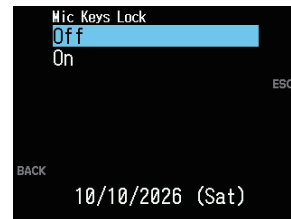


- ◆ Even when Keys Lock Type is configured to "Key Lock", the following functions remain available:
 - Activating of Function mode
 - Transmission using [PTT]
 - Monitor function
 - Turning the backlight on/off manually
 - Starting and stopping Voice Guidance
 - Canceling key lock
 - Adjusting volume with the [BAND SEL] (VOL) control
 - Changing the squelch level with the [SQL] control
 - Changing the frequency with the [ENC] control
 - Power On/Off
 - Microphone operations
- ◆ When Keys Lock Type is configured to "Frequency Lock", the following functions are not available:
 - Functions that change the frequency or memory channels
 - Clearing a memory channel
 - Memory shift
- ◆ When Keys Lock Type is configured to "Key Lock", reset does not function.
- ◆ If you activate key lock during a scan, you can cancel the scan only by using [PTT].

Configuring Mic Keys Lock

This function allows you to lock the PF keys on the microphone to prevent input.

1 Access Menu No. 962

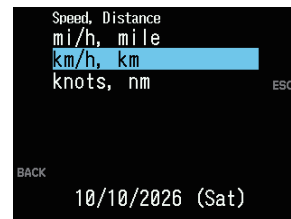


2 Select "On" or "Off"

Display Unit

Configuring Speed, Distance

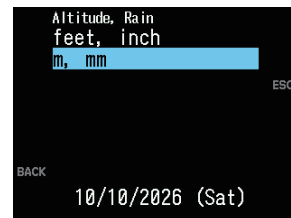
1 Access Menu No. 970



2 Make a selection from "mi/h, mile", "km/h, km" and "knots, nm"

Configuring Altitude, Rainfall

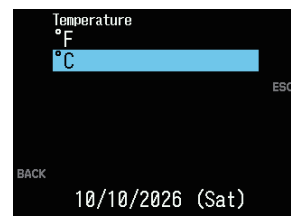
1 Access Menu No. 971



2 Make a selection from "feet, inch" and "m, mm"

Configuring Temperature

1 Access Menu No. 972



2 Make a selection from "°F" and "°C"

Configuring Latitude, Longitude

- 1 Access Menu No. 973



- 2 Make a selection from "dd ° mm.mm'" and "dd ° mm' ss.s'"

Configuring Grid Square Format

- 1 Access Menu No. 974



- 2 Make a selection from "Maidenhead Grid", "SAR Grid (CONV)" and "SAR Grid (CELL)"
 - "Maidenhead Grid" : The grid square format commonly used in amateur radio
 - "SAR Grid (CONV)" : The conventional format (legacy format) used in the United States for emergency and disaster response (Search & Rescue) activities.
 - "SAR Grid (CELL)" : The cell format (new format) used in the United States for emergency and disaster response (Search & Rescue) activities.

Interface (USB/Bluetooth)

This function configures the interface used by the following applications. Make a selection from "USB" and "Bluetooth".

- GPS data (NMEA) output
- APRS packet output
- KISS mode (input/output)
- DV/DR mode (input/output)
- DV Gateway mode (input/output)



The unit operates as follows when the specified output interfaces overlap.

During GPS data output

- ◆ Output is unavailable while KISS mode or DV/DR mode is active. Output resumes once KISS mode or DV/DR mode ends.
- ◆ Output stops if a GPS PC output setting (OFF) command or an MCP command permission command is received after a PC command has been received.

During APRS packet output

- ◆ Output is unavailable while KISS mode or DV/DR mode is active. Output resumes once KISS mode or DV/DR mode ends.
- ◆ Output stops if a GPS PC output setting (OFF) command or an MCP command permission command is received after a PC command has been received.

During KISS mode

- ◆ PC commands are not accepted.
- ◆ No output is provided even if GPS/APRS PC output is On. GPS/APRS PC output starts once KISS mode ends.

During DV/DR mode

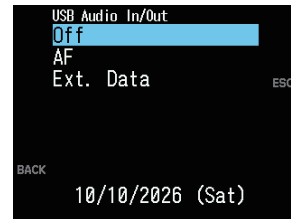
- ◆ No output is provided even if GPS/APRS PC output is turned on. GPS/APRS PC output resumes once DV/DR mode ends.
- ◆ Pressing [F][LIST] does not activate KISS mode.

During DV Gateway mode

- ◆ PC commands received through the interface specified for PC input/output (DV Gateway) are not accepted.
- ◆ If PC output (GPS) and PC input/output (DV Gateway) are identical, NMEA sentences are not output even if GPS PC output is turned on.

Configuring USB Audio Input/Output Selection

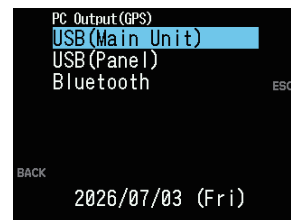
- 1 Access Menu No. 981



- 2 Make a selection from "Off", "AF" and "Ext. Data"
 - "AF" : AF output mode. Outputs the received audio.
 - "Ext. Data" : External data output mode. Inputs/outputs USB audio on the external data band.

Configuring PC Output (GPS)

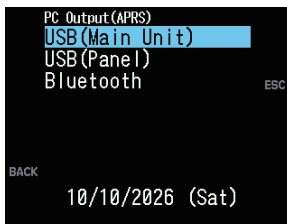
- 1 Access Menu No. 982



- 2 Make a selection from [USB (Main Unit)], [USB (Panel)] and [Bluetooth]

Configuring PC Output (APRS)

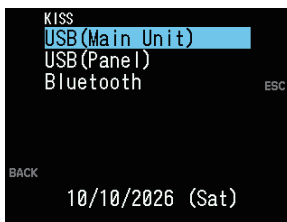
- 1 Access Menu No. 983



- 2 Make a selection from [USB (Main Unit)], [USB (Panel)] and [Bluetooth]

Configuring PC Input/Output (KISS)

- 1 Access Menu No. 984



- 2 Make a selection from [USB (Main Unit)], [USB (Panel)] and [Bluetooth]

Configuring PC Input/Output (DV/DR)

- 1 Access Menu No. 985



- 2 Make a selection from [USB (Main Unit)], [USB (Panel)] and [Bluetooth]

Configuring PC Input/Output (DV Gateway)

- 1 Access Menu No. 986

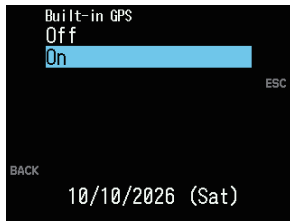


- 2 Make a selection from [USB (Main Unit)], [USB (Panel)] and [Bluetooth]

Built-in GPS Function On/Off

This function turns the built-in GPS function on/off.

1 Access Menu No. 400



2 Select "On" or "Off"

"Off" : Turns off the built-in GPS function.

"On" : Turns on the built-in GPS function.

When the built-in GPS function is turned on, the GPS icon is displayed. When the built-in GPS receiver begins position fixing, "GPS Locked" appears at the top of the display.

After that, the GPS icon display changes from to .

- When performing position fixing for the first time after turning on the power, clock data is automatically configured, and it is updated once a day thereafter.



- ◆ "GPS Locked" appears at the top of the display only when position fixing begins for the first time after the power or GPS function is turned on.
- ◆ The GPS icon of this unit does not flash even during position fixing.
- ◆ If this unit enters an area between buildings or trees and is unable to perform position fixing, the icon display changes from to , and the last acquired position data is retained until the next position fixing. Turning off the built-in GPS or power clears the retained position data.

Configuring My Position

This unit has five memory channels for saving position data. It allows you to program the latitude and longitude data for up to five locations from which APRS packets are frequently transmitted. You can also assign a name to each of the five memory channels.

This function is useful when operating from a fixed location, such as your home or a digipeater.

-
-

1 Access Menu No. 401



2 Select a position channel number from 1 to 5

Pressing [USE] displays a <USE> icon to the right of the position channel number.

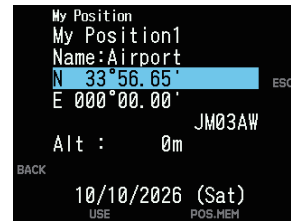
Registering a Name

Alphanumeric characters and special ASCII characters (up to eight characters in total) can be entered.



Latitude Input

Enter the degrees for North latitude (N) or South latitude (S)



Longitude Input

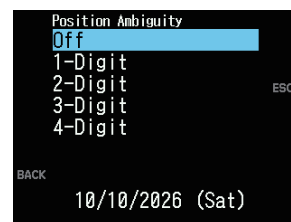
Enter the degrees for East longitude (E) or West longitude (W).



Position Ambiguity Settings

If you do not know your exact position, or if you do not wish to transmit your precise position information, you can select the number of digits to exclude from the position information in your packets. You can make a selection from "1-Digit", "2-Digit", "3-Digit", "4-Digit", and "Off". Refer to the table below for the number of digits that are omitted.

1 Access Menu No. 402



Off	1-Digit	2-Digit	3-Digit	4-Digit
35° 30.54	35° 30.5	35° 30.	35° 3 .	35° .
139° 33.35	139° 33.3	139° 33.	139° 3 .	139° .

Displaying Position Information

When the built-in GPS receiver is On,

- 1 Press [KEY] to switch to GPS mode, then press [POS]
This enters the "Latitude/longitude, Time, Altitude, Heading, Speed".
- 2 Press [►]
Each press toggles the display as follows: "Latitude/longitude, Time, Altitude, Heading, Speed" → "Target point distance, Target direction" → "GPS satellite information". Pressing [◀] returns to the previous screen. Pressing [ESC] returns the display to the frequency screen.

Latitude/longitude, Time, Altitude, Heading, Speed



- ①Latitude ②Longitude ③ Grid square locator ④ Altitude ⑤ Time ⑥ Heading ⑦ Speed

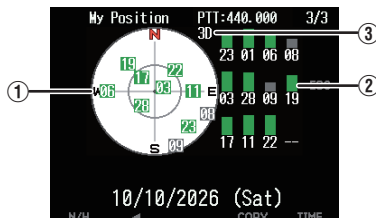
Target point distance and Target direction



- ①Target direction
②Target point distance

Pressing [N/H] switches between the North Up display (always displays north at the top) and Heading Up "HU" display (always displays the current direction of travel at the top).

GPS satellite information



- ① Sky view
② Satellite signal level
- When displayed in green, the signal from that satellite is being received and used for calculation.
 - When displayed in gray, the signal from that satellite is not being used for calculation even when it has been received.
- ③ 2D: Latitude/longitude positioning
3D: Latitude/longitude and altitude positioning
- The sky view shows the satellites you are receiving. The satellite signal strength bars indicate the strength of each satellite you are receiving. A solid bar indicates that the GPS satellite is ready for use.
 - When only the frame of the signal strength bar is displayed, communication with the satellite has not yet been established.



- ◆ When GPS cannot be received, turn on the power in an open-sky environment.

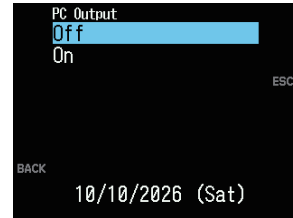
Configuring Built-in GPS

This function configures settings related to the output of NMEA data from the built-in GPS receiver to a PC.

GPS Data PC Output

This function outputs NMEA data from the built-in GPS receiver to a PC via USB or Bluetooth.

- 1 Access Menu No. 403



- 2 Select "On" or "Off"

- "Off" : NMEA data is not output.
"On" : NMEA data is output.



- ◆ Regardless of the PC baud rate setting, the transfer rate (baud rate) between this unit and a PC operates at up to 12 Mbps via USB and up to 128 kbps via Bluetooth.
- ◆ To configure the USB/Bluetooth selection, go to Menu No. 982.

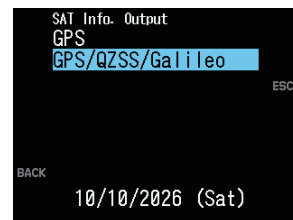
Configuring Satellite Information Output

This function configures the output of satellite information from the built-in GPS receiver to a PC or recording of such information to a microSD card.

Make a selection from "GPS" and "GPS/QZSS/Galileo".

- 1 Access Menu No. 404

- "GPS" : Converts "\$GNxxx" sentences output from the built-in GPS receiver to "\$GPxxx" and outputs them. For GSV sentences, only "\$GPGSV" is output. "\$GQGSV" and "\$GAGSV" are not output.
- "GPS/QZSS/Galileo" : Outputs "\$GNxxx", "\$GPGSV", "\$GQGSV" and "\$GAGSV" as-is from the built-in GPS receiver.



- ◆ When the built-in GPS is On, "GPS/QZSS/Galileo" is always enabled, and position information from an external GPS receiver cannot be obtained.

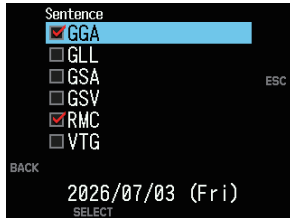
GPS Sentence

This function configures the NMEA sentences that are output from the built-in GPS receiver to a PC or recorded to a microSD card.

1 Access Menu No. 405

2 Press the [ENC] control to make a selection

Each time you press the control, the check mark switches. Configure the sentences to add or remove. Select items using the [ENC] control. Select the sentences from "GGA", "GLL", "GSA", "GSV", "RMC", and "VTG".



3 Press [ENC] control

The configured settings are applied.

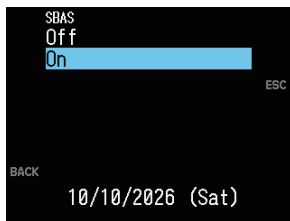


- ◆ It is not possible to delete all sentences.
- ◆ The settings configured in this menu are also used by the Track Log function.

Configuring SBAS Function

This function allows you to select whether to use SBAS. The default setting is On (use).

1 Access Menu No. 406



2 Select "On" or "Off"

- "On" : Turns on the SBAS function.
- "Off" : Turns off the SBAS function.



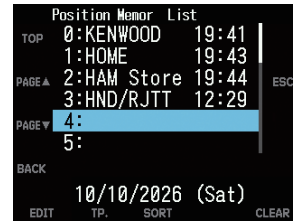
- ◆ When the SBAS function is turned on, ensure that positioning is performed with a clear view of the sky in the direction of the SBAS satellite.
- ◆ Signals from satellites in geostationary orbit are weaker than those from other GPS satellites, making their reception more difficult and increasing the time needed for positioning.
- ◆ Information indicating whether data received from SBAS satellites is used internally for correction by the GPS module is not output.
- ◆ Turning on the SBAS function does not guarantee reduced GPS measurement error.

Mark Function

Position Memory List allows you to store up to 100 points, each with latitude, longitude, altitude, time and name information as well as an icon.

1 Press [KEY] to switch to GPS mode, then press [MARK]

The position memory list is displayed.



2 Select the position memory number to register

3 Press [ENC] control

The location information is registered.

To overwrite an entry:

If you select a position memory number that is already registered with information, an overwrite confirmation screen is displayed.



4 Press [OK]

The location information is overwritten.

Position Memory List

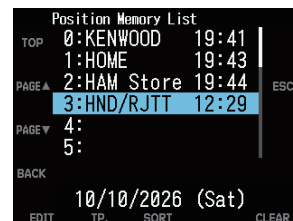
Position Memory List allows you to store up to 100 entries containing the following position information:

- Position name
- Longitude
- Icon (same as APRS)
- Altitude
- Latitude
- Registration time

Checking Registered Position Memory

1 Press [KEY] to switch to GPS mode, then press [MARK]

The position memory list screen is displayed.

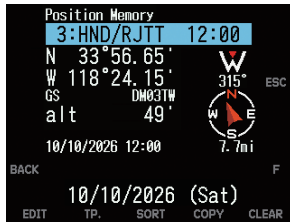


2 Select a list

3 Press [ENC] control

The position memory list details screen is displayed. You can check the position memory details here.

Pressing [TP.] switches between North Up (north direction is always at the top) and Heading Up (current direction of travel is always at the top).



4 Press [BACK]

The display returns to the position memory list screen.

Editing Position Memory

1 Press [KEY] to switch to GPS mode, then press [MARK]

The position memory list screen is displayed.

2 Select a list

3 Press [EDIT]

The unit enters Position Memory Edit mode. The edit menu contains the following items:

- **Name (Position name)**
- **Position (Latitude/longitude)**
- **Icon**
- **Altitude**

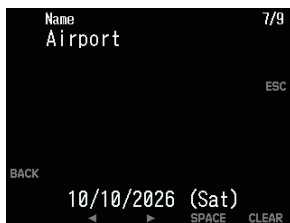


To edit the position name:

1 Select "Name" and press the [ENC] control

A character input screen is displayed.

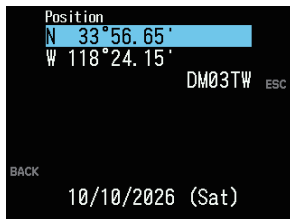
2 Select the characters you want to enter



To edit the position (latitude/longitude):

1 Select "Position" and press the [ENC] control

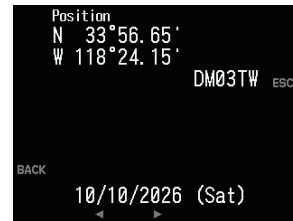
The unit enters Latitude/Longitude Edit mode.



2 Select "N" or "E", and press the [ENC] control

"N" : For editing the latitude

"E" : For editing the longitude



Key	Action
[ENC] control	Jumps to a different item when the control is rotated. Pressing it confirms the edited input.
[BACK]	Cancels editing and returns to the previous screen.

To edit the icon:

1 Select "Icon" and press the [ENC] control

The unit enters the icon configuration mode.



Key	Action
[ENC] control	Rotating the control switches the My Station icon. Pressing the control moves the cursor to "Symbol" or "Table".
[BACK]	Cancels editing and returns to the previous screen.

2 Select "Symbol" or "Table", and press the [ENC] control

Select the icon table code or icon symbol code.

"Symbol" : For editing the symbol.

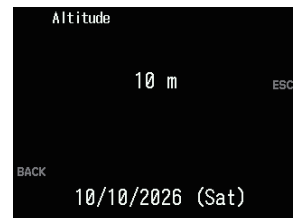
"Table" : For editing the table code.

Key	Action
[ENC] control	Rotating the control switches the selection between "Symbol" and "Table". Pressing the control switches to the configuration mode for the selected item.
[BACK]	The unit returns to My Station selection.

To edit the altitude:

1 Select "Altitude" and press the [ENC] control

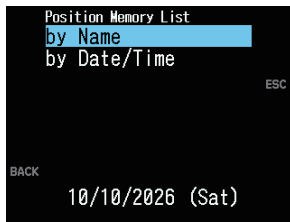
The unit enters the altitude configuration mode.



Key	Action
[ENC] control	Jumps to a different item when the control is rotated. Pressing it confirms the edited input.
[BACK]	Cancels editing and returns to the previous screen.

Sorting Position Memory List

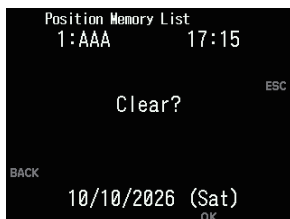
- 1 Press [KEY] to switch to GPS mode, then press [MARK]
The position memory list screen is displayed.
- 2 Select a list
- 3 Press [SORT]



- 4 Select "by Name" or "by Date/Time", and press the [ENC] control
Sorting is performed.
 "Name" : Sorts the entries by name.
 "by Date/Time" : Sorts the entries by date and time.
 Time"

To clear a position memory:

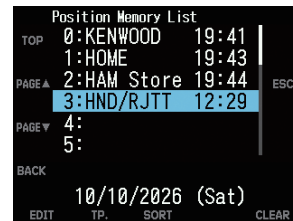
- 1 Press [KEY] to switch to GPS mode, then press [MARK]
The position memory list screen is displayed.
- 2 Select a list
- 3 Press [CLEAR]
A clear memory confirmation screen is displayed.
- 4 Press [OK] to clear the position memory



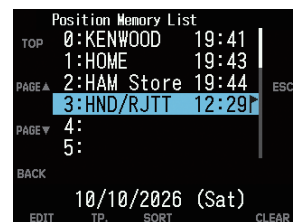
Target Point

By configuring destination position information as a target point, you can check the direction and distance from your current position. The target point is selected from the position memory list.

- 1 Press [KEY] to switch to GPS mode, then press [MARK]
The position memory list screen is displayed.



- 2 Select the position memory number
- 3 Press [TP.]
A ► icon is displayed to the right of the clock. Pressing it again clears the <►> display.



To check the distance and direction to the target point:

- 1 Press [KEY] to switch to GPS mode, then press [POS]
- 2 Press [►]
"Target point distance and Target direction" is displayed. Pressing [N/H] switches between North Up (north direction is always at the top) and Heading Up (current direction of travel is always at the top).



Track Log

This unit can be used as a simple GPS logger to record the movement track to a microSD memory card.

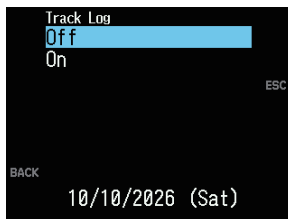
Turning Track Log On/Off

1 Access Menu No. 410

When the built-in GPS function is configured to On, <GPS> is displayed. During position fixing, <GPS> icon is displayed. Track logging starts once a position fix has been established.

"On" : Turns on the Track Log function.

"Off" : Turns off the Track Log function.



- ◆ When the built-in GPS function is turned off, configuring the Track Log function to On also turns on the built-in GPS function.
- ◆ Track logs are not recorded when a GPS positioning is unavailable.
- ◆ If the Track Log overwrite setting is disabled (see below), "13-6-5" is displayed when the log memory becomes full.
- ◆ When APRS is On, logging starts only when COM terminal input in the APRS menu is configured to Off.
- ◆ When the available space on the microSD memory card has run out, the Track Log function pauses.
- ◆

Track Log Recording Conditions

This function allows you to configure the conditions under which movement tracks are recorded by the GPS logger.

1 Access Menu No. 412

Configure the recording method. Make a selection from "Time", "Distance" and "Beacon"



2 Access Menu No. 413

Configure the recording interval. Make a selection from "2" to "1800" (sec).



3 Access Menu No. 414

Configure the movement distance to be recorded. Make a selection from "9.99" to "0.01" (km) in 0.01 steps.



- ◆ The interval setting is valid only when the recording method is "Time".
- ◆ The distance setting is valid only when the recording method is "Distance".
- ◆ The unit of measurement for the distance setting uses the one configured in the distance unit setting (Menu No. 970).

Clearing the Track Log

When the maximum number of track log files (255 files) that can be saved on the microSD memory card is exceeded, a message indicating "13-6-4" is displayed. In this case, please clear the track log files as follows:

1 Access Menu No. 411

The track log file list is displayed.



2 Select the file you want to delete

3 Press [ENC] control

- To clear all files, press and hold [A/B].
A confirmation message appears on the display.



4 Press [ENC] control

File deletion is executed.

5 Press [BACK] to return to the frequency screen

Configuring GPS Port

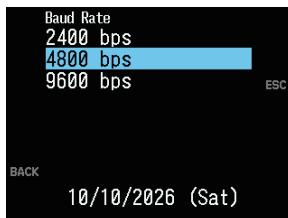
This function configures the settings used when connecting an external device, such as a GPS receiver, to the GPS port.

GPS Baud Rate

This function configures the communication speed used when connecting an external device, such as a GPS receiver, to the GPS port. When connecting an external GPS receiver, configure the baud rate to 4800 bps (NMEA).

1 Access Menu No. 420

Make a selection from "2400 bps", "4800 bps" and "9600 bps"



GPS Port Input Settings

This function configures whether a GPS receiver or a weather station is to be connected to the GPS port.

1 Access Menu No. 421

- "Off"** : Neither an external GPS receiver nor a weather station is connected.
- "GPS"** : Select this option when position information obtained from a GPS receiver is to be used as My Position data. My Position data is used for APRS-compatible data communications and D-STAR communications.
- "Weather (Davis)"** : Select this option when using a Davis weather station for APRS-compatible data communications.
- "Weather (PeetBros.)"** : Select this option when using a Peet Bros. weather station for APRS-compatible data communications.



◆ The GPS receiver and weather station make use of the same GPS port, and thus only one of them can be used at a time.

GPS Port Output Settings

This function configures the output from the GPS port for Callsigns and position data of another station received through APRS-compatible data communications or D-STAR communications.

- "Off"** : No information is output from the GPS port.
- "Waypoint"** : Outputs waypoint information.
- "DGPS"** : Outputs Differential GPS information.

Waypoint

A waypoint is a point created by assigning a name to a specific set of position coordinates and registering it in a GPS receiver with a display unit or a similar device.

By outputting the Callsign and position data of another station received by the TM-D750(S) as waypoint data, the information can be displayed on the screen of a GPS receiver with a display unit.

Differential GPS

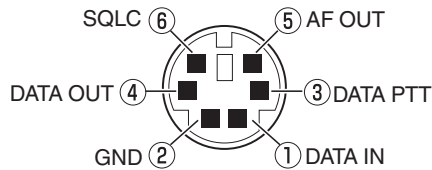
A Differential GPS system performs measurements in advance at a reference station whose position is known accurately and transmits the correction information based on the difference between the measured value and the actual position.

16 External Data Communication Device Connection

The TM-D750(S) is equipped with a DATA terminal for connecting an external TNC or other data communication devices and performing data communications.

DATA Connector

The DATA connector is located on the rear panel of the TX/RX section. (When using the built-in KISS TNC, the DATA connector is not used.)

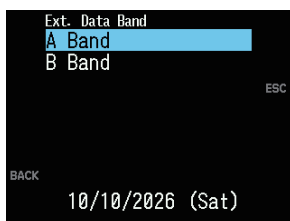


No.	Terminal	I/O	Function
①	DATA IN	I	Audio signal for data transmission 1200 bps: 40 mVp-p/10 kΩ 9600 bps: 2 Vp-p/10 kΩ
②	GND	-	GND
③	DATA PTT	I	'L' enables transmission and mutes the microphone. (Pulled up to 5 V through 4.7 kΩ) TX: 'L' (1.0 V or less) RX: 'H' (2.3 to 5.5 V)
④	DATA OUT	O	9600 bps demodulated signal: 500 mVrms / 10 kΩ
⑤	AF OUT	O	1200 bps demodulated signal: 300 mVrms / 10 kΩ
⑥	SQLC	O	Squelch control signal Closed: 'L' (0.4 V or less) Open: 'H' (3.9 to 5.0 V) The output conditions can be changed in Menu No. 989. (See the next page.)

External Data Band Selection

This function selects the band used for data communications when a data communication device such as an external TNC is connected.

1 Access Menu No. 987



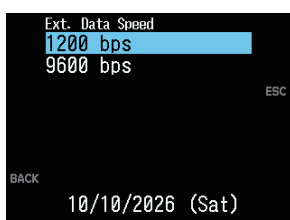
[A Band] : TX/RX on the A band
[B Band] : TX/RX on the B band

DATA Connector Communication Speed

This function configures the packet communication speed by an external TNC connected to the DATA connector on the rear of the TX/RX section.

1 Access Menu No. 988

Make a selection from [1200bps] and [9600bps].
Configure the setting to [9600bps] when performing high-speed packet communications.



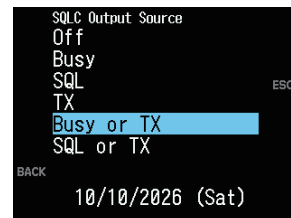
- ◆ Feed a signal as close as possible to the optimal input level into the DATA IN terminal (1200 bps: 40 mVp-p, 9600 bps: 2 Vp-p). If the input level deviates significantly from the optimal level, deterioration of the S/N ratio or signal distortion may prevent data from being transmitted correctly and may increase errors.
- ◆ If the external TNC uses a common input terminal for both 1200 bps and 9600 bps, connect it to DATA OUT (high-speed data terminal). The TNC will not operate correctly if the DATA OUT and AF OUT terminals are shorted together.
- ◆ If DC voltage is applied to the AF OUT terminal, the TNC may not operate correctly. In this case, insert a capacitor of approximately 10 μF between the AF OUT terminal and the TNC, taking care to observe the correct polarity.
- ◆ Use caution when inputting GMSK signals at speeds exceeding 9600 bps or signals with excessive distortion. Doing so may not only increase errors, but also widen the occupied bandwidth and cause inconvenience to other stations.

SQLC Output Condition Settings

This function configures the conditions under which the SQLC output of the DATA connector becomes active.

1 Access Menu No. 989

Make a selection from [Off], [Busy], [SQL], [TX], [Busy or TX], and [SQL or TX].



The behavior of each setting is as follows.

Setting	Behavior
[Off]	Remains inactive (L).
[Busy]	Becomes active when a busy signal is detected on the external data band. (CTCSS/DCS match is not checked.)
[SQL]	If CTCSS/DCS of the external data band is On, the SQLC output becomes active (H) when a match is detected. If CTCSS/DCS of the external data band is Off, the SQLC output becomes active (H) when a BUSY state is detected.
[TX]	Becomes active (H) when the unit enters the TX state.
[Busy or TX]	Performs both the "Busy" and "TX" actions described above.
[SQL or TX]	Performs both the "SQL" and "TX" actions described above.



- ◆ **Squelch control signal**
This output prevents the external TNC from transmitting when a signal is received and the squelch is open. It helps to prevent interference with voice communication that is not packet-based as well as unnecessary retries.
- ◆ **SQLC output level (logic)**
Squelch open: +5 V (H level)
Squelch closed: 0 V (L level)
- ◆ The logic of the SQLC output can also be changed using the MCP-D750.

About APRS

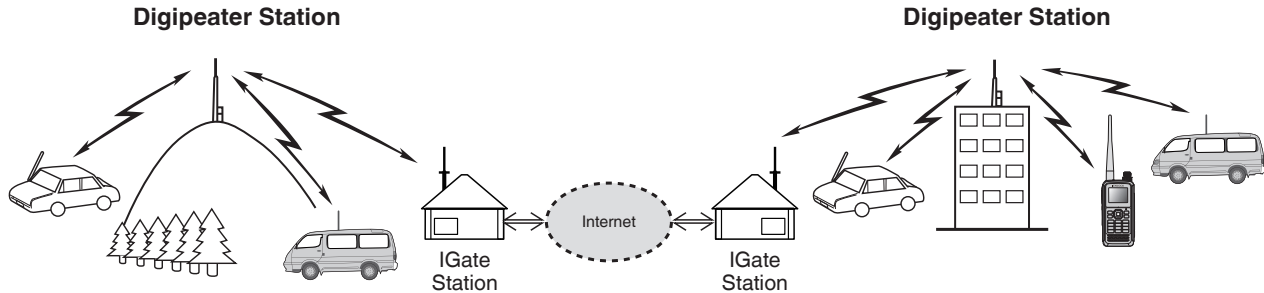
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-
-

APRS Network

Digipeater station : Digipeats (relays) APRS information such as position packets (beacons) and message packets. Digipeating allows you to exchange information with distant stations that radio waves cannot reach directly.

IGate station : Bridges APRS information between radio and the Internet. Through IGate stations, users can enjoy exchanging information with even more distant stations that cannot be reached via the digipeater station.

Digipeater and IGate stations are operated by volunteers in each region.



Basic Settings for APRS Operation

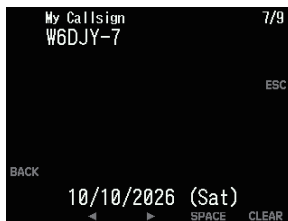
This section describes only the basic items required for general operation as an APRS mobile station, starting from the factory default settings. For other operations and settings, please read through the instruction manual carefully and ensure you fully understand the content before use. Please note that improper operations or settings may cause adverse impact to the APRS network.

Configuring My Callsign

When transmitting APRS beacons (position packets) or exchanging messages, make sure to configure your Callsign.

1 Access Menu No. 500

The characters available for Callsign entry are limited to "A" to "Z", "0" to "9" and "-".



2 Press the [ENC] control to configure the Callsign settings

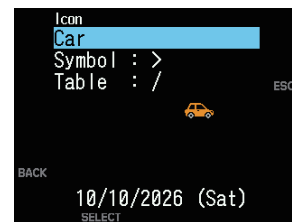


- ◆ For SSID characters, refer to the guideline on the Website (<http://aprs.org/aprs11/SSIDs.txt>) by Mr. Bob Bruninga.
- ◆ When all settings are blank, "NOCALL" is automatically set. In this case, the Position packet or Message packet cannot be transmitted.

Configuring Your Station Icon

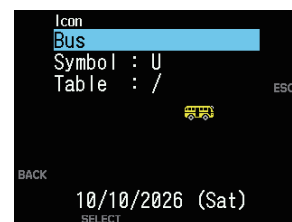
This function configures the icon for your station. In addition to the SSID, the icon is also important information for conveying the operating status of that station.

1 Access Menu No. 501



2 Select the icon to be displayed on other stations' monitors

- The icon can be selected according to your current location. It is important to convey the operating status of the station together with the SSID.



3 Press the [SELECT] control to configure the icon settings



- ◆ **When operating APRS, you must configure an icon that matches your actual operational status.**

Please note that configuring an icon that differs from your actual operational status will mislead many stations receiving your beacons, such as when you select "Aircraft" (aircraft) or "Balloon" (balloon) instead of "Car" (car) when you are actually operating from a vehicle.

Icons Configurable/Displayable on This Unit

	Person (Pedestrian)	(/I)
	Bicycle	(/b)
	Motorcycle	(/(<))
	Car	(/(>))
	Bus	(/U)
	Railroad Engine	(/=)
	Home	(/-)
	Yagi@QTH	(/y)
	KENWOOD	(\K)
	Radio	(\Y)
	RV	(/R)
	Van	(/v)
	Jeep	(/j)
	Truck	(/k)
	Truck (18-wheeler)	(/u)
	Police	(/P)
	Ambulance	(/a)
	Fire Truck	(/f)
	Canoe	(/C)
	Boat	(/s)
	Sailboat	(/Y)
	Balloon	(/O)
	Glider	(/g)
	Helicopter	(/X)
	Aircraft	(/')
	Large Aircraft	(/^)
	Shuttle	(/S)
	Satellite	(\S)
	Rover	(/p)
	Eyeball	(/E)
	Portable (Tent)	(/.)

	HAM Store	(\h)
	School	(/K)
	Hospital	(/h)
	Red Cross	(/+)
	Lighthouse	(\L)
	Speed Signpost	(\m)
	WorkZone	(\j)
	Wreck/Obstruction	(/x)
	Sheriff	(/I)
	Fire	(/.)
	Sunny	(\U)
	Gale Flags	(\g)
	Tornado	(\t)
	National WX Service Site	(/W)
	WX (Weather Station)	(/_)
	Digipeater	(/#)
	Mic-E Repeater	(/m)
	QSO Repeater	(/r)
	Circle	(/O)
	IRLP	(IO)
	EchoLink	(E0)
	Node	(/n)
	GATEway	(/&)
	DF station	(/\)
	Dish Antenna	(/')
	PC user	(/L)
	SSTV	(/T)
	ATV	(/V)
	BBS	(/B)
	APRStt	(\A)
	RACES	(\c)

	ARRL	(\a)
	X	(/.)
	Triangle	(\n)
	Small Circle	(\o)
	Red Cross	(//)
	Big Question Mark	(\.)

Configuring the Overlay Character

In APRS mode, both the icon table code and icon symbol code can be freely selected, allowing the overlay character to be configured.

Example: To configure the radio icon to the character "K", select "Radio" under the icon type menu number, followed by "K" under "Table".



- ◆ APRS icon codes (table/symbol) may be updated. For more details, please refer to the official APRS website below.
<https://www.aprs.org/symbols/symbolsX.txt>
<https://www.aprs.org/symbols/symbols-new.txt>
- ◆ Please configure an icon that represents your operating status. (Configuring an aircraft or balloon icon for a fixed station may cause confusion.)

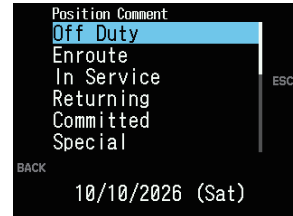
Position Comment

APRS data transmitted always includes one of 15 predefined comments. Select an appropriate comment according to your status.

Configuring Position Comment

This function allows you to select a predefined message (position comment) to be included in the position packet for indicating the current status of your station.

1 Access Menu No. 502



Select any of the following:

[Off Duty], [Enroute], [In Service], [Returning], [Committed], [Special], [PRIORITY], [CUSTOM0] to [CUSTOM6], or [EMERGENCY!]



- ◆ The default setting is "In Service". If operation such as message or voice communication is not possible, configure the setting to "Off Duty" or "Committed" as appropriate.



- ◆ A confirmation message is displayed when [EMERGENCY!] is selected. To proceed with transmission, press the [ENC] control again.
- ◆ **Never select "EMERGENCY!" unless you truly need emergency rescue due to an accident or disaster.**
 The emergency alarm will sound on all APRS stations that have received your emergency packet. Depending on the situation, receiving stations may contact police or fire departments to assist in your rescue.
 Even during experiments such as transmitting with the antenna disconnected or with a dummy load connected, emergency packets may still be relayed by nearby digipeaters or IGate stations.
 In the unlikely event of a transmission by mistake, do not immediately turn off the power of this unit. You will need to inform receiving stations that it is a "14-3-1" by selecting a setting other than "EMERGENCY!", followed by including a message such as "It is a false report." in the status text, and then continue transmission of position packets.

2 Press [ENC] control

Position comment is now configured.

Status Text

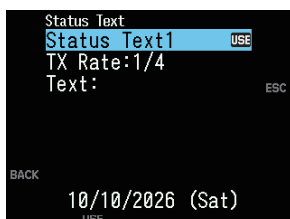
Status Text allows you to register up to five types of fixed phrases (maximum 42 characters) as arbitrary text to be included in position packets.

Configuring Status Text

■ Status Text Number

You can register up to five types of fixed phrases (maximum 42 characters) as arbitrary text to be included in position packets.

- 1 Access Menu No. 503
- 2 Select a text number and press the [ENC] control



Pressing [USE] displays the <USE> icon that indicates the currently selected status text.

■ TX Rate

This function configures the transmission frequency of the status text when transmitting position packets.

- 3 Select "TX Rate" and press the [ENC] control
- 4 Select a frequency and press the [ENC] control
Make a selection from [Off] and [1/1] to [1/8].
"1/X" means that the status text is transmitted once every X transmissions.
When [Off] is selected, the status text is not transmitted.
Reducing the transmission frequency of the status text shortens the average packet length, which helps prevent an increase in channel traffic.

■ Status Text Input

- 5 Select "text" and press [ENC] control

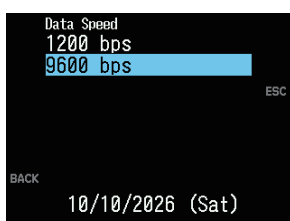


- 6 Enter the text
- 7 Press [ENC] control
The status text is now configured.

Configuring Data Speed

This function allows you to configure the data speed to match the packet speed of the APRS network in use.

- 1 Access Menu No. 505
Select "1200 bps" or "9600 bps" (default).



Configuring Operating Frequency

Configure the data band frequency to match the frequency of the APRS network in use.

The default data band is the A Band. It can also be changed to the B Band in Menu No. 506.

You can change the data band to band B by Menu No. 506.



- ◆ The APRS network frequency will depend on what region of the world you are operating as follows:
North America: 144.390 MHz, Europe: 144.800 MHz
Australia: 145.175 MHz, New Zealand: 144.575 MHz
Argentina: 144.930 MHz, Brazil: 145.570 MHz
Japan: 144.640 MHz (9600 bps)/ 144.660 MHz (1200 bps)

Turning on the APRS Mode

- 1 Press [KEY] to switch to the APRS soft-key display, then press [APRS] to enter the APRS mode

When a beacon is received from another APRS station, an interrupt display appears as shown in the example below.



After approximately 10 seconds, or when any key other than [ESC], [MSG], or [DETAIL] is operated, the display returns to the original screen.

Beacon Transmission

- 1 Press [KEY] to switch to the APRS soft-key display, then press [BCON]
The beacon icon <BCON> is displayed, and the beacon transmission function is turned on. Beacons are automatically transmitted according to the movement status of your station.
Upon receiving the beacon of your station that is relayed by a digipeater station, an interrupt display appears as shown below.



Station List

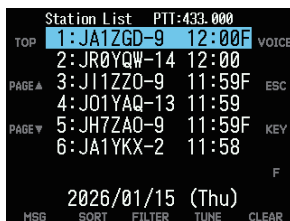
You can display and view the Callsign, icon, position, moving speed, direction of travel, distance and bearing from your station, and other information of the APRS station from which signals have been received. Information for up to 100 APRS stations from which signals are received can be stored in the memory. The details of the APRS stations you can view are as follows:

- Callsign
- Status text (when status text is available)
- Latitude, longitude, and grid square locator
- Radio station icon
- Distance from your station
- Bearing from your station
- Weather data (for weather stations: APRS only)
- Moving speed and direction of travel (for mobile stations)
- TX output, antenna height, and antenna gain (APRS only)
- Position comment (in MicEncoder format: APRS only)
- Object name (for object data: APRS only)
- Time received

Confirming Station Data Using List Display

- 1 Press [KEY] to switch to the APRS soft-key display, then press [LIST]

The station list screen is displayed.



- 2 Press [DISP] to switch the list display

Each press switches the screen between two types of display: "Callsign + model name" and "Callsign + Time + QSY".

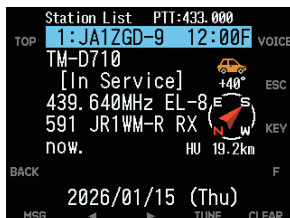
The "F" following the time indicates that frequency (QSY) information is available.

Key Operations on the "Station List Screen"

Key	Action
[ENC] control	Rotate the control to select station data. Press it to enter the detailed screen of the selected station.
[TOP]	Moves the cursor to the top of the station list.
[PAGE▲]	Moves the cursor six channels toward smaller channel numbers (newly received stations).
[PAGE▼]	Moves the cursor six channels toward larger channel numbers (older stations).
[ESC]	Switches to the frequency screen and transmits.

- 3 Select the station to view and press the [ENC] control

The detailed station data is displayed.



Key Operations on the "Station Data Details Screen"

Key	Action
[ENC] control	Rotate the control to select station data. Press it to proceed to the next page.
◀	Returns to the previous page. If you are on page 1, the display returns to the station list screen.
▶	Proceeds to the next page.
[CLEAR]	Deletes the currently displayed station data. Pressing and holding it displays "Clear All?". Pressing the [ENC] control displays "sure?". Pressing it again erases all memory.
[BACK]	The display returns to the station list screen.
[ESC]	Switches to the frequency screen and transmits.



- ◆ When data from the 101st station is received, the oldest data will be deleted first.
- ◆ Your station's beacons relayed by a digipeater station are also stored in the station list memory.

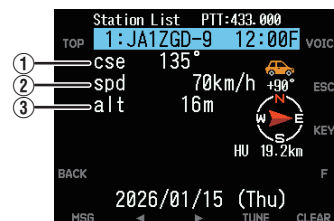
Example of Detailed Display

<Page 1> (Mobile Station)



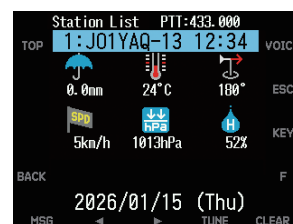
- ① Call sign
- ② Type
- ③ Position comment
- ④ Status text
- ⑤ Time received
- ⑥ Radio station icon
- ⑦ Bearing from your station
- ⑧ Distance from your station

<Page 2> (Mobile Station)

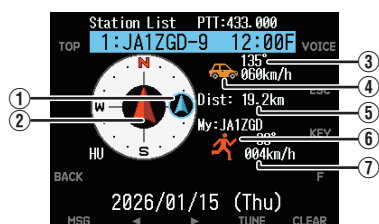


- ① Direction of travel
- ② Moving speed
- ③ Altitude

<Page 2> (Weather Station)

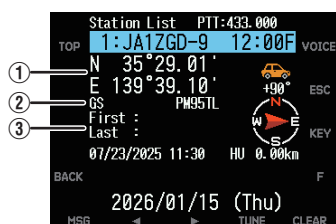


<Page 3> (Mobile Station)



- ① Bearing and direction of travel of the other station ② Direction of travel of your station ③ Speed and direction of travel of the other station ④ Icon of the other station ⑤ Distance between your station and the other station ⑥ Your station's Callsign and icon ⑦ Speed and direction of travel of your station

<Page 4> (Mobile Station)



- ① Latitude and longitude ② Grid square locator ③ Packet relay path
The details of "② Station" on Page 1 are as shown in the table below.

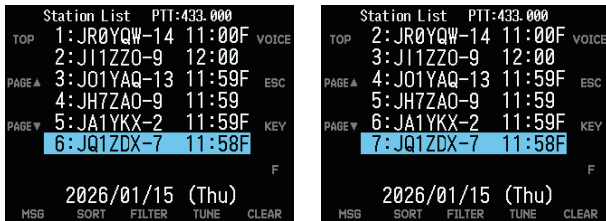
Display	Details
Fixed	Fixed station (Stations in MicEncoder format are also treated as FIXED if PHG information is present in the status text.)
Weather	Weather station
Moving	Mobile station (Standard format position packets)
GOOD/RMC	GPS tracker - GOOD indicates that GPS positioning is active; LAST indicates that positioning is inactive. - GGA, GLL, and RMC indicate the names of the sentences being used.
LAST/RMC	//
GOOD/GGA	//
LAST/GGA	//
GOOD/GLL	//
LAST/GGL	//
MicE	Station that transmits position packets in MicEncoder format
MicE-Y	Station that transmits position packets in MicEncoder format (transceivers manufactured by YAESU)
MicE-MSG	Station capable of message communications that transmits position packets in MicEncoder format
Object	Object data
ID	ID packet
Status	Status packet
Telemetry	Telemetry packet
Compress	Compressed format data
GRID-SQ	Grid square format data

Display	Details
ITEM	Item data
DGPS	DGPS data
Killed OBJ	Killed object
Killed ITEM	Killed item
NAVITRA	NAVITRA station
TH-D7	TH-D7 station
TH-D72	TH-D72 station
TH-D74	TH-D74 station
TH-D75	TH-D75 station
TM-D700	TM-D700 station
TM-D710	TM-D710G station / TM-D710 station / RC-D710 station
TM-D750	TM-D750 station
VX-8	VX-8 station
VX-8G	VX-8G station
FT1D	FT1D station
FT2D	FT2D station
FT3D	FT3D station
FT5D	FT5D station
FTM-100D	FTM-100D station
FTM-200D	FTM-200D station
FTM-300D	FTM-300D station
FTM-310D	FTM-310D station
FTM-350	FTM-350 station
FTM-400D	FTM-400D station
FTM-500D	FTM-500D station
FTM-510D	FTM-510D station
FTX-1	FTX-1 station

■ Cursor Control

The cursor control operation on the station list screen functions as a tracking operation while the screen is displayed.

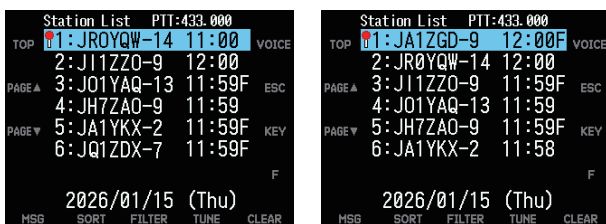
It tracks the Callsign indicated by the cursor. The selected Callsign continues to be displayed even on the list details screen.



Station List Screen After Receiving JA1ZGD-9

(Since JA1ZGD-9 is assigned list number "1" upon its reception, it moves outside the displayed range.)

- Press [TOP] when the cursor is at the beginning of the list
The cursor is now fixed. A <I> (pin mark) icon appears to the left of list number "1" (latest), and the cursor is fixed to the latest station at all times. On the details screen, the list number is also fixed at "1", and the latest station is always displayed.



Station List Screen After Receiving JA1ZGD-9

(The cursor is fixed to the station with list number "1" at all times.)

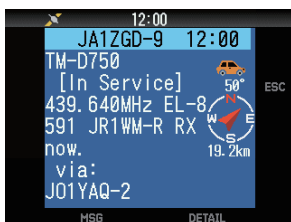
- Press [TOP] or use the [ENC] control to move the cursor
The cursor returns to the tracking operation.

■ Information Displayed in APRS Mode

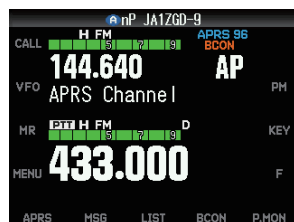
The data sent to the other station and the packet data received from the other station mainly contain the following information:

Latitude / Longitude / Status text / Weather data (for weather stations) / Moving speed and direction of travel of a mobile station / Predefined message (for MicEncoder format)

When the interrupt display area is configured to "Entire Always", "Entire Display", or "One Line" in Menu No. 573, the information displayed is as shown below.



For "Entire Always"
and "Entire Display"



For "One Line"

Display	Details
dP	When a position packet containing the same status text from the same station has already been received (Duplicated Position data). Even if information other than the status text (position, icon, etc.) has changed, the interrupt screen is not displayed and this screen appears.
nP	When a new position packet is received. (New Position data)
>P	When a position packet is received from a location farther than the value configured in "14-6-3".
>F	When a packet of a type excluded by "14-6-4" is received.
aM	When an ACK message packet is received. (ACK Message data)
dM	When the same message packet from the same station has already been received. (Duplicated Message data)

Display	Details
nM	When a new message packet is received. (New Message data)
oM	When a message packet addressed to another station is received (To Other Stations Message data)
rM	When the message memory for your station is full and reception of new messages is rejected. (Rejected Message)
dS	When the same status packet from the same station has already been received. (Duplicated Status)
dT	When the same telemetry data has already been received.
nS	When a new status packet is received. (New Status)
nT	When new telemetry data is received.
Q?	When the packet is a query packet. (Query)
??	When a packet that cannot be decoded is received.
dD	When the same DX cluster data has already been received. (Duplicated DX cluster data)
nD	When new DX cluster data is received. (New DX cluster data)

Upon receiving the packet data of your station that is relayed by a digipeater station, the Callsign of the digipeater station is displayed as shown below.



◆ [My Position] is displayed when it is a position packet, and [My Message] is displayed when it is a message packet.

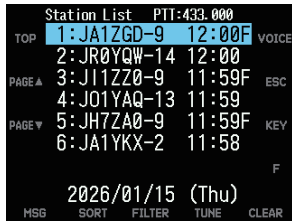
When an emergency packet (a packet transmitted when emergency assistance is required; see 74) is received, the display appears as shown below and an emergency beep (emergency alarm) sounds.



Sort Function

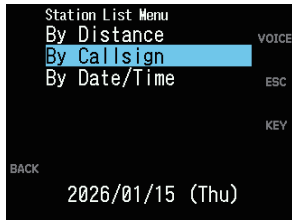
This function sorts the station list by Callsign, date/time or distance.

- 1 Display the station list screen



- 2 Press [SORT]

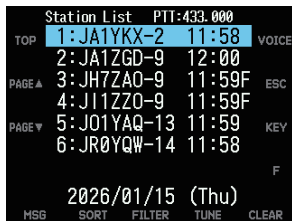
The screen for selecting the sort type is displayed.



- 3 Rotate the [ENC] control to select a sort type, then press the [ENC] control

Distance	Sorts in order of increasing distance from your station to the other station.
Callsign	Sorts Callsigns in ascending order.
by Date/Time	Sorts by the date and time of receipt, with the most recent first.

The sorted station list is displayed. The example below shows the list sorted by "Callsign".

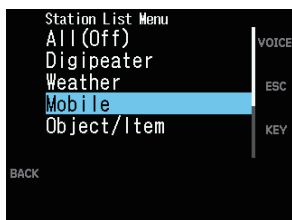


- ◆ When new station data is received after sorting, it is added to the station list without sorting again.

Display Filter Function

This function displays only data of the selected type from the station list and hides all other data.

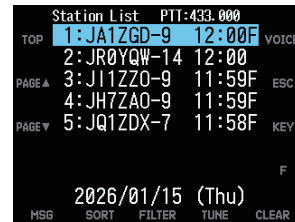
- 1 Press [LIST] to display the station list
- 2 Press [FILTER]



- 3 Rotate the [ENC] control to select a filter type, then press the [ENC] control

All	Cancels the filter function.
Digipeater	Displays only digipeater stations.
Weather	Displays only weather stations.
Mobile	Displays only mobile stations.
Object/Item	Displays only object stations.
Kenwood	Displays only Kenwood TH-D7, TH-D72, TH-D74, TH-D75, TM-D700, TM-D710 (RC-D710), and TM-D750 stations.
QSY	Displays only stations containing frequency (QSY) information.
1-WAY	Displays only MicEncoder format stations without a message function (trackers) and GPS trackers.
Others	Displays stations other than those listed above.

The filtered station list is displayed. Below is an example when "Mobile" is selected.



- ◆ After the display filter function is turned on, data received is added to the list as before. However, only data after applying the filter is displayed.
- ◆ For example, if the station list is full and a "Weather" filter is applied, when data from a mobile station is received, the oldest data in the list that is not from a weather station is deleted, and the received mobile station data is saved.
- ◆ When the power of this unit is turned off, the display filter settings are no longer applied.

Switching the Station List Display

You can switch the station list display between a time display and a model name display.

- 1 Press [LIST] to display the station list
- 2 Select a station list
- 3 Press [F] to display the station list menu



- 4 Press [DISP]



Copying to Position Memory

If position data exists in a station list, select the position data to copy to the position memory list.

- 1 Press [LIST] to display the station list
- 2 Select a station list
- 3 Press [F] to display the station list menu



- 4 Press [POS.MEM]
The position memory store screen is displayed.



- 5 Select the position memory number
- 6 Press [ENC] control
The position data is now registered as a position memory.

Position Request

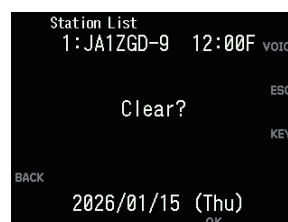
- 1 Press [LIST] to display the station list
- 2 Select a station list
- 3 Press [F] to display the station list menu



- 4 Press [POS.RQ]

Deleting Station Data

- 1 Press [LIST] to display the station list
- 2 Select the station list to delete, then press [CLEAR]
A clear memory confirmation screen is displayed.



- 3 Press the [OK] control to clear the station memory



APRS Message Functions

Use this function when you want to send a message to a specific station. An APRS message is transmitted and received as standalone packet data separate from a beacon, and includes a function for confirming that the other station has received it. The entered message is transmitted up to five times until receipt confirmation (ACK) is received.

Receiving a Message

When a message is received, an interrupt display appears as shown below.



- ① Message type ② Callsign of TX station ③ Message content

Key	Behavior
[ESC]	Returns to the frequency display without marking the message as read. (The display returns to the frequency screen after 10 seconds if there is no operation.)
[REPLY]	Marks the message as read and enters the message composition mode for replying to the TX station.
[DETAIL]	Marks the message as read and switches to display the details.

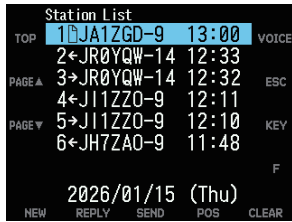
① Message Type	
	Message addressed to your station
B	Bulletin message
!	NWS (National Weather Service) message
*	Receipt confirmation (ACK) or rejection of a message transmitted by your station
G	Message addressed to a group

When a duplicate message (the same message from the same station) is received, the interrupt screen is not displayed and an error tone sounds. If the display was showing the frequency display at that time, "dM" (an abbreviation for "duplicate Message") and the Callsign of the TX station are displayed on the top line.

Message List Display

- Press [KEY] to switch to the APRS soft-key display, then press [MSG]

The message list screen is displayed. Messages transmitted and received by your station are displayed together in the list.



Key Operations on the "Message List Screen"

Key	Action
[ENC] control	Rotate to select a list number. Pressing it returns to the detailed display.
[TOP]	Moves the cursor to the top of the message list.
[PAGE▲]	Moves the cursor by six messages toward smaller message numbers.
[PAGE▼]	Moves the cursor by six messages toward larger message numbers.

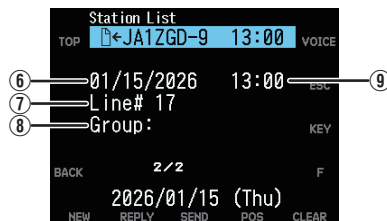
- Use the [ENC] control to select a list number, and press the [ENC] control

The message details screen is displayed.

<First Page>



<Last Page>



- TX message status
- Type
- Message transmitted by your station
- Message received
- Callsign of TX station
- Reception date
- Line number
- Message group
- Reception time

- Displays messages up to a maximum of 67 characters.
- Depending on the type of message received, the indicators shown in the table below are displayed.

① Message Type	
n	Remaining number of transmissions for a message that has not completed five transmissions (changes from 4 → 3 → 2 → 1 with each transmission)
*	Message for which an acknowledgment (ACK) packet has been received
.	Message for which five transmissions have been completed but no ACK was received
② Type	
[Icon]	Message addressed to or transmitted by your station
B	Bulletin message
!	NWS (National Weather Service) message
G	Message addressed to a group

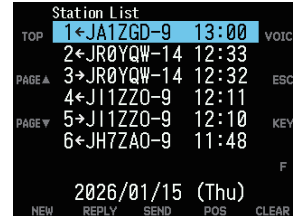
③ TX/RX

←	Message received
→	Message transmitted by your station

Composing a Message

- Press [KEY] to switch to the APRS soft-key display, then press [MSG]

The message list screen is displayed.

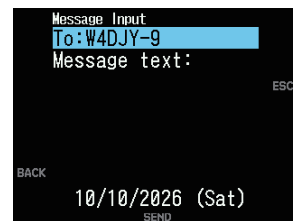


The soft keys display the control items for composing messages.

Key	Behavior
[SEND]	Pressing [SEND] transmits unsent messages in the list.
[REPLY]	Pressing [REPLY] replies to a message.
[EDIT]	Pressing [F] followed by [EDIT] replies while quoting the original message.
[NEW]	Pressing [NEW] creates a new message.
[RE-TX]	Pressing [F] followed by [RE-TX] retransmits a message.
[POS]	Pressing [POS] searches the station list by Callsign.
[POS.RQ]	Pressing [F] followed by [POS.RQ] performs a position request.
[UNREAD]	Pressing [F] followed by [UNREAD] changes a read message to unread status.
[CLEAR]	Pressing [CLEAR] deletes the selected message.

- Select "REPLY", "EDIT" or "NEW"

If "NEW" is selected, enter the destination Callsign. If "REPLY" or "EDIT" is selected, the currently selected Callsign is automatically configured as the destination Callsign.



- Enter the message

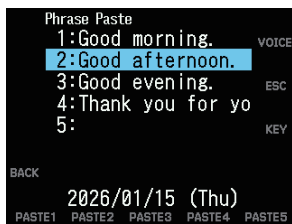
If you want to use a pre-registered fixed phrase without entering a new message, proceed to Step 4.



◆ When entering characters using the keypad, you can configure Menu No. 947 (Cursor Shift) according to your preferences.

4 Using Fixed Phrases

Pressing [PHARSE] displays the screen for pasting fixed phrases. You can select fixed phrases that were registered in advance in Menu No. 560 (see the next section, "Editing Fixed Phrases").



Transmitting a Message

- 1 After entering the message in Step 3, press [SEND].
The newly created message is transmitted once every minute.

Transmitting Remaining Messages

- 1 On the message list screen in Step 2, press "SEND".
The remaining unsent messages are transmitted one by one.

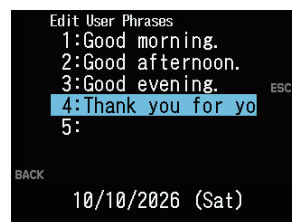
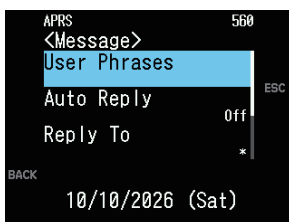


- ◆ For messages sent to a specific station, data is transmitted up to five times. However, if an ACK (acknowledgment data) is received from the other station during transmission, the transmission will be terminated at that point.

Editing Fixed Phrases

This function allows fixed phrases that were configured in advance to be pasted in the APRS message composition mode. Up to 20 fixed phrases can be defined, with a maximum of 32 characters per phrase.

- 1 Access Menu No. 560
Select a fixed phrase from 1 to 20.



- 2 Press [ENC] control
- 3 Enter the fixed phrase
- 4 Press [ENC] control
The fixed phrase is now configured.



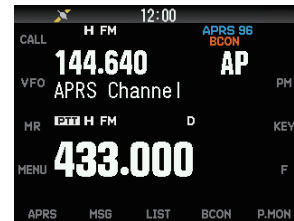
- ◆ The pre-configured fixed phrases can only be pasted in the message composition mode.
- ◆ If there is not enough space for pasting all characters, only the number of characters that can be accommodated will be pasted, and the remaining characters will be discarded.

Packet Monitor

Received packets are displayed in a manner similar to a PC terminal screen. Packet data can also be saved to an SD card. The data is cleared when the transceiver power is turned off.

- 1 Press [KEY] to switch to the APRS soft-key display, then press [P.MON]

The Packet Monitor mode is activated (real-time display).



Real-Time Display Operation

Packets are displayed in real time. When the current display becomes full of packet data, new data is displayed sequentially, while older data is saved to history (up to 10 screens). When the 10-screen history is full, the oldest data is deleted.

It is not possible to view the history in this mode.



Key	Action
[ESC]	Exits Packet Monitor mode and returns to Frequency Display mode.
[HOLD]	Switches to hold display.
[SAVE]	Saves the displayed packet data to the SD card as a text file. The file is saved in the packet monitor directory on the SD card.
[CLEAR]	Clears the packet monitor display.

Hold Display Operation

This is a display mode for viewing history. Even if new packets are received, they are neither displayed nor stored in history, and are discarded.



Key	Action
[ENC] control	Switches between history pages.
[ESC]	Exits Packet Monitor mode and returns to Frequency Display mode.
[RESUME]	Returns to real-time display.
[SAVE]	Saves the displayed packet data to the SD card as a text file. The file is saved in the packet monitor directory on the SD card.
[CLEAR]	Clears the packet monitor display.



◆ In Packet Monitor mode, it is not possible to enter text as packet data.

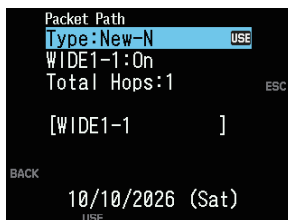
Programming a Packet Path

At the time of purchase, the unit is pre-configured so that APRS packets are appropriately relayed (digipeated) when moving in typical flat or urban areas. Depending on the conditions of use, you can also select a packet relay method (paradigm) and configure the packet relay path (packet path).



◆ Configure the packet relay path only after you have fully understood the digipeating mechanism. Please note that improper settings may cause adverse impact to the APRS network over a wide area.

1 Access Menu No. 504



When Selecting the New-N Paradigm

This is the currently recommended method worldwide for APRS. Digipeaters using this method are in use worldwide, including in Japan.

- 1 Select "New-N"
Pressing [USE] selects it as the currently used packet path type, and the <USE> icon is displayed on the right.
- 2 Rotate the [ENC] control to select "WIDE1-1", then press the [ENC] control
- 3 Select "On" or "Off", and press the [ENC] control
Select "On" or "Off" under the WIDE1-1 setting.
 - Configure WIDE1-1 to "On" when using fill-in digipeaters in the New-N paradigm.
 - When configured to "On", a packet path such as WIDE2-1 is configured following WIDE1-1, depending on the Total Hops setting.
- 4 Use the [ENC] control to select "Total Hops", then press the [ENC] control
- 5 Select the number of relay hops
You can view the settings on the bottom line of the display.
- 6 Press [ENC] control
The packet path is now configured.



- ◆ Currently, a large number of digipeater stations are installed nationwide in Japan, and multi-hop digipeating is likely to increase traffic congestion (network congestion). For this reason, stations operating in typical flat or urban areas widely make use of single-hop relaying such as "WIDE1-1" (default).
- ◆ When operating from a favorable location where packets can be received over a wide area without using digipeaters, configuring the Total Hops setting to "0" can help prevent increased traffic.

When Selecting the Relay Paradigm

This is a method that was previously used in Europe. It is no longer in use.

- 1 Select "Relay"
Pressing [USE] selects it as the currently used packet path type, and the <USE> icon is displayed on the right.
- 2 Rotate the [ENC] control to select "RELAY", then press the [ENC] control
- 3 Select "On" or "Off", and press the [ENC] control
Select "On" or "Off" under the Relay setting.
 - Configure Relay to "On" when using relay (fill-in) digipeaters in the Relay Paradigm.
 - When configured to "On", a packet path such as TRACE2-1 is configured following RELAY, depending on the Total Hops setting.
- 4 Use the [ENC] control to select "Total Hops", then press the [ENC] control
- 5 Select the number of relay hops
You can view the settings on the bottom line of the display.
- 6 Press [ENC] control
The packet path is now configured.

When Selecting Region

This function is used to restrict the region in which packets are relayed. Currently, many digipeaters that support the New-N paradigm also support this method.

The packet path is specified using ABBR (abbreviation: regional code). (For example, in the United States: AZ = Arizona, CA = California, etc.) In Japan, operations make use of prefecture name abbreviations, such as TK = Tokyo and KN = Kanagawa.

For details on the actual abbreviations used for each prefecture, please refer to the relevant information available on the Internet (such as "14-10-2").

- 1 Select "Region"
Pressing [USE] selects it as the currently used packet path type, and the <USE> icon is displayed on the right.
- 2 Rotate the [ENC] control to select "ABBR", then press the [ENC] control
- 3 Enter the abbreviation of the region
In the ABBR setting, enter up to a maximum of five characters.
- 4 Use the [ENC] control to select "Total Hops", then press the [ENC] control
- 5 Select the number of relay hops
You can view the settings on the bottom line of the display.
- 6 Press [ENC] control
The packet path is now configured.

When Selecting "Others 1" to "Others 3"

For fixed stations or stations operating within the coverage area of a specific digipeater, specifying the Callsign of the digipeater helps to prevent increased traffic due to simultaneous relaying by multiple digipeaters

If this field is left blank, it becomes "14-10-3".

It operates in the same way as configuring "Total Hops" to "0" in "New-N" mode.)

- 1 Make a selection from "Others1" to "Others3"
Pressing [USE] selects it as the currently used packet path type, and the <USE> icon is displayed on the right.
- 2 Rotate the [ENC] control to select "PATH", then press the [ENC] control
- 3 Enter the path
A packet path is the digipeat route of packet data transmitted by your station.
For example, if you want your packets to be digipeated via the route "JA1YKX-1" → "JO1YAQ-3", configure it as follows:
JA1YKX-1, JO1YAQ-3
Enter the Callsigns of the digipeaters to be digipeated by separating them using commas in the way as shown above.
- 4 Press [ENC] control
The packet path is now configured.



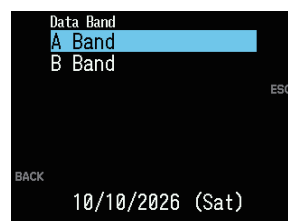
- ◆ The characters that can be selected when entering a packet path are limited to [A] to [Z], [0] to [9], [-], and [.].
- ◆ Each packet path may contain up to a maximum of nine characters, and up to eight paths can be listed (Others 1 to Others 3 only).
- ◆ If an invalid character string is entered as a digipeater Callsign in the packet path, an error occurs and the setting is not configured.
- ◆ A packet path cannot be registered unless it satisfies the following conditions:
 - If it consists only of alphanumeric characters, it must not be longer than six characters.
 - It must not contain more than one hyphen.
 - It must not begin with a hyphen.
 - The character following the hyphen must be a number from 1 to 15.

Configuring Internal TNC

Configuring the Data Band

In addition to selecting the packet mode, you can also select the data band for APRS mode. Select either "A Band" or "B Band" as the data band used for receiving or transmitting APRS packets. The default setting is "A Band". < APRS 12 > or < APRS 96 > indicates the current data rate.

- 1 Access Menu No. 506

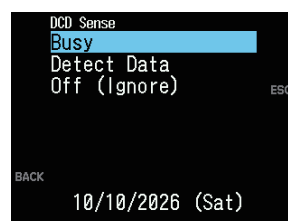


- 2 Select "A Band" or "B Band"

DCD Sense

Select whether to use the method that "14-11-3" or "14-11-4".

- 1 Access Menu No. 508



Transmission control for data such as beacons and messages is held pending while the conditions below are met. When the conditions are no longer met, the pending data is transmitted.

When configured to "Busy"

- (1) When the user has pressed [PTT] and the transceiver is already in the TX state.
- (2) When the data band is busy.

When configured to “Detect Data”

- (1) When the user has pressed [PTT] and the transceiver is already in the TX state.
- (2) When data at the configured packet speed (1200 bps or 9600 bps) is being detected on the data band.

When configured to “Off (Ignore)”

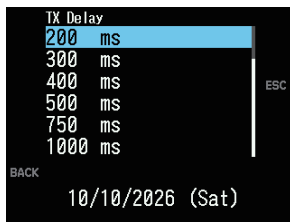
- (1) When the user has pressed [PTT] and the transceiver is already in the TX state.

TX Delay Time

This function configures the transmission time of the flag code that is transmitted ahead of the actual data during APRS data transmission.

1 Access Menu No. 509

Make a selection from “100”, “150”, “200”, “300”, “400”, “500”, “750” and “1000” (ms)



◆ While checking to ensure that data transmitted by your station can be reliably received by the other station, configure this setting to the smallest value possible. If it is configured to a value larger than necessary, the duration for which data transmitted by your station occupies the frequency will become longer, thus resulting in less efficient use of the frequency.

APRS Lock

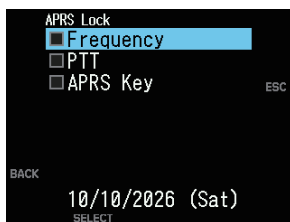
This function helps prevent inadvertent changes to the data band frequency settings and unintended transmissions using [PTT] during APRS data communications.

1 Access Menu No. 50A**2 Press the [ENC] control to make a selection**

Each time you press the control, the check mark switches. Select items using the [ENC] control.

Pressing [SELECT] places a check mark in the check box, and the selected item functions as follows in APRS mode:

- “**Frequency**” : Changes to settings such as data band frequency, tone, and mode are disabled.
- “**PTT**” : Transmission using [PTT] on the data band is disabled.
- “**APRS Key**” : Pressing [APRS] while in APRS mode does not exit APRS mode.

**3 Press [ENC] control**

The configured settings are applied.

Automatic Frequency Settings

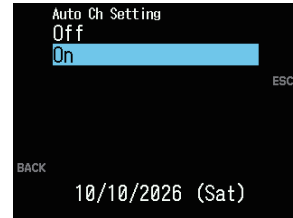
This function automatically configures the frequency when APRS is turned on.

By configuring the APRS frequency standardized for each region in advance, operation can begin simply by turning APRS on.

1 Access Menu No. 507

“**On**” : Automatic frequency configuration is enabled.

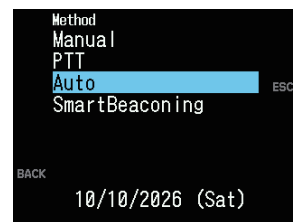
“**Off**” : Automatic frequency configuration is disabled.



◆ In the APRS channel list, you can configure the channel used for automatic frequency configuration.

Configuring Beacon TX Method**Transmission Method**

This function allows you to select the method for transmitting beacons. Operation differs as follows depending on the selected option.

1 Access Menu No. 510**2 Select “Manual”, “PTT”, “Auto” or “SmartBeaconing”****“Manual” (Manual TX):**

Pressing [BCON] each time transmits a beacon.

“PTT” (Linked to PTT):

- (1) Press [KEY] to switch to the APRS soft-key display, then press [BCON] to turn on the beacon function
 - “**BCON**” is displayed and flashes.
- (2) Press and hold [PTT], then speak into the microphone
- (3) Release [PTT]
 - Releasing [PTT] transmits a beacon.
 - A beacon cannot be retransmitted until the interval selected under “Initial Interval” has elapsed. Wait until “**BCON**” begins flashing, indicating that the unit is ready to transmit again.
- (4) Press [BCON] again to turn off the beacon function

“Auto” (Auto TX):

- (1) Press [KEY] to switch to the APRS soft-key display, then press [BCON] to turn on the beacon function
 - “**BCON**” is displayed and flashes.
 - Turning on the beacon function transmits the beacon once. Thereafter, beacons are transmitted automatically at the interval selected under “Initial Interval”.
 - If your station is operating as a digipeater and continuously transmits its position packet every 30 minutes using DIRECT (without relay), configure Auto TX Interval Extension (Decay Algorithm) and Auto Relay Path Switching (Prop. Pathing) to “Off”.
- (2) Press [BCON] again to turn off the beacon function

“SmartBeaconing”:

- (1) Press [KEY] to switch to the APRS soft-key display, then press [BCON] to turn on the beacon function
 - After the position data of your station is transmitted once manually, it is transmitted automatically at the intervals configured under “SmartBeaconing” (Menu Nos. 530 to 535).
- (2) Press [BCON] again to turn off the beacon function



- ◆ When configured to “SmartBeaconing”, Initial Interval, Decay Algorithm, and Proportional Pathing do not function. It operates according to the settings of “SmartBeaconing”.

Initial Interval

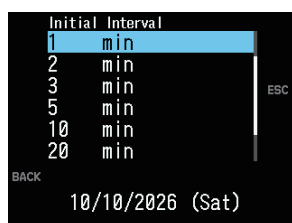
This function automatically transmits the position packet of your station at the configured time interval during APRS data communications. Use it to configure the interval used for Auto (Auto TX). The default setting is “1” (minute).

1 Access Menu No. 511

If you press the [ENC] control after making a selection, the data of your station will be transmitted immediately when the TX method is configured to “Auto”. Thereafter, the data of your station continues to be transmitted at the configured interval.

If the specified interval has elapsed and a signal is being received by the transceiver while a TX attempt is made, the TX operation is held pending and will take place after the signal is no longer being received.

If Decay Algorithm (Auto TX Interval Extension) or Proportional Pathing (Auto Relay Path Switching) is configured to On, position packets are transmitted based on the Initial Interval setting configured under “Auto” (Auto TX) or 1-minute intervals, whichever is longer.

**Decay Algorithm (Auto TX Interval Extension)**

This function extends the beacon TX interval when there is no change in the position information of your station during APRS data communications.

1 Access Menu No. 512**2 Select “On” or “Off”**

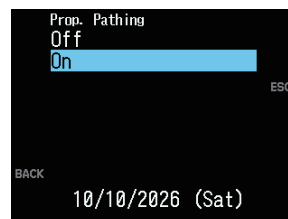
- When there is no change in the position information of your station, transmission is performed according to the Decay Algorithm (when the Auto TX Interval is 0.2 minutes: 1 minute → 2 minutes → 4 minutes → 8 minutes → 16 minutes → 32 minutes → 32 minutes → . . .).
- When the position data of your station is changing, beacons are transmitted at the interval configured under Initial Interval.
- If the specified interval has elapsed and a signal is being received by the transceiver while a TX attempt is made, the TX operation will be held pending. Transmission will take place after the signal is no longer being received.



- ◆ Beacon TX is also held pending during transmission using [PTT].
- ◆ If a Callsign of your station has not been configured, APRS packets are not transmitted.
- ◆ Messages are transmitted at 1-minute intervals regardless of the Initial Interval setting.

Proportional Pathing (Auto Relay Path Switching)

This function automatically switches the Total Hops setting of position packets for each transmission while APRS data communications are being performed during mobile operation.

1 Access Menu No. 513**2 Select “On” or “Off”**

<Example of operation when configured to “On”>

The TX interval is the value configured under Initial Interval. (If the “Decay Algorithm” setting is On, the Decay TX interval takes precedence.)

The packet path switches as follows for each transmission (when the TX interval is 1 minute and the packet path is configured to WIDE1-1, WIDE2-1):

- | | |
|--------|-----------------------------|
| 1 | : DIRECT (Without relay) |
| minute | |
| 2 | : WIDE1-1 (1 Hop) |
| minute | |
| s | |
| 3 | : DIRECT (Without relay) |
| minute | |
| s | |
| 4 | : WIDE1-1, WIDE2-1 (2 Hops) |
| minute | |
| s | |
| 5 | : DIRECT (Without relay) |
| minute | |
| s | |
| 6 | : WIDE1-1 (1 Hop) |
| minute | |
| s | |
| 7 | : DIRECT (Without relay) |
| minute | |
| s | |
| 8 | : WIDE1-1, WIDE2-1 (3 Hops) |
| minute | |
| s | |

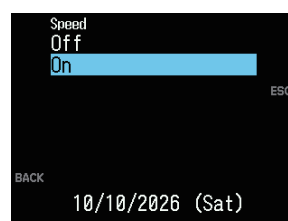
The above process is repeated.

When used together with Auto TX Interval Extension, operation switches to the TX pattern of Auto TX Interval Extension when the speed falls to 1 knot or less (1 knot = 1.852 km/h), and to Auto Relay Path Switching when the speed reaches 3 knots or more.

The speed thresholds can be configured using the MCP-D750 Memory Control Program. For details, please refer to the Help text for “Decay Algorithm” and “Prop. Pathing” of the MCP-D750.

Configuring Beacon Information**Speed Information**

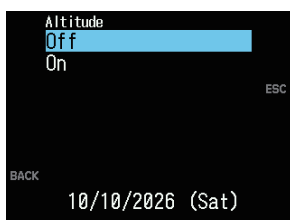
This function allows you to select whether speed information is transmitted in APRS data communications.

1 Access Menu No. 514

Altitude Information

This function allows you to select whether altitude information is transmitted in APRS data communications.

- 1 Access Menu No. 515

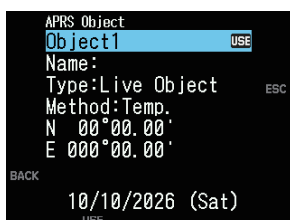


Object Functions

In APRS data communications, in addition to beacons (position packets of your station) and messages, local information such as repeater stations in the area and events related to amateur radio can be transmitted as an "Object".

Configuring Object Items

- 1 Access Menu No. 516

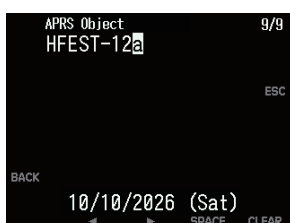


- 2 Use the [ENC] control to select the object to configure, then press the [ENC] control
 - Pressing [USE] displays the <USE> icon to the right of the object item and displays the information currently in use.

Object Name

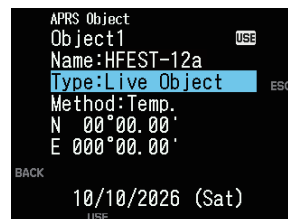
- 3 Use the [ENC] control to select "Name", then press the [ENC] control

A character input screen is displayed.
Select the characters you want to enter.



TX Format Type

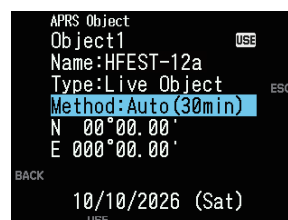
- 4 Use the [ENC] control to select "type", then press the [ENC] control
- 5 Use the [ENC] control to select the type of TX format, then press the [ENC] control
 - "Live Object" : Valid object information
Sends out the object information.
 - "Killed Object" : Invalid object information
When object information is no longer needed, a notification on cancellation of the object information is sent out.
 - "Live Item" : Valid item information
Sends out the item information.
 - "Killed Item" : Invalid item information
When item information is no longer needed, a notification on cancellation of the item information is sent out.



A timestamp is embedded in an object for purposes such as protection against overwriting of information by other APRS stations, while a timestamp is not embedded in an item. Items are generally used for applications such as providing information on marathon checkpoints, first-aid stations and other temporary locations.

TX Interval Control

- 6 Use the [ENC] control to select "Method", then press the [ENC] control
Configure the TX interval used after transmission of the object has started by pressing [BCON]. When object information is transmitted continuously, such as the case of repeater information or event information, configure the TX interval to 30 minutes (or longer) to prevent frequency congestion.
 - "Off" : Does not transmit object information.
 - "Temp." : Use only when transmitting temporary information. Transmission stops after extending the interval to 1 minute, 2 minutes, 4 minutes, 8 minutes, and 16 minutes.
 - "Auto (15min)" : Transmits at 15-minute intervals.
 - "Auto (30min)" : Transmits at 30-minute intervals.
 - "Auto (60min)" : Transmits at 60-minute intervals.



Latitude/Longitude

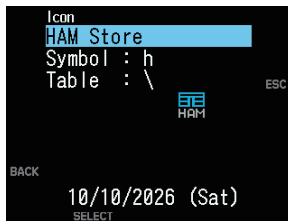
- 7 Use the [ENC] control to select "N", then press the [ENC] control
- 8 Use the [ENC] control to enter a latitude, then press the [ENC] control
Use [◀] and [▶] to move the cursor position during entry.
- 9 Use the [ENC] control to select "E", then press the [ENC] control

- 10 Use the [ENC] control to enter a longitude, then press the [ENC] control
Use [◀] and [▶] to move the cursor position during entry.



■ Icon

- 11 Use the [ENC] control to select a pre-configured icon, then press the [ENC] control
12 Use the [ENC] control to select the icon to use, then press the [ENC] control



■ Comment

- 13 Select "Comments" and press the [ENC] control
A character input screen is displayed. Enter a comment.



- 14 Press [ESC]
The display returns to the frequency screen.

Transmitting Objects

- 1 Press [KEY] to switch to the APRS soft-key display, then press [F] followed by [OBJ]
<OBJ> appears on the display.
To stop transmission of the object, press [F] followed by [OBJ] again.
<OBJ> on the display disappears.

QSY Function

This function allows one-touch configuration of the voice channel of this unit (the non-data band) based on QSY information embedded in the first character of a received status text.



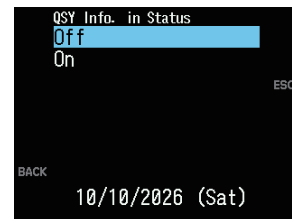
- ◆ The status text used for the QSY function adopts a format advocated by Bob Bruninga. For details, please refer to the web page below.
<https://www.aprs.org/info/freqspec.txt> (As of July 2026).

QSY Information TX Operation

You can embed voice channel frequency, wide/narrow status, tone, shift, and offset information in the first character of the status text.

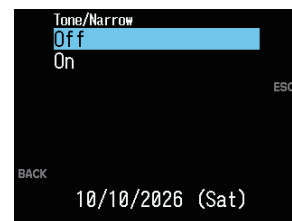
1 Access Menu No. 520

When configured to "On", frequency information is embedded at the beginning of the status text. When the voice channel (the non-data band) is in DR mode, information for the configured access repeater is also embedded.



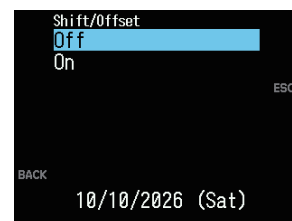
1 Access Menu No. 521

When configured to "On", tone and FM/FM Narrow information are embedded in the status text following the frequency information.



1 Access Menu No. 522

When configured to "On", shift direction and offset information are embedded in the status text following the frequency information and tone/FM/FM Narrow information.



QSY Limit Distance

This function is for tuning in to only data within a specified distance range from your station and configuring QSY information such as frequency for a non-data band during APRS data communications.

1 Access Menu No. 523

The unit of measurement uses the setting selected in Menu No. 970.



QSY Information RX Operation

When QSY (frequency) information is received, a station list is displayed for the identified frequency.

1 Press [KEY] to switch to the APRS soft-key display, then press [LIST]

The station list screen is displayed.



2 Press [TUNE]

A Tune confirmation screen is displayed.



3 Press [TUNE]

Frequency and other settings are applied to the voice channel (the non-data band).



- ◆ If the QSY information in the received beacon contains D-STAR repeater information, the voice channel (the non-data band) enters DR mode, and the QSY function operates even outside the limit distance range, with gateway communication (p. 101) automatically configured.

Configuring SmartBeaconing

SmartBeaconing is a function that efficiently transmits position beacons of your station based on data on the speed and direction of travel obtained from a GPS receiver.

This function varies the TX interval according to the speed (Variable Rate Beaconing) and transmits beacons when a turn is detected (Corner Pegging), allowing a realistic record of the actual driving route to be maintained with a reduced number of beacon transmissions.

This function operates when "SmartBeaconing" is selected in the Configuring TX Method Settings (Menu No. 510).

When using SmartBeaconing, configure the TX beep (Menu No. 571) to "On" (default) for confirming the beacon TX status.

Low Speed/High Speed

1 Access Menu No. 530

2 Select "Slow Rate" and press [▶]

Make a selection from "2" to "30" (km/h). The unit of measurement uses the setting selected in Menu No. 970.

3 Select "Fast Rate" and press the [ENC] control

Make a selection from "2" to "90" (km/h).

"Slow Rate"

When the speed is below this value, beacons are transmitted at the interval configured in Slow Rate.

"Fast Rate"

When the speed exceeds this value, beacons are transmitted at the interval configured in Fast Rate.



Slow Rate

1 Access Menu No. 531

Configure the beacon TX interval used when the speed is below the value configured for Low Speed.

Make a selection from "1" to "100" (min)



Fast Rate

1 Access Menu No. 532

Configure the beacon TX interval used during straight-line travel when the speed exceeds the value configured for High Speed.
Make a selection from "10" to "180" (sec)



Turn Angle

1 Access Menu No. 533

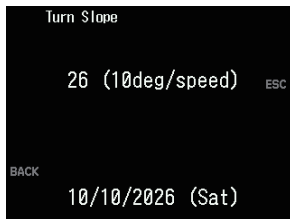
Configure the minimum angle (base value) that is used to determine a change in the direction of travel.
Make a selection from "5" to "90" (deg)



Turn Slope

1 Access Menu No. 534

Configure the amount to be added to the minimum turn angle for determining whether the direction of travel has changed as speed decreases. Increasing this value increases the angle used for determining a change in the direction of travel (turn threshold) at low speeds.
(1 to 255 (x10) degrees/speed)
(The turn-slope setting uses units of "one-tenth" of a whole number in order to match the units used by the HamHUD series from HamHUD Nichetronix.)



Turn Time

1 Access Menu No. 535

Configure the minimum time that must elapse before a turn-triggered beacon may be transmitted following a beacon transmission triggered by a time interval or a turn.
Make a selection from "5" to "180" (sec)



The default SmartBeaconing settings of this unit are intended for typical driving in urban areas.

When SmartBeaconing is used while traveling on roads such as winding mountain roads with unobstructed views, beacons transmitted at short intervals may reach a wide area and cause channel congestion.

In such cases, adjust the SmartBeaconing parameters so that the beacon TX interval remains appropriate. For example, increase the Turn Time setting, or change the Total Hops setting to "0" (without relay) to prevent unnecessary relaying of beacons. Doing so helps reduce channel congestion.

SmartBeaconing Operation

Speed	Variable Rate Beaconing TX Interval (Straight-Line Travel)	Corner Pegging
Above High Speed	Fast Rate	Operates
At or below High Speed At or above Low Speed (Only when the configured High Speed ≥ Low Speed)	The interval is calculated using the following formula: (TX Interval = <Fast Rate> x <High Speed> ÷ Speed)	Operates
Below Low Speed	Slow Rate	Does not operate

Example of Variable Rate Beaconing Operation

Low Speed = 5, High Speed = 70, Slow Rate = 30 min, Fast Rate = 120 sec (default settings)

Speed	TX Interval
80	120 seconds (2 minutes)
70	120 seconds (2 minutes)
50	168 seconds (2 minutes 48 seconds)
30	280 seconds (4 minutes 40 seconds)
20	420 seconds (7 minutes)
10	840 seconds (14 minutes)
5	1,680 seconds (28 minutes)
0	1,800 seconds (30 minutes)

When traveling in a straight line at a speed between LOW SPEED and HIGH SPEED, beacons are transmitted at approximately constant travel distance intervals.

Travel distance (km) can be calculated as follows:

Speed (km/h) × TX Interval (sec) ÷ 3,600 (1 hour = 3,600 seconds).
Based on the default settings, the distance is approximately 2.3 km.

Example of Corner Pegging Operation

When the settings are configured as follows: Turn Angle = 30, Turn Slope = 24

Speed	Turn Slope	Turn Slope ÷ Speed (1)	Turn Angle (2)	Turn Threshold (3)=(1)+(2)
60	24 (x10)	4°	30°	34°
40	24 (x10)	6°	30°	36°
30	24 (x10)	8°	30°	38°
20	24 (x10)	12°	30°	42°
10	24 (x10)	24°	30°	54°
2	24 (x10)	48°	30°	78°

Depending on the configured value, the calculated turn angle may exceed 120°. In such cases, 120° is used for the calculation.

If a beacon is transmitted while a change in direction is in progress, another beacon may be transmitted after the minimum turn time has elapsed, even while traveling on a straight course. This occurs because the change in the direction of travel, relative to the point at which the beacon was transmitted during the turn, has exceeded the turn threshold.

<SmartBeaconing™ is provided by HamHUD Nichetronix. >

Configuring Waypoint

A waypoint is a point created by assigning a name to a specific set of position coordinates and registering it in an external device. By outputting the Callsign and position data of another station received by this unit as waypoint data, the information can be displayed on the screen of devices such as a GPS receiver or tablet installed with the APRS application.

Waypoint Format

Select the format of the waypoint data.

1 Access Menu No. 540



- "NMEA"** : Data is output in the NMEA 0183 "\$GPWPL" format.
\$GPWPL,aaaa.aa,N,oooo.oo,W,xxxxx*hh/
aaaa.aa: Latitude/ N: North latitude (N), South latitude (S)/ ooooo.oo: Longitude/ W: East longitude (E), West longitude (W)/ xxxxxx: Callsign/ *: Indicates the end of the data. / hh: Checksum
- "MAGELLAN"** : Data is output in the "\$PMGNWPL" format.
\$PMGNWPL,IIII.II,a,IIII.II,b,cccc,F,d...d,,*hh/
IIII.II: Latitude/ a: North latitude (N), South latitude (S)/ IIII.II: Longitude/ b: East longitude (E), West longitude (W)/ cccc: Altitude/ F: Altitude unit/ d....d: Callsign/ *: Indicates the end of the data. / hh: Checksum
- "KENWOOD"** : Data is output in the "\$PKWDWPL" format.
\$PKWDWPL,hmmss,A,aaaa.aa,N,oooo.oo,W,s,s,c,c,ddmmyy,I,I,xxxxx,iii*hh/ hmmmss: Time/ A: Status/ aaaa.aa: Latitude/ N: North latitude (N), South latitude (S)/ ooooo.oo: Longitude/ W: East longitude (E), West longitude (W)/ s.s: Speed/ ddmmyy: Date/ I.I: Altitude/ c.c: Direction of travel/ III: Altitude/ xxxxxx: Callsign/ iii: Icon/ *: Indicates the end of the data. / hh: Checksum

Waypoint Length

Configure the length of the way point name.

1 Access Menu No. 541

Make a selection from "6-Char", "7-Char", "8-Char" and "9-Char"



PC Output

Configure the format to be used for PC output of APRS information.

1 Access Menu No. 590

Selection "Waypoint" from "Off", "Raw Packets" and "Waypoint".

Waypoint Output

Configure restrictions on the data to be output as waypoint information.

1 Access Menu No. 542

- "All"** : Outputs all waypoint information.
- "Local"** : If the position limit is On, only data within the position limit is output. If the position limit is Off, all data is output.
- "Filtered"** : Only data permitted by the packet filter is output as waypoint information.



PC Output (APRS)

Configure the port to be used for PC output of APRS information.

1 Access Menu No. 982

Select "USB" or "Bluetooth".

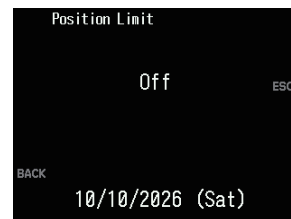
Configuring RX Packet Filter

Use this function during APRS data communications to receive only position packets from specific types of stations or stations within a specified distance from your station.

Restricting the Data RX Range

If APRS is widely used in your area, you may receive a large number of APRS packets within a short period of time. If this interferes with your activities, specify a distance from your current location. By doing so, APRS packets from stations beyond the specified distance will not be received.

1 Access Menu No. 550



- 2 Configure a value from "Off" "10" "20" ... "2490" or "2500" (km)
The unit of measurement uses the setting selected in Menu No. 970.

Selecting Filter Types

Configure the types of packets that are allowed to pass through the RX filter.

1 Access Menu No. 551

Make a selection from the following:

“Weather” (Weather station)

“Digipeater” (Digipeater station)

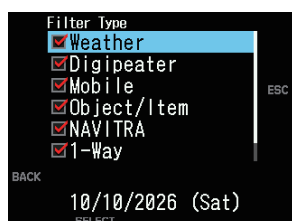
“Mobile” (Mobile station)

“Object/Item” (Object information)

“NAVITRA” (NAVITRA station)

“1-Way” (Tracker-type devices that support one-way communications and do not have a message function)

“Others” (Other packets)



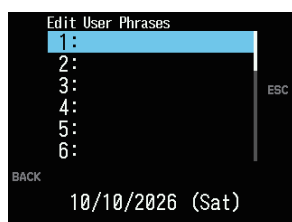
- 2 Select the type of packets you want to receive
- 3 Press the [ENC] control to place a check mark next to the type you want to receive
Filtering is now applied to the APRS position data.
 - Each press of [SELECT] toggles the check mark on or off.

Configuring Fixed Phrases (User Phrases)

This function allows fixed phrases that were configured in advance to be pasted in the APRS message composition mode.

Up to 20 fixed phrases can be defined, with a maximum of 32 characters per phrase.

- 1 Access Menu No. 560
- 2 Select a message number
Make a selection from “1” to “20”.
- 3 Press [ENC] control
- 4 Enter the fixed phrase



- 5 Press [ENC] control
The fixed phrase is now configured.

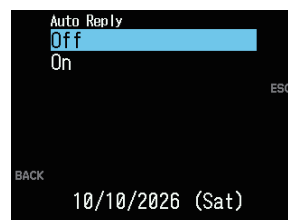


- ◆ The pre-configured fixed phrases can only be pasted in the message composition mode.
- ◆ If there is not enough space for pasting all characters, only the number of characters that can be accommodated will be pasted, and the remaining characters will be discarded.
- ◆ To paste a pre-configured phrase, enter the message composition mode and press [PHRASE] to display the list of pre-configured phrases for pasting. Select a phrase and press the [ENC] control to paste the pre-configured message.
- ◆ This function cannot be used if no user messages have been configured in advance.

Configuring Auto Message Reply

In situations such as while driving, it may not be possible to respond immediately to incoming messages. This unit can be programmed to automatically reply a message when it is received.

1 Access Menu No. 561

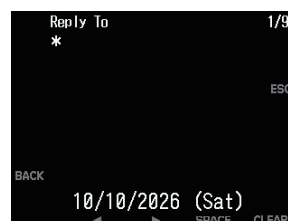


- 2 Select “On” or “Off”, and press the [ENC] control
When transmitting a message, “AA:”, which indicates “Auto Answer message”, is added to the beginning of the message (this is not displayed on the edit screen).
This is based on the recommendations of “APRS SPEC Addendum 1.1”. For details, please see the URL below.
<https://www.aprs.org/aprs11.html>

Reply to Callsign

When there is a message you would like to reply to for a specific Callsign, you can configure that Callsign in advance for automatic response.

1 Access Menu No. 562



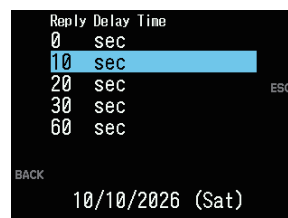
- 2 Enter the Callsign
A reply will be sent to all matching stations when using the wildcard mark (*).
For example, if you enter JA1*, a response is sent to all Callsigns beginning with JA1.

Configuring Reply Delay Time

Configure the delay time between the time a message is received and when a Reply Message Text is sent. If the unit is operated during the delay time, transmission of the Reply Message Text for the received message will be canceled.

The delay time can be configured to 0, 10, 20, 30, or 60 seconds. The default setting is 10 seconds.

1 Access Menu No. 563



- 2 Make a selection from “0”, “10”, “20”, “30” and “60” (sec)



- ◆ If a new message is received during the Reply Delay Time, the delay time will be extended.
- ◆ If multiple messages are received from the same sender before the delay countdown ends, only one message is sent as the Reply Message Text.
- ◆ If the delay time is configured to 0 seconds, the Reply Message Text is sent immediately after confirming the received message.

Configuring the Message Text

1 Access Menu No. 564



2 Enter the message text

- A display for message input appears, and the first character position blinks.

Configuring Notification Sound

RX Beep Settings

This function configures whether a beep sounds when receiving data under various APRS data communication situations.

1 Access Menu No. 570



- 2 Select **“Off”**, **“Message Only”**, **“Mine”**, **“All New”**, or **“All”**
- “Off”** : No APRS RX beep will sound.
 - “Message Only”** : A beep sounds only when a message addressed to your station is received.
 - “Mine”** : In addition to the above, a beep also sounds when digipeated data of your station's TX data is received.
 - “All New”** : In addition to the above, a beep also sounds when packet data from a new station is received.
 - “All”** : In addition to the above, a beep also sounds for duplicate data and reception of other data.

TX Beep Settings

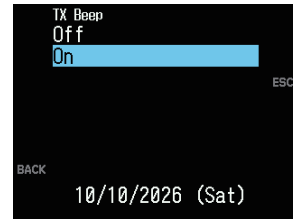
This function configures whether a beep sounds during auto TX of a beacon from your station or when a Reply Message Text is transmitted.

1 Access Menu No. 571

When your station's beacon is automatically transmitted, it is recommended to configure this function to **“On”** (default) to enable confirmation of the beacon transmission status.

“Off” : No beep will sound.

“On” : A beep will sound when a beacon is automatically transmitted and when a Reply Message Text is transmitted.



Special Call

This function emits a special incoming tone (Special Call) when an APRS message addressed to your station is received from a specific station.

1 Access Menu No. 572



- 2 Configure the Callsign (including SSID) of the station from which you want to receive a special incoming tone

Configuring Break-in Display

Display Area

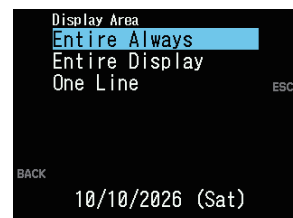
Configure how newly received data is displayed as an interrupt screen.

1 Access Menu No. 573

“Entire Always” : Always shows a full-screen interrupt display when a packet is received.

“Entire Display” : Shows a full-screen interrupt display when a new packet is received. In other cases, it only shows an interrupt display on the top line.

“One Line” : Only shows an interrupt display on the top line.

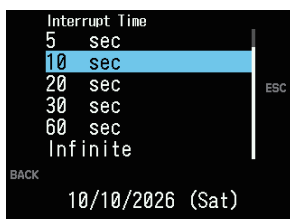


Interrupt Time

Configure the interrupt display time for newly received data.

1 Access Menu No. 574

Make a selection from "Infinite", "3", "5", "10", "20", "30" and "60" (sec)



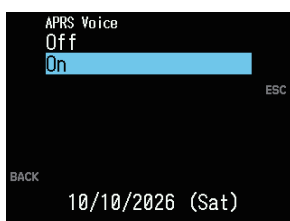
APRS Voice

This function reads out the Callsign of the sender and the message content when an APRS message addressed to your own station is received.

1 Access Menu No. 575

"On" : Turns on the APRS Voice function.

"Off" : Turns off the APRS Voice function.



◆ APRS Voice (Menu No. 575) operates regardless of the Voice Guidance mode settings (Menu No. 922).

Configuring Digipeater

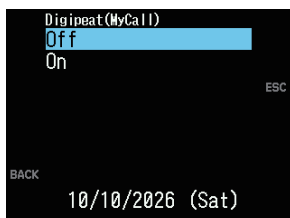
This unit can be used as a digipeater with just the transceiver terminal itself.

Digipeat (My Call) Setting

When using this unit as a digipeater, you can configure whether to digipeat packets that contain your station's Callsign in the packet path. If the Callsign configured in My Callsign (Menu No. 500) is included in the received packet path, a digipeat completion flag (*) is added to that portion, and the packet is relayed.

(Example: "JA1YKX-1"[arrow_right2]"JA1YKX-1**")

1 Access Menu No. 580



2 Select "On" or "Off"

"Off" : Turns off the Digipeat (My Call) function.

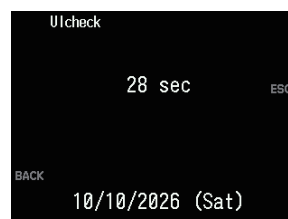
"On" : Activates the Digipeat (My Call) function.

Ullcheck Setting

This is a time setting to prevent the retransmission of a UI frame that has already been received within the configured time.

This setting is effective for Uldigipeat, Ulflood, and Ultrace.

1 Access Menu No. 581



2 Make a selection from "0", "1", "2" to "250" (sec)

UI Frame (Unnumbered Information frame)

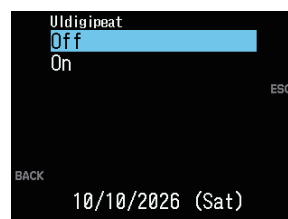
A UI frame is used in APRS beacon transmissions and other applications for data exchange without establishing a connection. Uldigipeat, Ulflood, and Ultrace are relay processing modes specialized for UI frames.

Uldigipeat Setting

You can configure whether to run Uldigipeat when using this unit as a digipeater.

When the received UI frame contains one of the entered aliases (e.g., "WIDE1-1") which matches the beginning part of the packet path that has not yet been digipeated, the matching portion is replaced by the Callsign of your station (Callsign configured as My Callsign) with a digipeat completion flag (*) added to it, and the packet is relayed. (Example: "WIDE1-1"[arrow_right2]"JA1YKX-1**", etc.)

1 Access Menu No. 582



2 Select "On" or "Off"

"Off" : Turns off the Uldigipeat function.

"On" : Activates the Uldigipeat function.

Uldigi Aliases Setting

Configure the alias character string used for running Uldigipeat.

1 Access Menu No. 583

The following characters can be entered: "A" to "Z", [0] to [9], ",", and "-"





- ◆ When no alias is configured (default), digipeat is performed using the Callsign configured in "My Callsign", and a digipeated flag is set.
- ◆ A maximum of 9 characters x 4 strings (separated using commas) can be specified as the alias.
- ◆ When My Callsign is already digipeated, or if the SSID is different, the packet is not digipeated.
- ◆ When Uldigipeat is configured to "Off", the packet will not be digipeated even if Uldigipeat aliases are configured.
- ◆ Digipeat, Uldigipeat, Ulflood, and Ultrace can each operate independently.

Ulflood Setting

You can configure whether to run Ulflood digipeat when using this unit as a digipeater.

When receiving a UI frame containing an alias-matching string (XXXX) and hop count information (n-N), such as XXXXn-N, Ulflood decrements the N value by 1 (-1), and the packet is digipeated without increasing the frame length.

Although Ulflood does not increase the frame length, it is generally not recommended as the digipeating path is not retained. It is used only for localized applications, such as SSn-N, where regional abbreviations are used as part of the alias (e.g., TK = Tokyo, KN = Kanagawa). (Example: "KN2-2"[arrow_right]"KN2-1", etc.)

1 Access Menu No. 584



2 Select "On" or "Off"

- "Off" : Turns off the Ulflood digipeat function.
- "On" : Activates the Ulflood digipeat function.

Ulflood Alias Setting

Configure the alias character string used for running Ulflood digipeat.

1 Access Menu No. 585

The following characters can be entered: "A" to "Z", and [0] to [9]



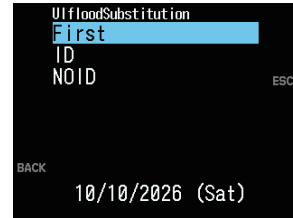
- ◆ When Ulflood is "Off", the packet will not be digipeated even if Ulflood aliases are configured.
- ◆ Digipeat, Uldigipeat, Ulflood, and Ultrace can each operate independently.

Ulflood Substitution Setting

Selects the substitution method to use when running Ulflood on this unit.

1 Access Menu No. 586

- "First" : Embeds My Callsign only when the digipeated UI frame does not contain a Callsign. When there is already a Callsign in the digipeated UI frame, the Callsign is not embedded or replaced.
- "ID" : Embeds My Callsign. When there is already a Callsign in the digipeated UI frame, My Callsign will replace the existing Callsign.
- "NOID" : The Callsign is not embedded or replaced.



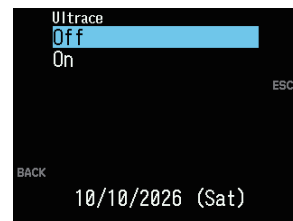
Ultrace Setting

You can configure whether to run Ultrace digipeat when using this unit as a digipeater.

When receiving a UI frame containing an alias-matching string (XXXX) and hop count information (n-N), such as XXXXn-N, Ultrace decrements the N value by 1 (-1), and the packet is digipeated with the Callsign of the digipeating station added to the path.

Unlike Ulflood, the frame length increases with each digipeat, but the complete digipeating path is retained even in multi-hop digipeating. In the New-N Paradigm, this function is used by WIDE-type (wide-area) digipeaters to support packet paths such as WIDEn-N (e.g., WIDE2-1).

1 Access Menu No. 587



2 Select "On" or "Off"

- "Off" : Turns off the Ultrace digipeat function.
- "On" : Activates the Ultrace digipeat function.

Ultracase Alias Setting

Configure the alias character string used for running Ultracase digipeat.

1 Access Menu No. 588

The following characters can be entered: "A" to "Z", [0] to [9], ",", and "-"

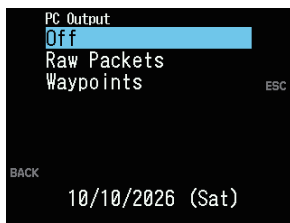


- ◆ When Ulflood is "Off", the packet will not be digipeated even if Ultracase aliases are configured.
- ◆ Digipeat, Uldigipeat, Ulflood, and Ultracase can each operate independently.
- ◆ If all aliases are cleared, the default value "TEMP" is automatically applied.

PC Output

This function outputs received packet data or waypoint data via the USB connector or Bluetooth.

1 Access Menu No. 590



2 Select "Raw Packets" or "Waypoint"

"Raw Packets" : Outputs packet data.
"Waypoint" : Outputs data in waypoint format.



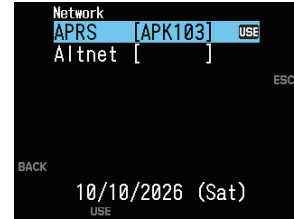
- ◆ Only I-frames (information frames) of received packets are output from this unit. Frames such as C - Connect Request, D - Disconnect Request, UA - Unnumbered Acknowledgment, and UI - Unnumbered Information Frame are not output.
- ◆ Regardless of the PC baud rate setting, the transfer rate (baud rate) between this unit and a PC operates at up to 12 Mbps via USB and up to 128 kbps Bluetooth.

Network

Configure the APRS data communication UNPROTOCOL. UNPROTOCOL (UNconnected PROTOCOL) is a method of transmitting packet data without sending a connection request to another station.

1 Access Menu No. 591

Select "APRS (APK103)" or "Altnet"



"APRS"(Use this setting for normal operation.)

This is the factory default setting. For message packets and object/item packets transmitted from the TM-D750A/E, "APK103", which indicates a packet originating from the TM-D750A/E, is added after the Callsign of your station. No restrictions are applied to received packets.

"Altnet"

Select this setting only in special cases, such as when it is necessary to restrict received packets. Select "Altnet", press the [ENC] control, and enter the required character string.

For message and weather data packets transmitted from the TM-D750A/E, the entered character string is added after the Callsign of your station.

When using "Altnet", enter a character string. The available character strings are classified as follows.

(1) ALL CALLS

If the setting of your station is configured with one of the following, all packets containing the corresponding character string will be received.

AIR*	ALL*	AP*	BEACONID*	
CQ*	GPS*	DF*	DGPS*	DRILL*
DX*	JAVA*	MALL*	MICE*	QST*
QTH*	RTCM*	SKY*	SPACE*	SPC*
SYM*	TEL*	TEST*	TLM*	WX*
ZIP*				

Any characters may follow after *.

(2) SPECIAL

Receives only packets from stations configured with "SPCL". "SPCL" is used for special events. (Stations configured with [ALL CALLS] can also receive SPCL packets.)

(3) ALTERNATE NETS

By using a character string other than those assigned to [ALL CALLS] or [SPECIAL], only packets from stations configured with the same character string are received. This is used in a way similar to a group code.

However, incoming beacons and messages are not restricted on the TM-D750A/E regardless of the network settings.



- ◆ The following characters can be selected during UNPROTOCOL entry: "A" to "Z", "0" to "9", "-", and ",".
- ◆ A maximum of six characters can be entered.
- ◆ If an invalid UNPROTOCOL string is entered, an error occurs and the setting is not configured.
- ◆ An UNPROTOCOL entry cannot be registered unless it satisfies the following conditions:
 - If it consists only of alphanumeric characters, it must not be longer than six characters.
 - It must not contain more than one hyphen.
 - It must not begin with a hyphen.
 - The character following the hyphen must be a number from 1 to 15.
 - It must not be left blank.

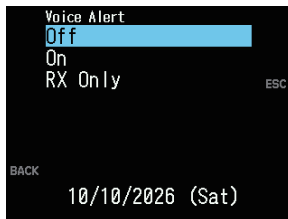
Configuring Voice Alert

This function allows you to determine audibly whether another station is nearby.

Make use of Voice Alert when the data speed is configured to 1200 bps. When a mobile station is moving with Voice Alert turned on, other stations operating with Voice Alert turned on will hear the beacon sound of this mobile station through a matching tone signal (CTCSS). This indicates that the station is within direct communication range.

Configuring Voice Alert

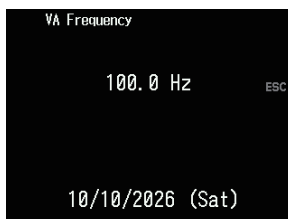
- 1 Access Menu No. 592
- 2 Select "Off", "On" or "RX Only"
It informs the stations when communication is possible.
 "Off" : Disables Voice Alert.
 "On" : Adds a tone signal when transmitting packets. "VA" is displayed above the frequency display.
 "RX Only" : Does not add a tone signal when transmitting packets. "VAR" is displayed above the frequency display.



- ◆ Voice Alert takes priority even if Tone, CTCSS, or DCS is configured.
- ◆ When Voice Alert is On, Tone Scan, CTCSS Scan, and DCS Scan do not function.
- ◆ When Voice Alert is On, you cannot perform selection of Tone, CTCSS, and DCS.
- ◆ When the data speed is 9600 bps, no tone signal is added during packet TX even if Voice Alert is "On". It operates in the same way as "RX Only".

Configuring Voice Alert Frequency

- 1 Access Menu No. 593
As with CTCSS, 50 frequencies are available for selection. (p. 46)



Group Filtering

Message Group Code

Use message group codes to exchange messages only among members of a group. By programming one or more message group codes in advance, you can receive messages containing the same group code in addition to messages addressed to your station.

- 1 Access Menu No. 594



- 2 Enter the message group code
Up to six codes can be programmed at the same time. Each code must be separated by a comma (.). For example, if three message group codes are programmed, all messages containing any one of those three codes will be received. If three bulletin group codes are programmed, bulletins addressed to specific groups that do not use any of those three codes will be rejected.
 - The following characters can be entered: 0 to 9, A to Z, comma (,), and hyphen (-). When entering message group codes, <*> can also be selected.
 - Alphanumeric characters can also be entered using the microphone keypad.
- 3 Press [ENC] control
The message group code is now configured.

Bulletin Group Code

You can configure bulletin groups so that only bulletins belonging to specific groups are received. A bulletin group code can contain up to five characters, and up to six groups can be monitored.

- 1 Access Menu No. 595



- 2 Enter the bulletin group code
 - The following characters can be entered: 0 to 9, A to Z, comma (,), and hyphen (-).
- 3 Press [ENC] control
The bulletin group code is now configured.

18 Built-in KISS TNC

The built-in TNC of this unit operates in KISS (Keep It Simple, Stupid) mode. When connecting the TM-D750A/E to a PC running APRS software in order to operate an IGate station or digipeater station, configure the TM-D750A/E to KISS mode.

KISS Mode Operation

- Press [KEY] to switch to the APRS soft-key display, then press [APRS] followed by [APRS]



Display	Type
KISS	The TNC is in KISS mode.
12	A packet transfer speed of 1200 bps is selected.
96	A packet transfer speed of 9600 bps is selected.
STA	This display appears when there is remaining packet transmission data.



- ◆ The built-in TNC of this unit does not support command mode or converse mode.
- ◆ The built-in KISS TNC of this unit has a 4-kilobyte buffer allocated for TX and RX respectively.

Connecting with a PC

To make use of the KISS TNC of this unit from a PC, connect to the PC using either the USB connector or Bluetooth function of this unit.

Configuring PC Output in KISS Mode

- Access Menu No. 984
Under PC Output (KISS), select "USB" or "Bluetooth".

When "USB" is selected

Follow the procedure in the "section on USB (Connecting with a PC)" to connect to the PC using a commercially available USB cable.

When "Bluetooth" is selected

Follow the procedure in the section on "Bluetooth (Connecting to a PC via Bluetooth)" to connect to the PC.

When using USB, a virtual COM port driver needs to be installed on the PC. The virtual COM port driver for the TM-D750A/E can be downloaded from the URL below.

<https://www.kenwood.com/jp/cs/com/vup/>



- ◆ Do not connect the unit to a PC using a USB cable until installation of the virtual COM port driver downloaded from the above URL has been completed. If the unit is connected to a PC before the virtual COM port driver is installed, an incorrect driver that does not support this unit may be installed, which could prevent normal communication with the PC. To prevent an incorrect driver from being installed, ensure that installation of the virtual COM port driver is complete before connecting the unit to a PC.
- ◆ Regardless of the PC baud rate setting, the transfer rate (baud rate) between this unit and a PC operates at up to 12 Mbps via USB and up to 128 kbps Bluetooth.
- ◆ The RS-232C port on the PC cannot be used for packet communications with the KISS TNC of this unit.
- ◆ We shall not be liable for the contents of any data that is corrupted or erased due to a malfunction of this unit or the PC.

List of Supported Commands

The built-in KISS TNC of this unit supports the following KISS standard commands

Command (Hexadecimal)	Command Name	Description	Parameter	Default Value (When KISS mode is On)
00	Data Frame	Transmits the data following the command from the TNC.	—	—
01	TXDELAY	Configures the delay upon turning on PTT until the start of data transmission. (10 ms units)	0 to 120 (78h)	Determined by the setting of Menu No. 509 (TX Delay) on this unit.
02	P	Configures the probability (persistence parameter) used for the P-persistent CSMA method.	0 to 255 (FFh)	128 (80h)
03	SlotTime	Configures the random backoff interval (slot time) used for the P-persistent CSMA method. (10 ms units)	0 to 250 (FAh)	10 (0Ah)
04	TXtail	Configures the duration for maintaining the TX state after transmitting the FCS (CRC). (10 ms units)	0 to 255 (FFh)	3
05	FullDuplex	Configures the setting to full duplex or half duplex.	0: Half duplex Other than 0: Full duplex	0
06	SetHardware	Switches the packet speed.	0 or 35 (23h): 1200 bps 5 (05h) or 38 (26h): 9600 bps	Determined by the setting of Menu No. 505 (Data Speed) on this unit.
FF	Return	Exits KISS Mode.	—	—



- ◆ The built-in TNC of this unit enters KISS mode directly rather than through Command mode. Therefore, APRS software does not require commands such as "KISS ON" or "RESTART", which are normally used to enter KISS mode from Command mode.
- ◆ To turn on KISS mode again from the PC after exiting KISS mode using the Return command "C0,FF,C0" (192,255,192), use the "TN 2,0" command of this unit (or "TN 2,1" when the data band is the B Band).

About D-STAR

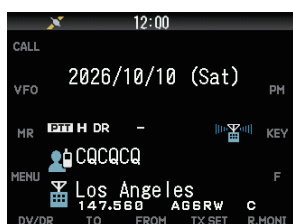
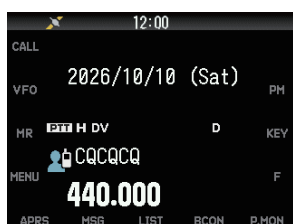
- In the original D-STAR (Digital Smart Technologies for Amateur Radio) plan, JARL envisioned a system of repeaters grouped together into Zones.
- The D-STAR repeater enables you to call a D-STAR station in another area through the Internet.
- The transceiver can be operated in the digital voice mode, including low-speed data operation, for both transmit and receive.



DV Mode/DR Mode

The DV (DIGITAL VOICE) mode of this unit is used for direct simplex communications without going through a D-STAR repeater. The DR (D-STAR REPEATER) mode of this unit is designed to simplify operation through a D-STAR repeater.

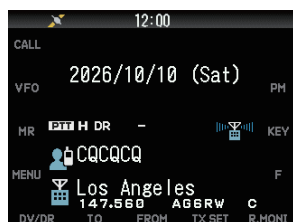
- 1 Press [KEY] to display the digital soft keys, then press [DV/DR].
DV/DR mode is enabled.
Each press of [DV/DR] toggles between DV mode and DR mode.



In DR mode, D-STAR repeater operation can be performed easily by simply configuring "FROM" (access repeater) and "TO" (destination) as shown below and transmitting.

TO: Destination (CQ, a repeater in another area, or a specific station)

FROM: Access repeater



Example of DR Mode Configuration

Communication in DR Mode

In DR mode, the three types of communication below can be configured easily.

- Local Area Call : Communication relayed through a single repeater.
- Gateway Call : Communication with a distant party through two repeaters and an Internet connection (gateway).
- Callsign Designation : Calling a specific station by specifying its Callsign. This call is relayed automatically to the last accessed repeater.

Basic Operations in DR Mode

- Press [TO] followed by [FROM], then rotate the [ENC] control to change the item you want to configure.
 - Press and hold [TO], then rotate the [ENC] control to configure "TO" (destination)
Configure the settings for Local Area Call, Gateway Call, Callsign Designation, and other related functions.
 - Press and hold the [ENC] control to configure "TO" (destination) from the TX/RX history
This is useful such as when you are returning a call via a Gateway Call.
 - Press [FROM], then rotate the [ENC] control to configure "FROM" (access repeater)
You can press and hold [FROM] to select the "FROM" (access repeater) for Local Area Call or Gateway Call.
 - Press and hold the [ENC] control to display the RX history
- The above functions are not available in DV mode.



- ◆ Continuous transmission to a digital repeater is limited to approximately 10 minutes. Upon reaching the time limit, transmission stops and the transceiver automatically switches to reception.
- ◆ When communicating through a digital repeater, wait until the repeater has finished transmitting before transmitting from this unit. If transmission from this unit takes place before transmission from the repeater has ended, communication may not function properly.
- ◆ The basic DR mode operations are not supported in the DV mode.
- ◆ This transceiver is equipped with a timeout timer function for digital repeater operation. The timeout timer limits continuous transmission to approximately 10 minutes.

Register Your Callsign at a Gateway Repeater

To use the Internet, you must register your Callsign with a repeater that has a gateway, usually one near your home location.

Registration Process

This section describes the Callsign registration process at a repeater that is connected to the US Trust server.

There are other systems as well, and they have their own registration process. For information on how to register on one of them, contact the administrator of a repeater that uses the alternate system.

- 1 Access the following URL to register your callsign.
<https://regist.dstargateway.org>

D-STAR Gateway System (REGIST) REVISION 3.0B

Already registered?
Login with Callsign and Password.

Please note that Callsign and Password are case sensitive!
Callsign must be in UPPER CASE!

CallSign :

Password :

New user?
[Registration Instructions](#)

This registration site is provided by volunteers to enable D-STAR enthusiasts who **do not** have a local gateway system to register with; a place to register for access to the D-STAR network. You must have a valid amateur radio license issued in your country of origin to register here.

- 2 The "D-STAR Gateway System (REGIST)" screen appears. Click [Register] to start the New User registration.
- 3 Follow the registration instructions on the registration screen.
- 4 When you receive a notification from the administrator, your Callsign registration has been approved, but the whole process is not yet complete.



- ◆ It may take a few hours for the administrator to approve you.

- 5 After your registration is approved, log in your personal account with your registered Callsign and password. After you have logged in, click [Personal Information]. The following screen appears.

- 6 Follow the “Registration Instructions” on the website to register your D-STAR equipment information.
- 7 When your registration is complete, log out of your personal account, and start using the D-STAR network.

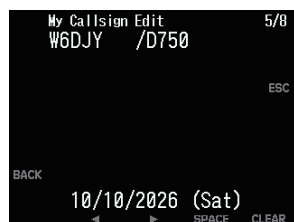
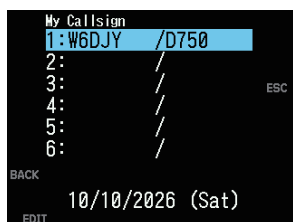


- ◆ You must register your D-STAR equipment before you can make calls through the gateway.

Configuring My Callsign

Configure My Callsign for use in DV/DR mode. Transmission in DV/DR mode will not be possible if My Callsign has not been configured. Up to six My Callsigns can be registered. Each My Callsign entry may consist of a Callsign of up to eight characters, and an optional memo of up to four characters entered after a “/” (slash), such as a name, rig name, or mobile operation destination.

- Access Menu No. 610
- Select a number for Callsign registration and press [EDIT]
- Enter the Callsign
To enter a memo after the “/” (slash), press [▶] to move the cursor.



- Press [ENC] control
My Callsign is now configured.



- ◆ Be sure to configure the Callsign exactly as it appears in the “Identification Signal” field of your radio station license. Never enter any string other than a Callsign, such as a name or nickname.

Switching the Callsign to Use

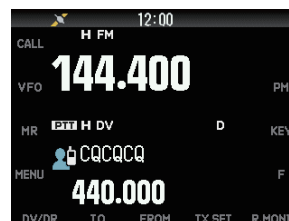
You can switch between the six registered Callsigns for use.

- Access Menu No. 610
- Select the number of the Callsign you want to use, then press the [ENC] control
Operation is now possible using the selected Callsign.

Simplex Call

Simplex call can be used for direct communication between a pair of transceivers without using a repeater. Simplex call can be operated only in DV mode.

Example: Outputting CQ at 433.300 MHz (digital calling frequency)



- Configure the frequency to 433.300 MHz
Use the [ENC] control to configure the setting.
- Press [DV/DR] to enter DV mode
- Press [TO]
The destination selection screen appears.
- Select “Local CQ” and press [ENC] control
“CQCQCQ” is now configured for “TO”.
- Press [PTT] to transmit



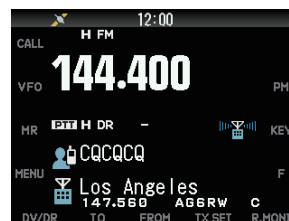
- ◆ Press the PF key assigned to [MONITOR] and monitor the frequency on which you intend to transmit to confirm that your transmission is unlikely to cause interference or disruption to other stations using either the same or a different emission type.
- ◆ When DV mode is selected for the first time after purchasing this unit, “TO” is configured to “CQCQCQ”.
- ◆ Communication via a repeater in digital mode cannot be performed in DV mode.

Local Area Call

A Local Area Call refers to communication via a single repeater. Configure “TO” to “Local CQ”, then press [PTT] to make a call.

Configuring the Access Repeater (FROM)

- Press [DV/DR] to enter DR mode
- Press and hold [FROM]
The FROM selection screen appears.
- Select “Repeater List” and press [ENC] control
The “World Region”-“Country & Reagent”-“Group” selection screen appears.
- Select the group for your current region (such as “16-3-1” or “16-3-2”), and press the [ENC] control
The repeater list is displayed.
- Select the nearest repeater based on the repeater name or prefecture name
Pressing [TONE] displays the detailed information of the selected repeater. Pressing the [ENC] control configures “FROM” to the selected repeater.



Configuring CQ Call (TO)

- 1 Press and hold [TO]
The destination selection screen appears.
- 2 Select "Local CQ" and press [ENC] control
"CQCQCQ" (CQ Call) is now configured for "TO".

Checking Whether Signals Reach the Repeater (Kerchunking)

- 1 Press and hold [PTT] for approximately one second to transmit
- 2 Check for a response
If a response is received from the repeater within three seconds and < 📶🟢 > appears in the pop-up window, it indicates that the signal has reached the repeater you are using, and that the repeater you are accessing is transmitting signals properly. However, if another station accesses the repeater within those three seconds, the repeater response pop-up window will not be displayed.

What if < 📶🟢 > is not displayed?

Symptom	Cause	Measure
No message is returned from the access repeater after transmission (S-meter indicator also does not move).	Selection for the repeater you are using (access repeater) is incorrect.	Configure the correct access repeater in "FROM".
	The repeater frequency is incorrect (or the shift direction or offset width setting is incorrect).	Configure the repeater frequency (or the shift direction or offset width setting) correctly.
	You are outside the repeater's coverage area (or your signal has not reached the repeater).	Move to a location where your signal can reach the repeater, or access another repeater that the signal can reach.
< 📶🔴 > and the access repeater Callsign appear after transmission.	Your Callsign is not registered to the D-STAR management server or the registered information is different.	Register your Callsign to the D-STAR management server, or check the registered information.
	Callsign of the other station is not registered to the D-STAR management server or the registered information is different.	Check the registration status of the other station's Callsign on the D-STAR management server (only when the other station has made it public).
< 📶🔴 > and the destination repeater Callsign appear after transmission.	The destination repeater cannot be reached or is currently in use.	Wait a short while and then try calling again.

Making a Contact

- 1 As with an analog FM repeater, press [PTT] to transmit and make a call such as a CQ.

Gateway Call

Configure the repeater for the area you wish to contact to "TO", then press [PTT] to communicate with stations that can access the repeater in that area.

The access repeater configured in "FROM" and the area repeater configured in "TO" are connected via the Internet, allowing you to call stations in areas that cannot be reached directly by radio waves.

Configuring the Access Repeater (FROM)

- 1 Configure a repeater that can be directly accessed from your station in "FROM"

Configuring the Destination (TO)

- 1 Press and hold [TO]
The destination selection screen appears.
- 2 Select "Gateway CQ" and press [ENC] control
The "World Region"- "Country & Region"- "Group" selection screen appears.
- 3 Select the group for the region containing the repeater you wish to connect to, and press the [ENC] control
The repeater list is displayed.
- 4 Select the repeater you wish to connect to
Pressing [R.INFO] displays the detailed information of the selected repeater. Pressing the [ENC] control configures "TO" to the selected repeater.

Checking Whether the Area Repeater Configured in "TO" is Reachable (Kerchunking)

- 1 Press and hold [PTT] for approximately one second to transmit
- 2 Check for a response
If a response is received from the repeater within three seconds and < 📶🟢 > appears in the pop-up window, it indicates that the signal has reached the area repeater where you wish to transmit a CQ via the Internet and that the repeater is transmitting properly. However, if another station accesses the repeater within those three seconds, the repeater response pop-up window will not be displayed.

Making a Contact

- 1 Press [PTT] to transmit and make a call such as CQ



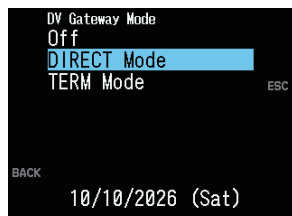
◆ Depending on the network status or condition of the area repeater where you wish to transmit a CQ, you may not be able to connect to the configured area repeater.

Gateway Call (Built-in)

Direct mode allows you to connect and communicate with repeaters and reflectors directly via an Internet connection using the transceiver's built-in wireless LAN, without using an external gateway application.

Configuring Direct Mode

- 1 Access Menu No. 650, and select "Direct Mode"



Communicating in Direct Mode

Gateway Call can be made by configuring the area repeater as "TO", transmitting a CQ, and then pressing [PTT]. Gateway CQ refers to transmitting a CQ to a different area from your own station via a repeater connected to the Internet. By using the Internet connection, calls can now be made even to areas where radio signals are not directly reachable.

Configuring the Destination (TO)

- 1 Press and hold [TO]
The destination selection screen appears.
- 2 Select "Gateway CQ" and press [ENC] control
The "World Region"- "Country & Reagion"- "Group" selection screen appears.
- 3 Select the group for the region containing the repeater you wish to connect to, and press the [ENC] control
The repeater list is displayed.
- 4 Select the repeater you wish to connect to
Pressing [R.INFO] displays the detailed information of the selected repeater. Pressing the [ENC] control configures "TO" to the selected repeater.

Checking Whether the Area Repeater Configured in "TO" is Reachable (Kerchunking)

- 1 Press and hold [PTT] for approximately one second to transmit
- 2 Check for a response
If a response is received from the repeater within three seconds and < 📶🟢 > appears in the pop-up window, it indicates that the signal has reached the area repeater where you wish to transmit a CQ via the Internet and that the repeater is transmitting properly. However, if another station accesses the repeater within those three seconds, the repeater response pop-up window will not be displayed.

Making a Contact

- 1 Press [PTT] to transmit and make a call such as CQ



- ◆ Depending on the network status or condition of the area repeater where you wish to transmit a CQ, you may not be able to connect to the configured area repeater.

Reply to Gateway Call

When a call is received via Gateway CQ or Callsign Designation in DR mode, Configure the other station's Callsign as the destination (TO) and respond.

- 1 After transmission by the other station has ended, press and hold the [ENC] control
- 2 Select the Callsign of the other station on the TX/RX History screen, then press the [ENC] control
The Callsign is now configured in "TO", and the gateway communication route will be automatically selected.



- ◆ Due to the system design of D-STAR, it is not possible to respond to a Gateway Call if the setting remains as "Local CQ".
- ◆ The Callsign of the other station is reflected in the TX/RX history once transmission by the other station has ended. After transmission by the other station has ended, press and hold the [ENC] control.
- ◆ When the communication conditions are stable, you can also respond directly using "Direct Reply" (p. 103).

Callsign Designation

Configure the Callsign of the station you wish to call in "TO", then press [PTT] to make the call. When calling a specific station, the signal is automatically relayed to the repeater that the station last accessed. You can therefore call the station even if you do not know which area it is currently in.

Configuring the Access Repeater (FROM)

- 1 Configure a repeater that can be directly accessed from your station in "FROM"

Configuring the Destination (TO)

- 1 Press and hold [TO]
The destination selection screen appears.
- 2 Select "16-4-1" and press [ENC] control
The Callsign List is displayed.
- 3 Select the station you wish to call and press the [ENC] control
The Callsign and name of the other station is now configured on the TO screen.
- 4 Press [PTT] to transmit

Callsign List

The Callsign List allows you to register up to Callsigns of 300 stations you communicate with in digital mode. In addition to Callsigns, names and memos can also be registered. The registered names are displayed in the TX/RX history.

Editing the Callsign List

You can edit information related to stations you communicate with.

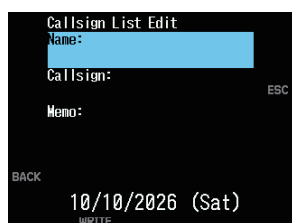
1 Access Menu No. 220

The Callsign List selection screen appears.



2 Press [ADD]

The Callsign List editing screen appears.



Callsign List Editing Screen

3 Select the item to edit, and press the [ENC] control

The editing screen for the selected item appears. You can register items such as "Name", "Callsign", and "memo".

4 When editing is complete, press the [ENC] control

The display returns to the Callsign List editing screen.

5 Press [WRITE]

The edited information is applied, and the display returns to the Callsign List selection screen.

Reordering the Callsign List

You can reorder the entries in the Callsign List.

1 In the Callsign List, press [MOVE]

The destination position selection screen appears.

2 Select the destination position, and press the [ENC] control

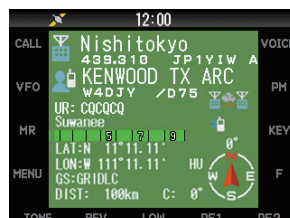
To move the entry to the end of the list, select <Move to End> and press the [ENC] control.

Direct Reply

This is a feature that allows you to respond easily to the calling station by simply pressing [PTT] while the RX Break-in Display is shown in DV/DR mode. The default setting is "On". When you want to respond immediately to a Gateway CQ or a call addressed to you upon receiving a repeater signal in DR mode, the TX settings are temporarily adjusted automatically, allowing you to respond by simply pressing [PTT].

When Direct Reply is available during reception, <DR> appears in the Break-in Display. While this icon is displayed, pressing [PTT] automatically configures the settings required for replying to enable transmission of your response.

Break-in Display (Entire Display)



Break-in Display (Half Display)

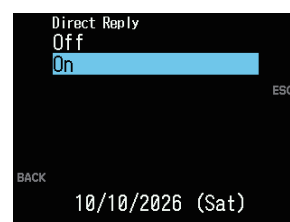


- ◆ Changes to the TX settings by Direct Reply are temporary. After transmitting via Direct Reply, the original TX settings are restored when the Break-in Display hold time expires.
- ◆ During reception on a repeater frequency in DV mode, pressing [PTT] while the Break-in Display is shown does not allow you to reply through the repeater.
- ◆ Even while the Break-in Display is shown, APRS and D-STAR signals can still be received on the opposite band. When an interruption occurs, it is indicated in the common icon area.
- ◆ While the APRS Station List details screen is displayed (p. 76), the Callsign of the calling D-STAR station is shown in the one-line interruption area (top line). When Direct Reply is available, <*> is displayed to the right of the Callsign.
- ◆ Depending on the communication conditions, the Break-in Display may not appear even when a signal is received, or it may disappear while reception is still in progress. In such cases, press and hold the [ENC] control, select the Callsign of the other station from the TX/RX history, and transmit using Callsign Designation. (p. 102)

Turning Direct Reply Off

1 Access Menu No. 612

Select "Off"



- ◆ The hold time for the RX Break-in Display can be adjusted in Menu No. 643.
- ◆ Direct Reply cannot be used when RX Break-in Display is configured to "Off" in Menu No. 640.
- ◆ When Direct Reply is configured to "On", the DV/DR mode Break-in Display takes priority over the APRS Break-in Display.

Auto Reply Function

When a signal addressed to your station is received, this function automatically configures the Callsign of the calling station and sends a reply.

1 Access Menu No. 61A

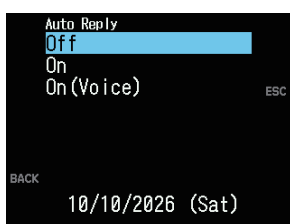
2 Select "Off", "On" or "On(Voice)"

When a setting other than "Off" is selected, the <▶▶> icon appears on the display.

Off : Disables auto reply.

On : Depending on the settings, a reply can be transmitted with a TX message or GPS position information attached to it. Voice is not transmitted.

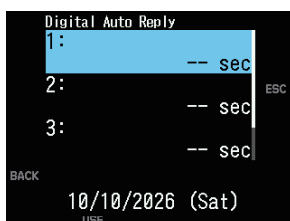
On(Voice) : A prerecorded auto reply voice message stored in the voice message memory can be selected and transmitted. Depending on the settings, a reply can be transmitted with a TX message or GPS position information attached to it.



Selecting an Auto Reply Voice Message

Select an auto reply voice message from the voice message memory.

1 Access Menu No. 312



2 Select the voice file to be used for auto reply, and press [USE]



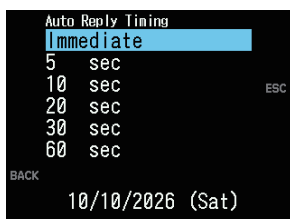
◆ Only one file can be selected.

Auto Reply Timing

Configure the timing of auto reply.

1 Access Menu No. 613

Make a selection from Immediate/ 5/ 10/ 20/ 30/ 60 (sec)



RX History

When a signal is received in DV/DR mode, you can store up to 100 entries containing the detailed information, including the TX station transmitting the signal and the Callsign of the repeater used. RX history will not be erased even when the power is turned off.

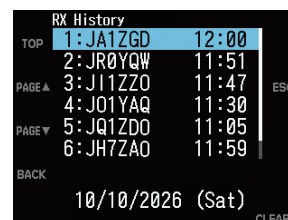
Displaying RX History

1 Access Menu No. 600

While operating in DR mode, the RX History can also be displayed by pressing and holding the [ENC] control.

2 Select a list and press the [ENC] control

The RX history details screen appears.



RX History Details Screen

3 Press [POSITION]

The RX history GPS screen appears.

Registering a Callsign from RX History

1 Access Menu No. 610

2 Select the list you want to register, and press the [ENC] control

The Callsign registration screen appears.

Deleting RX History

1 Access Menu No. 600

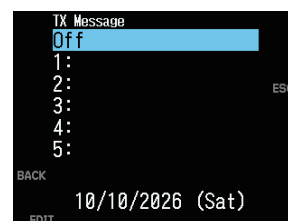
2 Select the list you want to delete, and press the [CLEAR] control

TX Messages

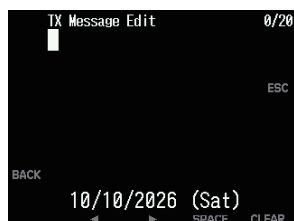
During voice communication in DV/DR mode, you can simultaneously transmit a message of up to 20 characters. Up to five TX messages can be registered.

Registering a TX Message

1 Access Menu No. 611



- 2 Select the number for registration, and press [EDIT]
A TX message editing screen appears.



- 3 Enter the message text



- 4 Select the number for registration, and press the [ENC] control
The TX message is now selected.
Pressing [PTT] each time transmits the selected message.

TX History

When a signal is transmitted in DV/DR mode, you can store up to 20 entries containing the settings, including the destination station and the Callsign of the repeater used. TX history will not be erased even when the power is turned off.

Callsign combinations (FROM, TO, etc.) used for previous transmissions are stored together as a single entry. Selecting an entry in the TX History and pressing [APPLY] restores the transmission settings used at that time with a single operation.

Displaying TX History

- 1 Press [KEY] to display the digital soft keys, then press [F] followed by [TX HIST]
The TX history list screen appears.



TX History List Screen

- 2 Select a list and press [APPLY]
The TX setting is changed, and the display returns to the frequency screen.



- ◆ "DATA Mode", "Callsign squelch/ Code squelch", and "BK call" are not recorded in the TX history.
- ◆ When the TX history exceeds 20 entries, the oldest entries are deleted first. If there are TX settings you wish to keep, it is recommended that they be registered in a memory channel.

Deleting TX History

- 1 Press [KEY] to display the digital soft keys, then press [F] followed by [TX HIST]
- 2 Select the list to delete, and press [CLEAR]
The selected TX history is deleted. Pressing and holding [CLEAR] deletes all TX history records.

Call within Zone

Intra-zone communication refers to relayed communication through different repeaters within the same zone. No Internet connection is used.

Configuring the Access Repeater (FROM)

- 1 Press [KEY] to display the digital soft keys, then press [F] followed by [ROUTE]
The route selection screen appears.
- 2 Select [Intra-zone Communication] and press [ENC] control
The world region selection screen appears.
- 3 Select the area you are in, and press the [ENC] control
The country/region selection screen appears.
- 4 Select the country/region you are in, and press the [ENC] control
The group (local area) selection screen is displayed.
- 5 Select the group for the local area you are in, and press the [ENC] control
The repeater list is displayed.
- 6 Select the nearest repeater based on the repeater name or prefecture name, and press the [ENC] control
The repeater is now configured in "FROM".

Configuring the Destination (TO)

- 1 Press and hold [TO]
The destination selection screen appears.
- 2 Select [16-4-1] and press [ENC] control
The Callsign List screen appears.
- 3 Select the Callsign you wish to call from the Callsign List, and press the [ENC] control
The repeater is now configured in "TO".
- 4 Press [PTT] to transmit

Configuring the Access Repeater (FROM)

To access a repeater, configure that repeater in "FROM". The following configuration methods are available:

- Configuring from Repeater List
- Configuring from the Nearest Repeater
- Configuring from TX History
- Configuring via Direct Entry

Configuring from Repeater List

- 1 Press and hold [FROM]
The FROM selection screen appears.
- 2 Select [Repeater List] and press [ENC] control
The world region selection screen appears.
- 3 Select the area you are in, and press the [ENC] control
The country/region selection screen appears.
- 4 Select the country/region you are in, and press the [ENC] control
The group (local area) selection screen is displayed.
- 5 Select the group for the local area you are in, and press the [ENC] control
The repeater list is displayed.
- 6 Select the nearest repeater based on the repeater name or prefecture name, and press the [ENC] control
The repeater is now configured.

Configuring from the Nearest Repeater

This option searches for the nearest repeater based on the location information of your station configured in Menu No. 401 (My Position) and the repeater location information. Repeaters located near your station are selected from the pre-registered repeater list and displayed as candidates.

- 1 Press and hold [FROM]
The FROM selection screen appears.
- 2 Select [Nearby Repeaters] and press [ENC] control
Search starts. Up to 20 nearby repeaters are displayed.
- 3 Select the nearest repeater based on the repeater name or distance, and press the [ENC] control
The repeater is now configured.



◆ Repeaters located more than 160 km from your station are not displayed as candidates.

Configuring from the TX History

Make a selection from previously accessed repeaters.

- 1 Press and hold [FROM]
The FROM selection screen appears.
- 2 Select [TX History] and press [ENC] control
The TX history selection screen appears.
- 3 Select a repeater from the TX history list, and press the [ENC] control
The repeater is now configured.

Configuring via Direct Entry

To configure a repeater, enter its Callsign directly.

- 1 Press and hold [FROM]
The FROM selection screen appears.
- 2 Select [Direct Entry (RPT1)] and press the [ENC] control
The direct input screen appears.
- 3 Enter the Callsign of the repeater, and press the [ENC] control
The repeater is now configured.

- 1 Press and hold [FROM]
The FROM selection screen appears.
- 2
- 3
The repeater is now configured.

Configuring the Route Repeater (ROUTE)

This function configures the destination repeater Callsign and determines whether to use a gateway. In most cases, TX setup is complete just by configuring the FROM and TO settings. Use this setting when the route cannot be configured correctly.

- 1 Press [KEY] to display the digital soft keys, then press [F] followed by [ROUTE]
Make a selection from "Repeater Communication", "Intra-zone Communication", "Inter-zone Communication" and "Direct Input(RPT2)"
 - Repeater** : The same Callsign as RPT1 is configured for RPT2.
 - Communication** : The Loopback icon <  > is displayed on the ROUTE screen.
 - Intra-zone Communication** : When a Callsign is configured for RPT1, the repeater list selection screen appears, allowing you to select a repeater. The selected repeater Callsign is configured for RPT2. The Assist icon <  > is displayed on the ROUTE screen.
 - Inter-zone Communication** : When a Callsign is configured for RPT1, the gateway repeater Callsign for RPT1 is automatically configured for RPT2. This option cannot be selected for repeaters without a gateway. The GW icon <  > is displayed on the ROUTE screen. When the gateway is configured, a CQ call cannot be configured for "TO". A Callsign for an individual station or a Gateway CQ call must be configured.
 - Direct Input(RPT2)** : The destination repeater Callsign that is entered directly is configured for RPT2. No icon is displayed on the ROUTE screen.

Configuring the Destination (TO)

Configure the Callsign of the repeater where you want to make a CQ call (area repeater) or the station you want to call as "TO". The following configuration methods are available:

- Configuring from Local CQ
- Configuring from Gateway CQ Call
- Configuring from Callsign Designation
- Configuring from Reflector
- Configuring from TX/RX History
- Configuring via Direct Entry (URCALL)
- Configuring EMR



◆ Gateway CQ and Reflector cannot be selected in DV mode.

Configuring from Local CQ

- 1 Press and hold [TO]
The destination selection screen appears.
- 2 Select [Local CQ] and press [ENC] control
"CQCQCQ" is now configured for "TO".

Configuring from Gateway CQ

- 1 Press and hold [TO]
The destination selection screen appears.
- 2 Select [Gateway CQ] and press [ENC] control
The repeater list screen appears.
- 3 Select the repeater you wish to make a CQ call, and press the [ENC] control
The repeater is now configured in "TO".

Configuring from Callsign Designation

- 1 Press and hold [TO]
The destination selection screen appears.
- 2 Select [16-4-1] and press [ENC] control
The Callsign List screen appears.
- 3 Select a Callsign from the Callsign List, and press the [ENC] control
The Callsign is now configured in "TO".

Configuring from Reflector



◆ A Reflector is a server connected to the Internet. It duplicates voice packets received via the Internet and simultaneously relays them to other connected destinations in a way similar to a reflector. By connecting to a Reflector using a D-STAR repeater with software such as dplus installed in its gateway system, a node device for Reflector connections (hotspot), or the Reflector Terminal Mode of this unit (p. 113), you can communicate with distant stations.

◆ We do not offer services including sale, support and information provision for node devices used for Reflector connection. Please understand that we are unable to answer questions or provide consultation regarding such devices.

- 1 Press and hold [TO]
The destination selection screen appears.
- 2 Select [Reflector] and press [ENC] control
The Reflector Menu is displayed.
- 3 From the Reflector Menu, select one of the following items and press the [ENC] control
 - "Use Reflector" : If the repeater (node) is connected to a Reflector, select [Use Reflector] and press the [ENC] control.
"CQCQCQ" is now configured as "TO". Press [PTT] to transmit.
 - "Link to Reflector" : To connect a repeater (node) to a Reflector, select [Link to Reflector] and press the [ENC] control. Enter the Reflector type (REF/DCS/XRF/XLX), number (000 to ZZZ), and module (A to Z), then press the [ENC] control. A link command (e.g., REF001CL) is configured as "TO". Press [PTT] to connect to the Reflector.
If you select [Link to Reflector] and press the [ENC] control again, up to five previously connected Reflectors/modules are displayed from the connection history. Selecting an entry from the history and pressing the [ENC] control configures the link command as [TO] again. To connect to a different Reflector, press [MENU] to open the input screen and configure the new connection.
 - "Unlink Reflector" : To disconnect a repeater (node) from a Reflector, select [Unlink Reflector] and press the [ENC] control.
The unlink command "_____U" is now configured as "TO". Press [PTT] to send the command.
 - "Echo Test" : To perform an echo test for verifying the transmitted audio of your station, select [Echo Test] and press the [ENC] control.
The echo test command "_____E" is now configured as "TO". Press [PTT] to transmit your voice. When [PTT] is released, echo back will be transmitted from the repeater (node).
 - "Reflector Info." : To check the connection to a Reflector, select [Reflector Info.] and press the [ENC] control.
The information request command "_____I" is now configured as "TO". Press [PTT] to send the command.



◆ The Reflector Menu described above can be used in DR mode, Direct Mode, and Terminal Mode. When registering a node device frequency or similar information, configure the "16-8-4" and "16-8-5" of the hotspot that has been added to the Hotspot List (p. 116) using the MCP-D750 Memory Control Program or Menu No. 230 on this unit according to the Callsigns configured for the node device. For example, configure "JA1ZGD B" for "16-8-4" and "JA1ZGD G" for "16-8-5", or configure both as "DIRECT". Follow the recommended settings for the node device.

◆ If Reflector commands other than those listed above are required, add the command to the Callsign List (p. 103) in place of a Callsign using the MCP-D750 Memory Control Program or Menu No. 220 on this unit. In the Destination Selection Screen, select "16-4-1" and configure the registered command as "TO".

Configuring from TX/RX History

- 1 Press and hold [TO]
The destination selection screen appears.
- 2 Select [Call History] and press [ENC] control
- 3 Select the destination Callsign and press the [ENC] control
The Callsign is now configured in "TO".

Configuring via Direct Entry (URCALL)

- 1 Press and hold [TO]
The destination selection screen appears.
- 2 Select [Direct Input(URCALL)] and press [ENC] control
The direct input screen appears.
- 3 Select the destination Callsign and press the [ENC] control
The Callsign is now configured in "TO".



◆ When a destination Callsign is entered using "Direct Input(URCALL)", the route will not be configured automatically. Be sure to check and configure the route using "Route Select"

Checking the Callsign Setting

You can review the DV/DR mode TX settings before transmitting.

- 1 Press [TX SET]
A confirmation screen is displayed.

```

DV TX Setting
UR: /DF0TK B
R2: AG6RW G
R1: AG6RW C
MY: W6DJY
10/10/2026 (Sat)
BACK  DISP  ESC
  
```

- 2 Press [DISP]
Each press toggles between the Name Display and Callsign Display.

Repeater Monitor

You can monitor audio from the repeater configured as TO on this transceiver and from the repeater used by the station you are communicating with.

Repeater Monitor can be used in DR mode and Direct Mode.

- 1 Press [KEY] to display the digital soft keys, then press [R-MONI]
Each press toggles the function On/Off. When this function is On, "R.MONI" is displayed.

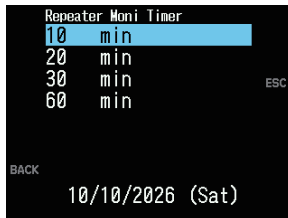


- ◆ Monitoring is supported only on A Band.
- ◆ Repeater Monitor cannot be used without an Internet connection. Make sure that WLAN is turned on, and connect to an access point before using this function.
- ◆ Even when connected to the Internet and Repeater Monitor is enabled, some repeaters may not be available for monitoring.

Configuring the Repeater Monitor Timer

Configure how long Repeater Monitor remains active.

- 1 Access Menu No. 680
Make a selection from "10", "20", "30", and "60" (min).



When the timer expires, a notification screen appears and Repeater Monitor turns off automatically. Pressing [ESC] returns the display to the frequency screen.



- ◆ If the repeater being monitored switches to a different repeater, the timer will be reset.
- ◆ In Japan, there are restrictions on the connection time allowed for Repeater Monitor. Configure the Repeater Monitor Timer in accordance with the applicable time limit.

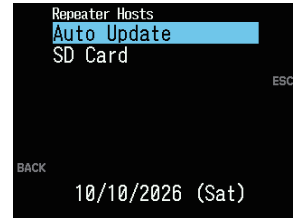
Configuring the Method for Host File Update

Configure the method for updating the host file containing the destination information required to monitor overseas repeaters using Repeater Monitor.

- 1 Access Menu No. 681

Make a selection from "Auto Update" and "SD Card".

- "Auto Update" : Updates the host file automatically from the host file website.
- "SD Card" : Loads the host file manually from an SD card.



When "Auto Update" is selected:

The URL selection screen appears. Select the source URL from one of the three available options.

Pressing [EDIT] displays the source URL editing screen where the URL can be edited.

When "SD Card" is selected:

The host file selection screen appears. Select a host file from those stored on the SD card.

Displaying the Repeater Details

You can view the detailed information about a repeater.

- 1 Press [KEY] to display the digital soft keys, then press [F] followed by [R.INFO]
A confirmation screen is displayed.



- 2 Press [RPT]

Each press switches between the details screen for the access repeater and the Gateway CQ repeater.

Fast Data Communication

When operating in DV/DR mode, the voice bandwidth can be used for high-speed data communication.

1 Access Menu No. 985

Select the method used to connect an external device for data communication: USB (Main Unit), USB (Panel), or Bluetooth.



2 Press [KEY] to display the digital soft keys, then press [F] followed by [FROM]

When Data mode is enabled, the <DATA> icon appears on the display.

Connecting with a PC

Connect the USB connector on this unit to a PC using a commercially available data communication cable.

Configuring Data Communication Software Settings

Configure the software using the following as reference.

- Port: Select the COM port number used by this product.



- ◆ Depending on the PC environment, the COM port number used by this unit may be COM5 or higher. In this case, use communication software that supports COM ports numbered COM5 or higher.

Data Communication Operation

Before performing data communication operation, please read through the instruction manual for the communication software being used carefully.

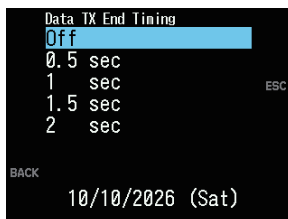
- 1 Configure the Callsigns of your station, the other station, and the repeater
- 2 Operate the communication software according to its instruction manual
- 3 When text is entered in the communication software window, the content is transmitted automatically

Data TX End Delay

This function configures the delay time before returning from the fast data TX mode to RX mode in accordance with the TX timing of the PC software.

1 Access Menu No. 614

Make a selection from Off/ 0.5/ 1/ 1.5/ 2 (sec)



EMR Communication

EMR (Enhanced Monitor Request) mode is a function used in DV/DR mode in cases such as when urgent communication is required.



- ◆ An EMR signal forcibly opens the squelch of all transceivers that receive it, placing them in a state where signals can be received. Use it with caution as sending an EMR signal unnecessarily may cause inconvenience to other stations.



- ◆ The Callsign of the other station and CQ setting remain unchanged.
- ◆ Selecting EMR while EMR is active cancels EMR mode.
- ◆ The setting is cleared when the power is turned off.
- ◆ EMR communication calls are not recorded in the TX history.
- ◆ While receiving EMR communication, the EMR call icon <EMR> is displayed on the receiving transceiver.

1 Press and hold [KEY]

The destination selection screen appears.

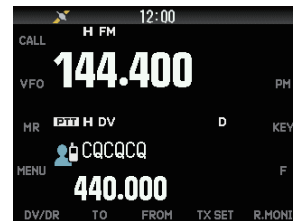
2 Select [EMR] and press [ENC] control

An EMR confirmation screen is displayed.



3 Press [OK]

"EMR" is displayed in "TO".



4 Press [PTT] to transmit

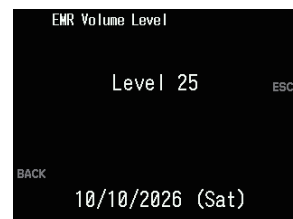
Adjusting the Volume for EMR Signal Reception

Configure the volume level used when an EMR signal is received within the range of "1 to 50". However, if the volume level configured using the [BAND SEL] (VOL) control is higher, the transceiver will receive the signal at that volume level.

1 Access Menu No. 615

2 Select a volume level between [1] and [50], and press the [ENC] control

The volume level is now configured.



Digital RX AFC

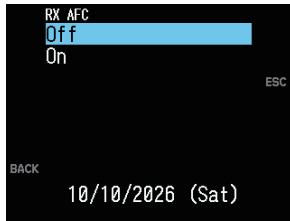
This function compensates for slight frequency offsets in received signals caused by frequency stability variations.

1 Access Menu No. 616

Make a selection from [Off] and [On].

"Off" : Turns off the Digital RX AFC function.

"On" : Turns on the Digital RX AFC function.



◆ This function does not apply to the TX frequency.

FM Auto Detection on DV

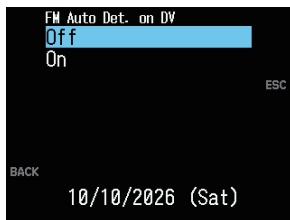
This function enables reception of FM signals when they are detected in DV mode.

1 Access Menu No. 617

Make a selection from [Off] and [On].

"Off" : FM signals are not received in DV mode.

"On" : Switches automatically to FM mode to receive FM signals while in DV mode.



◆ This function is available only in DV mode and does not operate in DR mode.

Data Frame Output

This function outputs digital data received via D-STAR through the USB connector.

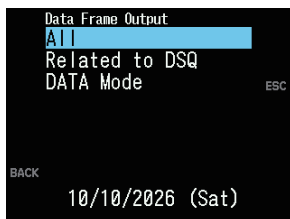
1 Access Menu No. 618

Make a selection from "All", "Related to DSQ" and "DATA Mode"

"All" : Transfers all received data to the USB connector.

"Related to DSQ" : Transfers data to the USB connector in conjunction with the Callsign Squelch/Code Squelch. Output is stopped only when audio is muted by the Callsign Squelch/Code Squelch.

"DATA Mode" : Outputs data to the USB connector only when in DATA mode.



◆ Depending on the setting of Menu No. 984, output via Bluetooth is also possible.

Break Call (BK Communication)

BK (Break) Call is used to simultaneously call two stations that are communicating using Callsign squelch in DV/DR mode.

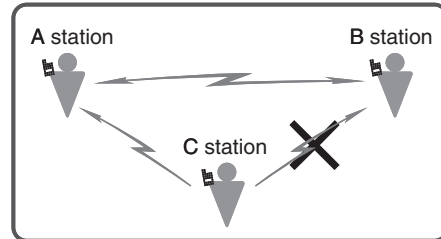
BK (Break) Call Function

When Callsign Squelch is used, the squelch does not open even when a signal not addressed to your station is received. Upon receiving a signal with BK (Break) Call configured to "ON", the squelch opens even if the signal is addressed to the station you are communicating with.

When Station C calls Station A with BK (Break) Call configured to "BK OFF"

Stations A and B are communicating using Callsign Squelch.

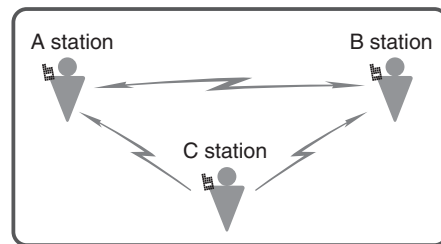
Even when Station C calls Station A, Station B does not hear the call.



When Station C calls Station A with BK (Break) Call configured to "BK ON"

Stations A and B are communicating using Callsign Squelch.

When Station C calls Station A, Station B also hears the call.

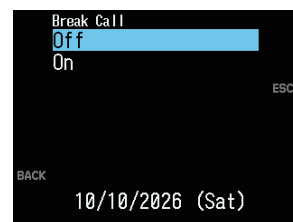


Turning On the BK (Break) Call Function

1 Access Menu No. 619

2 Select "On" and press [ENC] control

When the BK (Break) Call function is On, the  icon appears on the display.



3 Press [PTT] to transmit to one of the stations

You can call another transceiver with the same destination Callsign configured in TO, that is, the other station participating in the Callsign Squelch communication.



◆ The setting is cleared when the power is turned off.

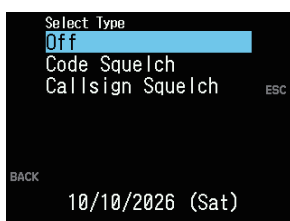
Callsign Squelch/Code Squelch

This function is useful when communicating with a specific station. The squelch opens and allows communication only when the digital code configured by your station or your station's Callsign is received, allowing convenient call monitoring.

Callsign Squelch

The squelch opens only when the destination Callsign received matches the Callsign of your station. The squelch does not open unless all eight characters of the Callsign match exactly.

- 1 Access Menu No. 620



- 2 Select **"Callsign Squelch"** and press [ENC] control
When **"Callsign Squelch"** is selected, <[CCS]> appears on the display.

Code Squelch

The squelch opens only when the digital code matches. The setting can be configured independently for each band.

- 1 Access Menu No. 621



- 2 Select [Digital Code] and press [ENC] control
The digital code can be configured within the range from "00" to "99".
<CCS> appears on the display.

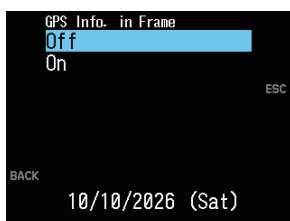


- ◆ Code Squelch is different from DCS (Digital Coded Squelch) in FM mode.

GPS Data TX Mode

This function transmits GPS position information while operating in DV/DR mode.

- 1 Access Menu No. 630



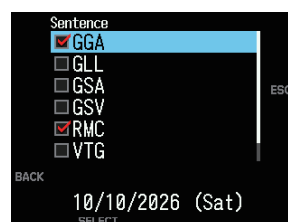
- 2 Select "Off" or "On"
"Off" : Does not transmit GPS position information.
"On" : Transmits the position information of your station.
 When your station position is configured to GPS, the latest position information continues to be transmitted periodically during voice communication.
 When GPS TX mode is On, <📶> appears on the display.

TX GPS Sentence

While operating in DV mode, select the sentences to be transmitted as position information. This unit supports seven GPS sentence types: "GGA", "GLL", "GSA", "GSV", "RMC", "VTG", and "APRS Sentence". However, no more than four sentence types can be configured at the same time.

When Menu No. 401 (My Position) is configured to a setting other than "GPS", the "GSA", "GSV", and "VTG" sentences are not transmitted.

- 1 Access Menu No. 631
- 2 Press [SELECT]
Each time you press the control, the check mark switches.
Make a selection from [GGA], [GLL], [GSA], [GSV], [RMC], [VTG], and [APRS Sentence].



- 3 Press [ENC] control
The configured settings are applied.

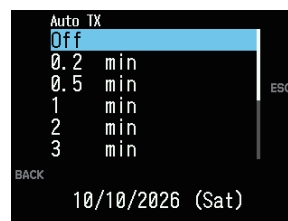


- ◆ When APRS Sentence is selected, no other sentences are transmitted.
- ◆ The settings configured in Menu No. 500 (My Callsign in APRS), Menu No. 501 (Icon), and Menu No. 503 (Status Text) are also applied to the APRS sentence. This is done so that the data transmitted via APRS and the data contained in the D-STAR APRS sentence can be identified as having been transmitted from the same device.
- ◆ QSY information is not included in the status text of the APRS sentence.
- ◆ If Menu No. 500 (My Callsign in APRS) has not been configured, the settings configured in Menu No. 610 (My Callsign in D-STAR) or Menu No. 651 (My Callsign in DV Gateway Mode) are applied to the APRS sentence.
- ◆ APRS sentences use the standard (uncompressed) format rather than the MicEncoder format. For this reason, position comments such as "In Service" are not transmitted.

GPS Auto TX Function

This function automatically transmits acquired GPS data at regular intervals. Configure the TX interval. GPS position information and other data are transmitted at the configured interval.

- 1 Access Menu No. 632
Make a selection from Off/ 0.2/ 0.5/ 1/ 2/ 3/ 5/ 10/ 20/ 30/ 60 (min)



- ◆ Use the GPS Auto TX function in DV mode. When operating in DR mode, be sure to configure it to "Off".
- ◆ GPS Auto TX does not function when My Position is configured to a setting other than GPS.

RX Break-in Display

This function displays information about the calling station in a Break-In screen. On the operating band, information about the calling station is displayed in the Break-In screen.

Displaying RX Break-in Screen

This function configures how the Break-In screen is displayed (e.g., displaying a Break-In screen only for signals addressed to your station, or displaying a Break-In screen for all receptions).

1 Access Menu No. 640

- Make a selection from "Off", "All", "Related to DSQ" and "Mine"
- "Off" : Displays in a one-line format (D-STAR icon and Callsign of transmitting station) for all receptions.
 - "All" : Displays a Break-In screen for all receptions.
 - "Related to DSQ" : Displays a Break-In screen when the Callsign Squelch or Code Squelch matches.
 - "Mine" : Displays a Break-In screen only for signals addressed to your station.



RX Break-in Display Size

This is a function for selecting the size of the Break-In screen used to display information about the transmitting station (Callsign, message, etc.).

For single band:

1 Access Menu No. 641

For dual band:

1 Access Menu No. 642

Select "Half Display" or "Entire Display"



- ◆ When the opposite band is scanning during dual band operation, information about the transmitting station is displayed in the one-line interruption area rather than in the Half Display or Entire Display mode.

RX Break-in Display Hold Time

This is a function for selecting how long the Break-In screen remains displayed after reception ends. When the configured time has elapsed, the Break-In screen automatically disappears.

1 Access Menu No. 643

Make a selection from 0/ 3/ 5/ 10/ 20/ 30/ 60 (sec)/ Infinite



- ◆ If 0 sec is selected, the Break-In screen disappears as soon as the reception ends.
- ◆ When there are multiple RX Break-In events, only the most recent reception is displayed.
- ◆ Response from a repeater is displayed for five seconds only. If a value of less than five seconds is configured, the configured value is used.

GPS Data Display

During a Break-in Display (Entire Display), if GPS data is included in the information received from the other station, the latitude and longitude, bearing, distance, and grid square information of the station are displayed.



RX Callsign Announce

This function reads out the Callsign of the transmitting station when a D-STAR signal is received. It allows you to identify the source Callsign without looking at the screen. Configure the conditions under which the Callsign is announced.

1 Access Menu No. 644

Make a selection from "Off", "Kerchunk", "Except Kerchunk", "Mine" and "All"

- "Off" : Does not announce the Callsign.
- "Kerchunk" : When operating in DV mode (simplex communication), the Callsign is announced only for receptions that are within two seconds. When operating in DR mode, only the result of your station's Kerchunk response from the repeater ("Operational" or "Error") is announced. Does not announce the Callsign of other stations.
- "Except Kerchunk" : When operating in DV mode, the Callsign is announced only for receptions that last two seconds or longer. When operating in DR mode, the Callsign is announced for all receptions. The results of Kerchunk response from the repeater are not announced.
- "Mine" : The Callsign is announced only for receptions addressed to your station. In addition, Kerchunk response of your station from the repeater is announced.
- "All" : The Callsign is announced for all receptions.



- ◆ The Callsign is not announced if no audio is received due to a digital squelch mismatch.
- ◆ Repeater Callsigns are not announced.
- ◆ Memo information is not announced.
- ◆ RX Callsign Announce (Menu No. 644) operates regardless of the Voice Guidance mode setting (Menu No. 922).

Standby Beep

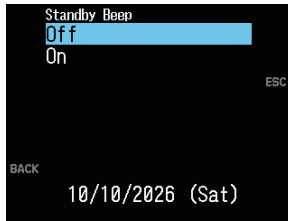
This function notifies you that transmission has ended when a D-STAR signal is received.

1 Access Menu No. 645

Make a selection from [Off] and [On].

“Off” : Does not sound the standby beep.

“On” : Sounds the standby beep.



- ◆ The standby beep volume can be changed in Menu No. 921.
- ◆ The standby beep does not sound when the RX sound is muted by the Callsign Squelch/Code Squelch.

DV Gateway Mode

In DV Gateway Mode, instead of transmitting and receiving using amateur radio signals, you can operate D-STAR over an Internet connection by connecting this unit via USB or Bluetooth to a Windows PC or Android device with a third-party application installed.

To do so, configuration of a My Callsign dedicated to DV Gateway mode is required.

The Demodulation mode is configured to DV. As with DR Mode, information such as the destination station or control commands are displayed in “TO”, while My Callsign is displayed in “FROM”.



- ◆ For more details on the operating procedures for DV Gateway communication, please refer to the operating instructions for the application being used.
- ◆ We do not provide applications for DV Gateway communication.

Configuring DV Gateway Mode

Configure the DV Gateway mode settings.

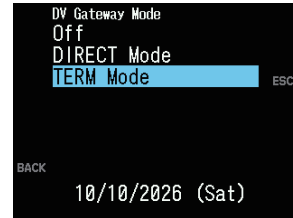
1 Access Menu No. 650

Make a selection from “Off”, “Direct Mode” and “Terminal Mode”.

“Off” : Turns off DV Gateway mode.

“Direct Mode” : Activates Direct Mode.

“Terminal Mode” : Activates Terminal Mode.



When Reflector Terminal mode is activated, the following operations are prohibited.

- A Band : Operations using [MODE], [VFO], [MR], and [CALL]
Operations using [FROM] (including long press)
- A Band (Single) : Switching to B Band
- B Band : Switching to B Band (Single)



- ◆ Direct Mode and Terminal Mode operate only on the A Band. Reflector Terminal mode cannot be activated when the A Band is Off.
- ◆ Even when Direct Mode or Terminal Mode is activated, the Demodulation mode and frequency settings can still be configured as usual on the B Band.

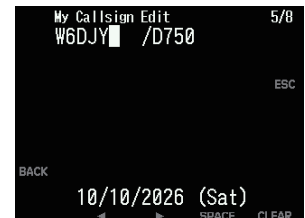
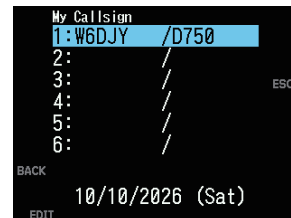
Configuring My Callsign

This function is used to configure/check My Callsign required for operating in DV Gateway mode.

1 Access Menu No. 651

2 Select the number for registration, and press [EDIT]

3 Enter the Callsign



Up to six entries can be stored, each consisting of a Callsign of up to eight characters and a memo of up to four characters.

If a registered My Callsign is available, select it using the [ENC] control, then press the [ENC] control to confirm and use it.

My Callsign can contain alphanumeric characters and spaces.

However, only uppercase alphabetic characters are allowed.



- ◆ The My Callsign configured in Menu No. 610 will not be applied to DV Gateway mode.

Configuring RPT1

This function configures the RPT1 used in Terminal Mode.

1 Access Menu No. 671

The default setting is “DIRECT”. Change it only when necessary.



Configuring RPT2

This function configures the RPT2 used in Terminal Mode.

1 Access Menu No. 672

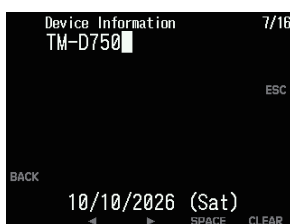
The default setting is "DIRECT". Change it only when necessary.



Viewing Device Information

You can view the device name used in Terminal Mode.

1 Access Menu No. 673 to view the device information



Selecting the Method for Connecting to External Devices

This function configures the method (USB or Bluetooth) for connecting with external devices (Windows PC or Android device) that are used when operating in DV Gateway mode.

1 Access Menu No. 986

Select "USB" or "Bluetooth"



DR Scan

This function scans the stations registered in the repeater list or hotspot list while in DR mode.

1 Press [KEY] to display the digital soft keys, then press [F] followed by [R.SCAN]

The DR Scan menu screen appears.



- 2 Select a menu item, and press the [ENC] control [FROM] and the MHz dot start flashing, and scanning starts from the last selected list number in ascending order. You can use the [ENC] control to change the scan direction.



The DR Scan menu contains the following items:

DR Scan Menu Items

DR Scan Menu	Operation
Nearby Repeaters	Extracts a maximum of 20 nearby repeaters (within a 160 km radius) close to My Position from among the D-STAR repeaters, and searches for a repeater that is currently in use.
World Region	Searches for the repeater currently in use from all D-STAR repeaters belonging to the top-level category (World Region).
Country & Region	Searches for the repeater currently in use from all D-STAR repeaters belonging to the intermediate category (Country & Region).
Group	Searches for the repeater currently in use from all D-STAR repeaters belonging to the lower-level category (Group).
Hotspot List	Searches for the hotspot currently in use from the hotspot list.

3 Press [ENC] control

Scanning ends.



- ◆ Repeaters and hotspots specified in Scan Lockout cannot be scanned.
- ◆ During Nearby Repeaters scanning, if there are no available repeaters within 160 km from your station, "Not Found" is displayed.
- ◆ When Menu No. 401 (My Position) is configured to "GPS", Nearby Repeaters scan does not operate until GPS data is received.
- ◆ Even if GPS positioning is temporarily unavailable while receiving GPS data, Nearby Repeaters scan will search for nearby repeaters using the retained GPS data.
- ◆ Repeater scan cannot be performed if there is one or fewer repeaters registered in the repeater list.
- ◆ The resume conditions for DR Scan can be configured in Menu No. 131 (Resume (Digital)) using "Time", "Carrier", and "Seek". The default setting is "Seek". (p. 41)

Repeater Scan Lockout

This function excludes selected lists from the scan and skips them when performing DR Scan.

Configuring Group Lockout

You can lock out all repeaters in a specific repeater group.

1 Access Menu No. 210

The World Region selection screen appears.



2 Select a World Region item and press the [ENC] control

The Country & Region selection screen appears.

3 Select a Country & Region item and press the [ENC] control

The Group selection screen appears.

4 Select the group to skip scanning, and press [LOCKOUT]

The Lockout icon <🔒> is displayed.

Repeat steps 2 and 3 to select other groups you want to skip.



5 Press [PTT] to exit

Configuring Individual Lockout

You can lock out specific repeaters within a repeater group.

1 Access Menu No. 210

The World Region selection screen appears.

2 Select a World Region item and press the [ENC] control

The Country & Region selection screen appears.

3 Select a Country & Region item and press the [ENC] control

The Group selection screen appears.

4 Select a group and press the [ENC] control

The repeater list selection screen appears.

5 Select a repeater and press the [ENC] control

The Lockout icon <🔒> is displayed. Repeat steps 3 and 4 to select other repeaters you want to skip.



6 Press [PTT] to exit



◆ Even when a repeater is specified in Repeater Scan Lockout, it can still be recalled on the FROM setting screen or TO setting screen of the TX settings.

◆ Registering a repeater specified for Repeater Scan Lockout as a memory channel does not automatically apply Memory Channel Lockout to that memory channel.

Repeater List

The repeater list preloaded at the time of purchase can be added with new items, edited, or deleted as necessary. You can store up to 1500 entries in the repeater list. The repeater list is not erased even when a full reset is performed

Displaying the Repeater List

1 Access Menu No. 210

The World Region selection screen appears.

2 Select a World Region item and press the [ENC] control

The Country & Region selection screen appears.

3 Select a Country & Region item and press the [ENC] control

The Group selection screen appears.

4 Select a group and press the [ENC] control

The repeater selection screen appears.

5 Select a repeater and press the [ENC] control

The repeater details screen appears.

6 Press [PTT]

The display returns to the frequency screen.

Reordering the Repeater List

1 On the repeater selection screen, select the repeater you want to move

2 Press [LOW]

The screen for selecting a destination position within the list appears.

3 Select the destination position, and press the [ENC] control

To move the entry to the end of the list, select <Move to End> and press the [ENC] control.

Editing the Repeater Information

You can edit information about a repeater.

1 On the repeater selection screen, select the repeater you want to move

2 Press [TONE]

The repeater editing screen appears.

3 Select the item to edit, and press the [ENC] control

The editing screen for the selected item appears.

4 Edit the information and press [WRITE]

The edited information is applied, and the display returns to the repeater list screen.



◆ After editing is completed on the respective editing screens, the changes are not saved until you have pressed [REV] on the repeater list editing screen to apply them.

◆ Repeaters currently configured as the access repeater (FROM) or destination repeater (TO) in DR mode cannot be edited. Change the repeater settings first before performing the editing operation.

Menu Items on Repeater List Editing Screen

Edit Item	Operation
Name editing screen	Edits the repeater name.
Sub-Name editing screen	Edits the sub-name of the repeater.
Callsign (RPT1) editing screen	Edits the repeater Callsign.
Gateway (RPT2) editing screen	Edits the gateway Callsign.
Lockout selection screen	Configures DR Scan Lockout On/Off.
Frequency editing screen	Edits the frequency. The frequency is adjusted in 5 kHz steps.
Shift editing screen	Selects the shift direction. Make a selection from Off, Minus, and Plus.
Offset editing screen	Edits the offset amount. The offset amount is adjusted in 5 kHz steps.
Position accuracy selection screen	Make a selection from Invalid, Approximate, and Exact.
Latitude editing screen	Edits the latitude.
Longitude editing screen	Edits the longitude.
Time zone editing screen	Edits the time zone.



- ◆ The Latitude and Longitude editing screens are enabled when "Approximate" or "Exact" is configured on the position accuracy selection screen.

Deleting a Repeater

You can delete a specific repeater from the repeater list.

- 1 On the repeater selection screen, select the repeater you want to delete
- 2 Press [CLEAR]
A confirmation screen is displayed.
- 3 Press [OK]
The repeater is deleted, and the display returns to the repeater selection screen.



- ◆ Repeaters currently configured as the access repeater (FROM) or destination repeater (TO) in DR mode cannot be deleted. Change the repeater settings first before performing the deleting operation.

Adding a Repeater

You can add information about a repeater.

- 1 On the repeater selection screen, press [REV]
- 2 Select the item to add or edit, and press the [ENC] control
The editing screen for the selected item appears.
- 3 Add or edit the information, and press [REV]
The edited information is applied, and the display returns to the repeater list screen.

Hotspot List

This memory channel is used to access node devices (hotspots) for D-STAR reflector connection.

You can register up to 30 entries in the hotspot list. The hotspot list is not erased even when a full reset is performed.

Adding a Hotspot to the Hotspot List

No entries are registered in the hotspot list at the time of purchase. Please add hotspot information as needed.

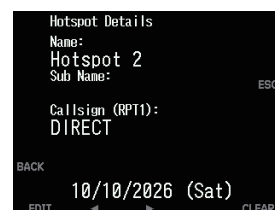
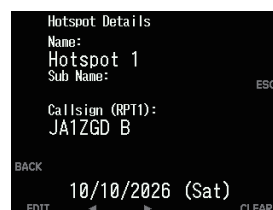
- 1 Access Menu No. 230
The hotspot selection screen appears.



- 2 On the hotspot selection screen, press [ADD]
The new hotspot editing screen appears.
- 3 Select the item to add or edit, and press the [ENC] control
The editing screen for the selected item appears.
- 4 Add or edit the information, and press [WRITE]
The edited information is applied, and the display returns to the hotspot list screen.



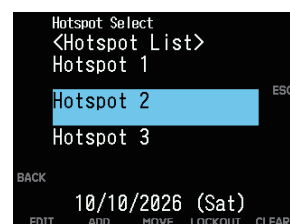
- ◆ For the hotspot entry being added, configure "16-8-4" and "16-8-5" according to the Callsign configured for the respective node devices. For example, configure "16-8-4" as "JA1ZGD B" and "16-8-5" as "JA1ZGD G", or configure both as "DIRECT". Follow the recommended settings for the node device.



- ◆ If you attempt to add an entry to the list when the maximum number of registered entries (30) is reached, a list addition error screen is displayed.
- ◆ After editing is completed on the respective editing screens, the changes are not saved until you have pressed [WRITE] on the hotspot list editing screen to apply them.

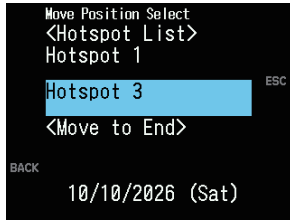
Reordering the Hotspot List

- 1 On the hotspot selection screen, select the hotspot you want to move



2 Press [MOVE]

The screen for selecting a destination position within the list appears.



3 Select the destination position, and press the [ENC] control

To move the entry to the end of the list, select <Move to End> and press the [ENC] control.

Editing the Hotspot List

You can edit the **hotspot list**.

1 On the hotspot selection screen, select the hotspot you want to edit



2 Press [EDIT]

The hotspot editing screen appears.

3 Select the item to edit, and press the [ENC] control

The editing screen for the selected hotspot appears.

4 Edit the information and press [WRITE]

The edited information is applied, and the display returns to the hotspot list screen.



Hotspots currently configured as the access repeater (FROM) in DR mode cannot be edited. Change the access repeater settings first before performing the editing operation.

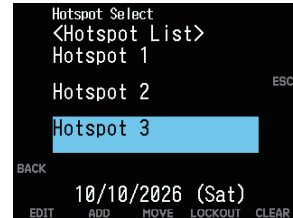


The Latitude and Longitude editing screens are enabled when "Approximate" or "Exact" is configured on the position accuracy selection screen.

Deleting a Hotspot

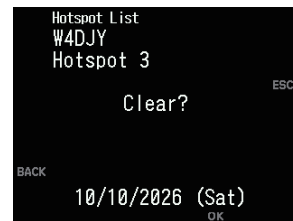
You can delete a specific hotspot from the hotspot list.

1 On the hotspot selection screen, select the hotspot you want to delete



2 Press [CLEAR]

A confirmation screen is displayed.



3 Press [OK]

The hotspot is deleted, and the display returns to the hotspot selection screen.



Hotspots currently configured as the access repeater (FROM) in DR mode cannot be deleted. Change the access repeater settings first before performing the deleting operation.

Hotspot List Editing Screen Menu

Edit Item	Operation
Name editing screen	Edits the hotspot name.
Sub-Name editing screen	Edits the sub-name of the hotspot.
Callsign (RPT1) editing screen	Edits the hotspot Callsign.
Gateway (RPT2) editing screen	Edits the gateway Callsign.
Lockout editing screen	Configures DR Scan Lockout On/Off.
Frequency editing screen	Edits the RX frequency. The frequency is adjusted in 5 kHz or 6.25 kHz steps.
Shift editing screen	Selects the shift direction. Make a selection from Off, Plus, and Minus.
Offset editing screen	Edits the offset amount. For simplex operation, configure all digits as "0". The offset frequency is adjusted in 5 kHz or 6.25 kHz steps.
Position accuracy selection screen	Make a selection from Invalid, Approximate, and Exact.
Latitude editing screen	Edits the latitude.
Longitude editing screen	Edits the longitude.
Time zone editing screen	Edits the time zone.

20 Wireless LAN (WLAN)

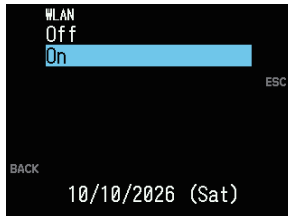
You can connect the transceiver to a network by connecting it to a WLAN access point, such as a modem or router.
To establish a WLAN connection, you need to configure the IP address and other settings, as well as the destination access point.

Configuring WLAN

Turn on the WLAN function.

1 Access Menu No. 710

- “On” : Turns on the WLAN function.
“Off” : Turns off the WLAN function.



When the WLAN function is turned on, the WLAN icon is displayed. The WLAN icon changes in four levels according to the signal strength.
If this unit is connected to an access point but not connected to the Internet, a WLAN icon with an exclamation mark is displayed.
When it is not connected to an access point, a gray WLAN icon is displayed.



- ◆ Station mode is the only mode that supports WLAN.
- ◆ When the WLAN function is On and this unit is not connected to any access point, it reconnects when an access point with Auto Reconnect enabled is within range.

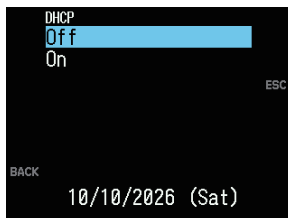
SETTING THE IP ADDRESS

Use this setting to configure the WLAN connection.

Configuring DHCP

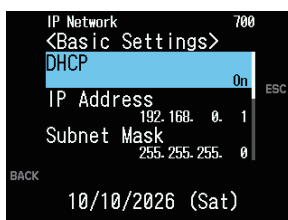
1 Access Menu No. 700

A configuration screen is displayed.



2 Select “On” or “Off”, and press the [ENC] control

When “On” is selected, an IP address is assigned to this unit automatically. Select “Off” when you wish to manually configure the IP address, subnet mask, default gateway, primary DNS server, and secondary DNS server of this unit.
The DHCP setting is now configured and the display returns to the menu screen.

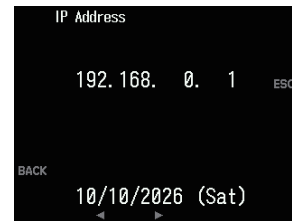


SETTING THE IP ADDRESS

Configure “DHCP” to “Off”, then:

1 Access Menu No. 701

A configuration screen is displayed.



2 Enter the IP address

3 Press [ENC] control

The IP address is now configured and the display returns to the menu screen.

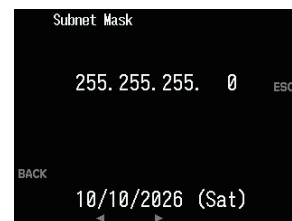
Configuring Subnet Mask

Configure the subnet mask of this unit.

Configure “DHCP” to “Off”, then:

1 Access Menu No. 702

A configuration screen is displayed.



2 Enter the subnet mask

3 Press [ENC] control

The subnet mask is now configured and the display returns to the menu screen.

Configuring Default Gateway

Configure the default gateway address.

Configure “DHCP” to “Off”, then:

1 Access Menu No. 703

A configuration screen is displayed.



2 Enter the default gateway address

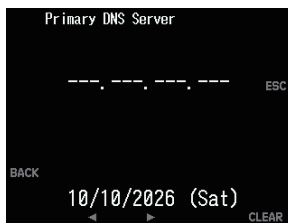
3 Press [ENC] control

The default gateway is now configured and the display returns to the menu screen.

Configuring the Primary DNS Server

Below are the steps to configure the address of the primary DNS server. Configure "DHCP" to "Off", then:

- 1 Access Menu No. 704
A configuration screen is displayed.



- 2 Enter the address of the primary DNS server
- 3 Press [ENC] control
The primary DNS server is now configured and the menu screen reappears.

Configuring the Secondary DNS Server

Below are the steps to configure the address of the secondary DNS server. Configure "DHCP" to "Off", then:

- 1 Access Menu No. 705
A configuration screen is displayed.



- 2 Enter the address of the secondary DNS server
- 3 Press [ENC] control
The secondary DNS server is now configured and the menu screen reappears.

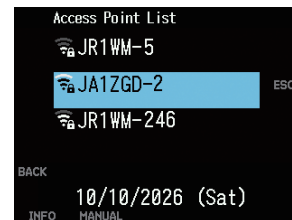
ACCESS POINT CONNECTION

Connect to a WLAN access point.

Connecting to an Access Point

Configure "DHCP" to "On", then:

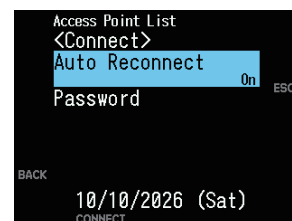
- 1 Access Menu No. 711
An access point list is displayed.



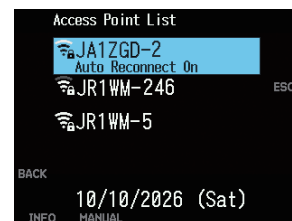
The detected access points are displayed. The signal strength of the access point can be confirmed with the wireless LAN icon < ̶ >. The status of access points is displayed as follows:

- Access point currently being connected to: "Connecting..."
- Connected access point: "Connected"
- Access point that has previously been connected to (currently disconnected) with Auto Reconnect enabled: "Auto Reconnect On"
- Access point that has previously been connected to (currently disconnected) with Auto Reconnect disabled: "Auto Reconnect Off"

- 2 Use the [ENC] control to select an access point, then press the [ENC] control
An Auto Reconnect and password configuration screen is displayed.



- 3 Press [CONNECT]
Connects to the selected access point.



- 4 Press [ESC]
The display returns to the frequency screen.

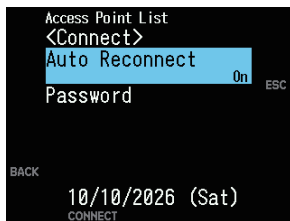


◆ If the connection is successful, the SSID, security type, password, and Auto Reconnect setting will be backed up.

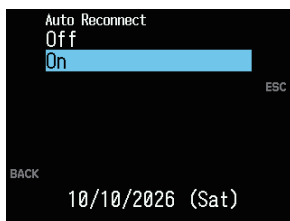
Configuring Auto Reconnect

Configure whether to automatically reconnect to the access point selected in the access point list after it becomes disconnected.

- 1 On the Auto Reconnect and password configuration screen, select "Auto Reconnect" and press the [ENC] control



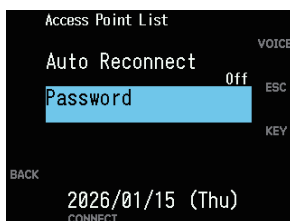
- 2 Select "On" or "Off", and press the [ENC] control
The Auto Reconnect setting is applied, and the display returns to the previous screen.



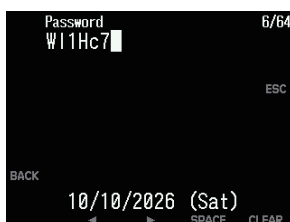
Entering the Password

Enter the connection password for the access point selected in the access point list.

- 1 On the Auto Reconnect and password configuration screen, select "Password" and press the [ENC] control
A configuration screen is displayed.



- 2 Enter the password

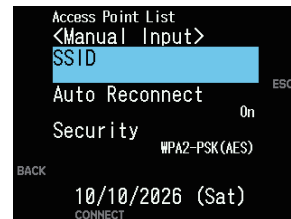


- 3 Press [ENC] control
The password is now configured and the display returns to the previous screen.

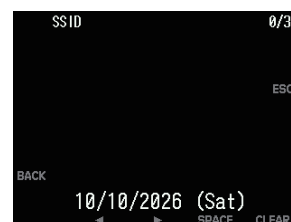
Connecting by Entering an SSID

Connect by entering the SSID of an access point.

- 1 On the access point list screen, press [MANUAL]
An SSID specification screen is displayed.



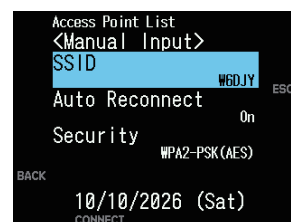
- 2 Use the [ENC] control to select "SSID", then press the [ENC] control
The SSID input screen is displayed.



- 3 Enter the SSID



- 4 Press [ENC] control
The SSID is now configured and the display returns to the previous screen.
- 5 Press [CONNECT]
This unit connects to the access point with the configured SSID.



- 6 Press [ESC]
The display returns to the frequency screen.

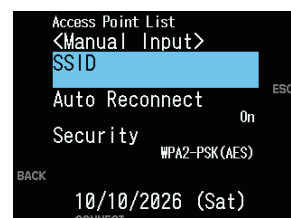


◆ If the connection is successful, the SSID, security type, password, and Auto Reconnect setting will be backed up.

Configuring the Security Type

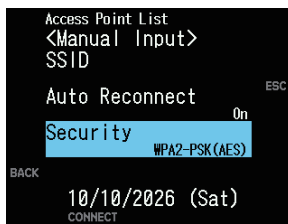
Configure the security type of the access point.

- 1 On the access point list screen, press [MANUAL]
An SSID specification screen is displayed.



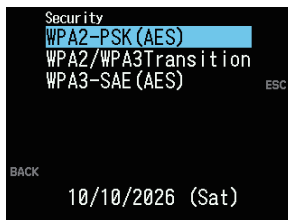
- 2 Use the [ENC] control to select “Security”, then press the [ENC] control

The security setting screen appears.



- 3 Use the [ENC] control to select a security type, then press the [ENC] control

Make a selection from “WPA2-PSK(AES)”, “WPA2”, “WPA3Transition”, and “WPA3-SAE(AES)”.



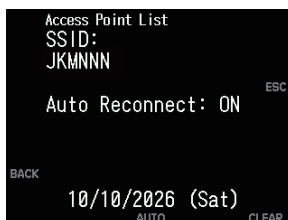
- 4 Press [ESC]

The display returns to the frequency screen.

Access Point Operations (Displaying Information, Disconnecting, etc.)

You can display and view the access point information (SSID and Auto Reconnect settings). Also, you can perform operations such as disconnecting from or deleting the selected access point.

- 1 On the access point list screen, select the access point whose information you want to view, then press [INFO]
The access point information screen is displayed.



You can perform the following operations on the access point information screen.

Key	Operation
[DISCONNECT]	If this unit is currently connected to the selected access point, pressing this key disconnects from it.
[AUTO]	Displays the Auto Reconnect configuration screen for configuring the Auto Reconnect setting.
[CLEAR]	Displays the access point clear confirmation screen. The selected access point is cleared by pressing [OK].

- 2 Press [ESC]

The display returns to the frequency screen.

About the USB Function

This unit operates as a USB device that supports the following device classes:

- CDC: Communication Device Class
- UAC 1.0: USB Audio Class 1.0
- MSC: Mass Storage Class



- ◆ This unit does not support connection to a PC via a USB hub. Use a commercially available cable that supports data transfer to connect this unit directly to a USB port on the PC.

Connecting with a PC

By connecting this unit to a PC, you can use the MCP-D750 Memory Control Program to configure various settings or access the microSD memory card inserted in the unit from the PC.

When connecting this unit to a PC, a virtual COM port driver needs to be installed on the PC.

Please download the MCP-D750 Memory Control Program and the virtual COM port driver from the URL below.

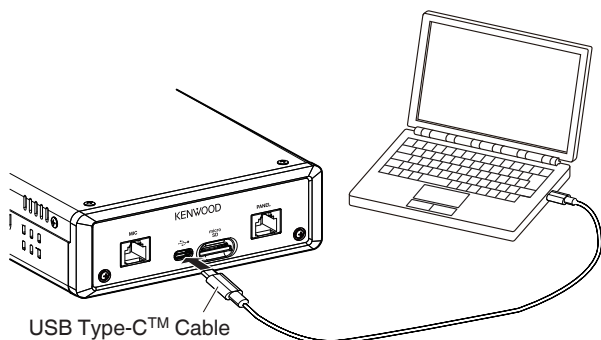
<https://www.kenwood.com/jp/cs/com/vup/>
(The URL is subject to change.)



- ◆ Do not connect the unit to a PC using a USB cable until installation of the virtual COM port driver downloaded from the above URL has been completed. If the unit is connected to a PC before the virtual COM port driver is installed, an incorrect driver that does not support this unit may be installed, which could prevent normal communication with the PC. To prevent an incorrect driver from being installed, ensure that installation of the virtual COM port driver is complete before connecting the unit to a PC.

Connecting to a PC

This unit can be connected to a PC by using a commercially available USB (USB Type-C™) cable that supports data transfer.



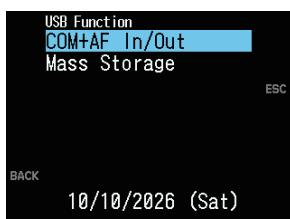
- ◆ This unit cannot be connected to a PC COM port.
- ◆ Regardless of the PC baud rate setting, the transfer rate (baud rate) between this unit and a PC operates at up to 12 Mbps via USB and up to 128 kbps Bluetooth.

Operation Settings When Connected to a PC

You can select whether the transceiver operates as a USB Type-C™ Connector and audio device or operates as a mass storage class device when it is connected with a PC. The default setting is [COM+AF In/Out].

1 Access Menu No. 980

The USB operation function selection screen appears.



2 Select "COM+AF In/Out" or "Mass Storage"

"COM+AF In/Out" : Operates as a virtual COM port for serial data communication. It also handles AF signal input/output via USB audio.

When connected to the USB connector on the operation panel, it operates only as a virtual COM port for serial data communication, and USB audio input/output is not available.

"Mass Storage" : Enters Mass Storage mode, allowing a PC to access the microSD memory card inserted in this unit. The microSD memory card is displayed as a removable disk on the PC.

- Activating Mass Storage mode will unmount the microSD memory card inserted in the transceiver. GPS logs and received audios cannot be recorded. Exit Mass Storage mode and remount the microSD memory card.
- When "Mass Storage" is selected and this unit is connected to a PC, "Mass Storage Mode" is displayed.

Mass Storage Mode

To exit mass storage mode, please execute the "safe removal" on PC and disconnect the USB cable.

10/10/2026 (Sat)

Disconnecting from a PC

Below are the steps to remove the unit when it is configured to Mass Storage mode. When configured to [COM+AF In/Out], the USB cable can be disconnected at any time.

- 1 Perform the "Safely Remove Hardware" procedure on the PC
- 2 Unplug the USB cable



- ◆ To start Mass Storage mode, make sure that a microSD card is inserted into this unit.
- ◆ When Mass Storage mode starts, recording stops.
- ◆ While in the Mass Storage mode, GPS track log recording is temporarily paused. It resumes upon exiting Mass Storage mode.
- ◆ Transmission and reception are not possible while in the Mass Storage mode. Operations other than turning the power off cannot be performed.



- ◆ The Mass Storage mode of this unit does not support microSD memory cards not formatted by this unit. It also does not support access from PCs using operating systems other than Windows.

Configuring USB Audio Output Level

Configure the signal level used when outputting signals received by this unit to a PC.

1 Access Menu No. 913

Configure the level to a value between "1" and "7"



Configuring USB Audio Input/Output Method

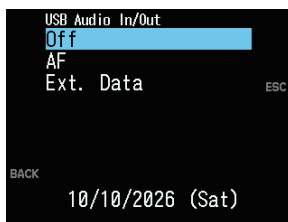
Below are the steps to configure the USB audio input/output method. Make a selection from "AF", "Ext. Data" and "Off".

1 Access Menu No. 981

"AF" : Mixes audio received from Band A and Band B and outputs it via USB audio.

"Ext. Data" : Inputs/outputs USB audio via the external data band.

"Off" : Does not input/output USB audio.



◆ Decoding ACARS system communications requires separate software. Customers are responsible for the selection, introduction and use of such software. We do not provide support related to PCs, including the method of connection with a PC.

22 Bluetooth®

If you have a commercially available Bluetooth-compatible headset, you can connect it to this unit and communicate wirelessly. For example, this unit can be used as the main device and the commercially available headset as the sub device for a wireless connection. This unit supports the following profiles:

- **HSP (Headset Profile):** A profile used to communicate with a headset.
- **SPP (Serial Port Profile):** A profile used to establish a virtual serial port with devices such as a PC and connect them.



- ◆ A profile is a Bluetooth connection protocol.
- ◆ When purchasing a commercially available headset or similar device for this purpose, make sure it supports Bluetooth.



- ◆ In Bluetooth communications, the communication range can vary significantly depending on the influence of nearby devices. Interference from devices such as microwave ovens and WLAN may affect communications. If this occurs, stop other wireless communications, discontinue the use of microwave ovens or similar equipment, or increase the distance from nearby devices. Moving the Bluetooth device and this unit as close together as possible may also improve communication conditions.

TURNING ON/ OFF THE Bluetooth FUNCTION

Turning On/ Off the Bluetooth Function

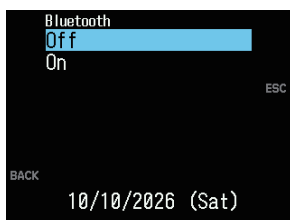
You can turn on/off the Bluetooth function.

1 Access Menu No. 930

When the Bluetooth function is turned On, <  > appears on the display.

“Off” : Turns off the Bluetooth function.

“On” : Turns on the Bluetooth function.



Connecting to a Headset (Pairing)

When connecting to a Bluetooth-compatible device, you first need to perform pairing. Pairing is a function that registers a device to be connected in order to establish a Bluetooth connection.

This section explains how to establish a Bluetooth connection using a commercially available headset as an example.



- ◆ When purchasing a commercially available headset or similar device for connection with this unit via Bluetooth, make sure it supports Bluetooth. Also, please read through the instruction manual for the device carefully.
- ◆ Connection may not be possible depending on the device specifications and settings. We do not guarantee wireless communication with all Bluetooth devices.
- ◆ The audio bandwidth supported by HSP (Headset Profile) is 4 kHz or less. If the RX audio contains signal components at 4 kHz or higher, such as FM radio broadcasts, the sound quality may differ from that heard through the speaker or earphones.

- 1 Access Menu No. 930 and turn on the Bluetooth function
- 2 Place the headset (device to be connected) close to this unit
As a guideline, keep it within a distance of approximately 1 m.
- 3 Put the headset (the device to be connected) into pairing mode (Bluetooth connection standby mode)
For information on how to enter pairing mode, please refer to the instruction manual for the headset (the device to be connected).

4 Access Menu No. 932

A device search starts, and detected devices are added to the Bluetooth device search list.



5 Select the device to connect

If you want to connect to the selected device, proceed to step 6.

If you select the device to connect and press [INFO], the Bluetooth device information screen appears. You can view the name, address and class of the device to be connected.



6 Press [CONNECT]

The “Connecting . . .” screen appears.

7 Perform the connection operation on the headset

The steps for connection varies depending on the headset. For details, please refer to the instruction manual for the headset being connected.

When the headset connection is completed, <“Connected Bluetooth Device”> appears at the top of the display.

After that, the Bluetooth icon <  > appears on the display.



- ◆ The volume of the headset connected to this unit via Bluetooth cannot be adjusted using the [VOL] control of this unit. Adjust the volume on the headset.
- ◆ This unit does not support PTT control from Bluetooth headsets other than the KHS-56BT. Use the [PTT] key of the microphone or the VOX function for transmission.

Entering the PIN Code

Depending on the device to be connected, input of a PIN code may be requested when searching for devices.

1 If a PIN code is requested

The PIN code input screen appears. Carefully read through the instruction manual of the device to be connected, followed by entering the PIN code and pressing [OK].

If you press [INFO] when the PIN code input screen is displayed, the Bluetooth device information screen appears. You can view the name, address and class of the device to be connected.



- ◆ The PIN code varies depending on the device to be connected. Please refer to the instruction manual of the purchased Bluetooth device and enter the correct PIN code.

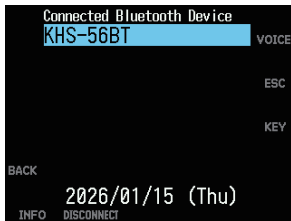
Disconnecting from a Bluetooth Device

Follow the steps below to disconnect a connected Bluetooth device and stop communication.

1 Access Menu No. 933

2 Select the device you want to disconnect

When disconnecting the device that is already selected, move to step 3. If you press [INFO], the Bluetooth device information screen appears. If you select the device to be disconnected and press [INFO], the Bluetooth device information screen appears. You can view the name, address and class of the device to be disconnected. Pressing [BACK] returns to the previous screen.



3 Press [DISCONNECT]

The disconnection process starts. If the disconnection process takes longer than 30 seconds, a "Bluetooth device disconnection failed" screen is displayed. When this occurs, press [ESC] to return to the frequency screen. Repeat the procedure from Step 1.



- ◆ To disconnect the PC from this unit, perform the disconnection operation on the PC.

CONNECTING BY THE PAIRED DEVICE LIST

Once a device has been paired, it is registered in the device list as a paired device. Select a device from the paired device list and connect to it.

1 Access Menu No. 931

The device list screen appears. If no devices have been paired, "No device is found" is displayed. Refer to "Connecting with a Headset (Pairing)" and pair a device.

2 Select the device to connect

If you want to connect to the selected device, proceed to step 6.

If you select the device to connect and press [INFO], the Bluetooth device information screen appears. You can view the name, address and class of the device to be connected.



3 Press [CONNECT]

The "Connecting. . ." screen appears.

4 Perform the connection operation on the headset

When the headset is connected, < [i] > appears on the display.

The steps for connection varies depending on the headset. For details, please refer to the instruction manual for the headset being connected.

Deleting a Device from the Device List

Follow the steps below to delete a paired device from the device list.

1 Access Menu No. 931

The device list screen appears.



2 Press [CLEAR]

A device deletion confirmation screen is displayed.



3 Press [OK]

The selected device is deleted, and the display returns to the device list screen.



- ◆ The default setting for "Bluetooth Auto Connect" (p. 126) is [On]. If the power of the transceiver is turned On, the transceiver will be automatically connected to the Bluetooth device that was connected previously.

Connecting to a PC via Bluetooth

This unit can be connected wirelessly to a PC without Bluetooth capability by connecting a Bluetooth-compatible USB adapter to the PC. The following is an example of a connection to a PC that is connected with a commercially available Bluetooth-compatible adapter.

A Bluetooth-compatible adapter is an adapter that enables a PC without built-in Bluetooth capability to connect wirelessly to Bluetooth-compatible devices such as headphones.



- ◆ For information on how to connect the Bluetooth-compatible adapter to your PC, please read through the instruction manual of the purchased device carefully.

■ Putting This Unit into Pairing Mode

This function allows the PC to search for this unit.

1 Access Menu No. 934

The Pairing Mode screen appears.

A countdown starts from 60 seconds. When 60 seconds have elapsed, this unit stops responding to the device search request and returns to the menu screen. The countdown continues until pairing is completed.



2 Perform the pairing procedure from the PC



- ◆ For information on operating procedures on the PC, please refer to the instruction manual for the Bluetooth-enabled PC or the Bluetooth USB adapter product.

When pairing is performed on the PC, a passkey is displayed on both the PC and this unit. Confirm the passkey on the PC, and then press [OK] on this unit. The "pairing completed" screen appears, and pairing is completed.



3 Press [ESC]

The display returns to the frequency screen.



- ◆ When pairing with the PC is completed, multiple COM ports may appear on the PC depending on the Bluetooth-enabled PC or the Bluetooth USB adapter being used. In such cases, only one COM port can be used. Use the MCP-D750 Memory Control Program to select the COM port that enables proper communication.
- ◆ If you are using a PC or USB adapter that supports Bluetooth V2.0 or earlier, a passkey will not be displayed. Instead, a PIN code input screen will appear on the PC. In this case, enter "0000".
- ◆ Regardless of the PC baud rate setting, the transfer rate (baud rate) between this unit and a PC operates at up to 12 Mbps via USB and up to 128 kbps Bluetooth.

Bluetooth Device Information

You can view the Bluetooth device name, device address and device class for this unit. The Bluetooth device name (up to 19 single-byte characters) can be changed.

■ Changing the Device Name

1 Access Menu No. 935

The Bluetooth device information screen appears.



2 Press [EDIT]

The text input mode is activated.



3 Enter the characters



4 Press [ENC] control

The device name is now changed.



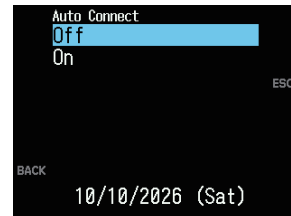
Bluetooth Auto Connect

Bluetooth Auto Connect is a function that automatically connects to the previously used headset (Bluetooth device) when the power of this unit is turned on.

1 Access Menu No. 936

"On" : Turns on the Auto Connect function.

"Off" : Turns off the Auto Connect function.



- ◆ This function does not support automatic connection with a PC.

23 microSD Memory Card

Supported microSD Memory Cards



- ◆ A microSD memory card or microSDHC memory card is not supplied with this product. Please purchase one separately.
- ◆ This product does not support microSDXC memory cards.

The following table shows the microSD memory card and microSDHC memory card for which JVCKENWOOD has verified operation (as of July, 2026): In this manual, microSD memory cards and microSDHC memory cards are referred to as microSD memory cards.

microSD memory card	2 GB
microSDHC memory card	4 GB
	8 GB
	16 GB
	32 GB

- We do not guarantee operation of all microSD memory cards listed in the table.
- We cannot guarantee operation of microSD memory cards that have been formatted on devices other than this unit.
- The larger the capacity of the microSD memory card in use, the longer it will take before the card is ready to be read from or written to correctly.
- Please note that if you remove a microSD memory card without performing the steps on this unit to safely remove (unmount) it, the data inside the microSD memory card may be corrupted or deleted.



- ◆ For precautions regarding microSD memory cards, also read the instruction manual supplied with the card.
- ◆ The file system is FAT32.
- ◆ The maximum number of files in the QSO_LOG folder is 4,000. The maximum number of files in any other folder is 255.

Data That Can Be Saved to a microSD Memory Card

The types of data that can be saved are as follows:

■ Configuration Data

Allows you to save data such as the memory data, Callsign list, hotspot list and repeater list registered to the transceiver.

■ Audio Recording Data

Allows you to save audio recording data containing the contents of communications (voice) with other stations.

- To play back received and transmitted audio recordings, insert a microSD memory card into the main unit.

■ Monitor Data

Allows you to save APRS packet monitor data.

■ Communication History

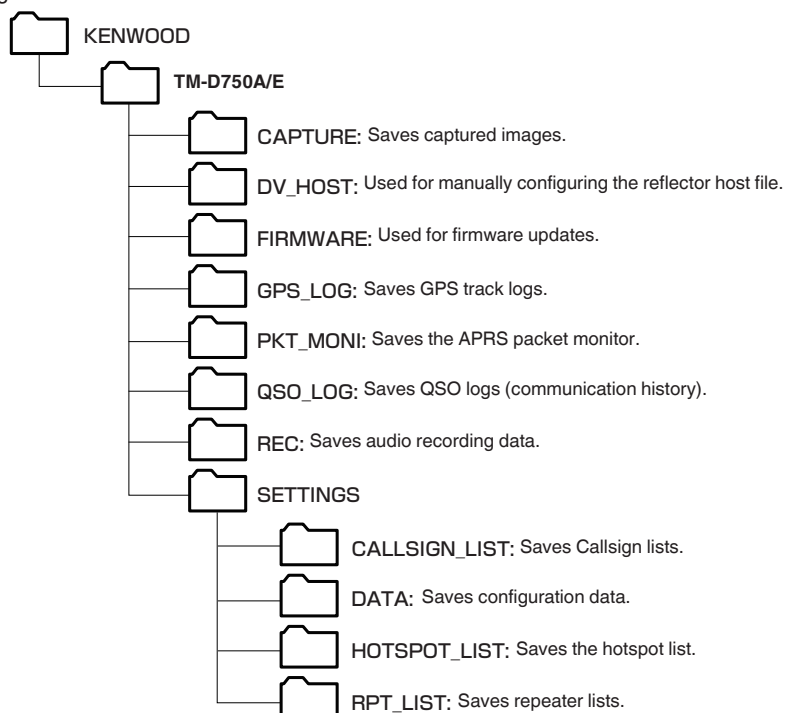
Allows you to save communication history information to a log file.

■ GPS Position Information

Allows you to save position data received via GPS as a track log file.

Folder Structure of the microSD Memory Card

When a microSD memory card is mounted in this unit, the following folders are created automatically. The folder structure of the microSD memory card is shown in the diagram below.



About the microSD Memory Card Slot

The microSD memory card slots are located on the front of the transceiver unit and on the side of the operation panel.

INSERTING/ REMOVING A microSD MEMORY CARD

Installing (Mounting) a microSD Memory Card

- 1 Turn off the power of this unit
- 2 Insert the microSD memory card into microSD memory card slot

Transceiver

Insert the microSD memory card with its contacts facing down. Insert the microSD memory card until you hear it lock into place with a click. The transceiver automatically recognizes the microSD memory card and <SD> (blue) blinks on the display. It turns to a steady light when the card enters the readable/writable state correctly.

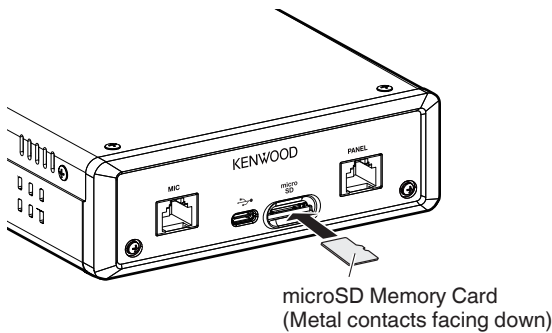
Operation Panel

Insert the microSD memory card with its contacts facing forward. The transceiver automatically recognizes the microSD memory card and <SD> (green) blinks on the display. It turns to a steady light when the card enters the readable/writable state correctly.

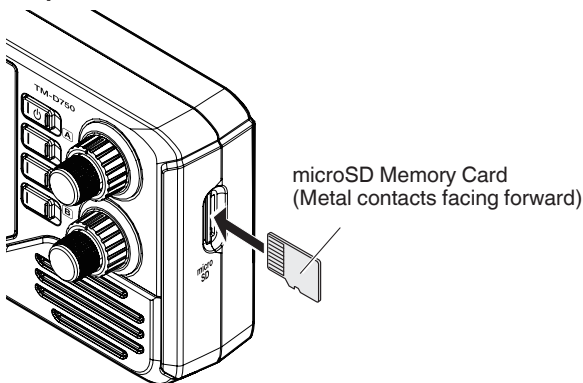


- ◆ Do not touch the contacts of the microSD memory card when inserting it.
- ◆ Do not remove the microSD memory card while data is being written to or read from the card. Doing so may cause the data on the microSD memory card to be corrupted or deleted.

Transceiver



Operation Panel



- ◆ Do not insert the microSD memory card backwards or force it into the slot. Doing so may damage the card or the slot.

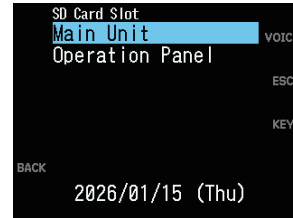
Selecting the microSD Memory Card Slot

Select the microSD memory card slot to use when saving the different types of data to files or loading saved files into this unit.

1 Access Menu No. 850

Make a selection from "Main Unit" and "Operation Panel".

- "Main Unit" : Uses the microSD memory card slot on the main unit.
- "Operation Panel" : Uses the microSD memory card slot on the operation panel.



Removing (Unmounting) a microSD Memory Card

When removing a microSD memory card, always follow the procedure below to ensure safe removal.



- ◆ Removing the microSD memory card without performing the unmount operation may cause data corruption.

1 Access the menu

Transceiver

Access Menu No. 820.

Operation Panel

Access Menu No. 821.

The microSD memory card unmount operation is performed. When unmounting is complete, a completion confirmation screen is displayed.

2 Press [ESC]

Unmounting is complete, and the display returns to the frequency screen.

3 Remove the microSD memory card

To remove the card, press it in until the lock releases with a "click" sound, then pull out the microSD memory card.

FORMATTING A microSD MEMORY CARD

When using a new microSD memory card, initialize (format) the microSD memory card using the procedure below. Formatting deletes all data inside the microSD memory card.

1 Insert the microSD memory card

2 Turn on the power

3 Access the menu

Transceiver

Access Menu No. 830.

Operation Panel

Access Menu No. 831.

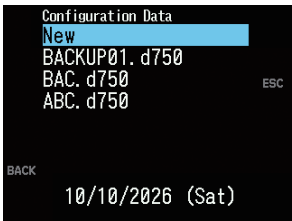
A format confirmation screen is displayed.



- 4 Press [OK]
Formatting starts. When formatting is complete, a completion screen is displayed.
- 5 Press [ESC]
Formatting is complete, and the display returns to the frequency screen.

Saving Settings Data to a microSD Memory Card (Export)

Saving Configuration Data

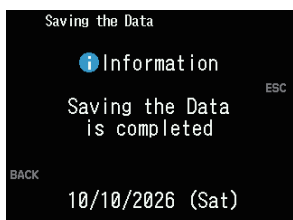
- 1 Access Menu No. 800
The file selection screen appears.
- 
- 2 Select "New" or the name of an existing file, and press the [ENC] control
The file name input screen appears.
If you select the file name of an existing file, the file name input screen does not appear and the data is overwritten.



- 3 Enter the file name



- 4 Press [ENC] control
The file name is set, and saving starts. When saving is completed, the "data writing completed" screen appears.



- 5 Press [ESC] to return to the frequency screen

Saving Configuration Data + Voice Messages

- 1 Access Menu No. 801
The file selection screen appears.
- 
- 2 Select "New" or the name of an existing file, and press the [ENC] control
The file name input screen appears.
If you select the file name of an existing file, the file name input screen does not appear and the data is overwritten.
- 
- 3 Enter the file name
- 
- 4 Press [ENC] control
The file name is set, and saving starts. When saving is completed, the "data writing completed" screen appears.
- 
- 5 Press [ESC] to return to the frequency screen



◆ This function cannot be executed if no voice message is recorded.

Saving Repeater List Only

- 1 Access Menu No. 802
The file selection screen appears.



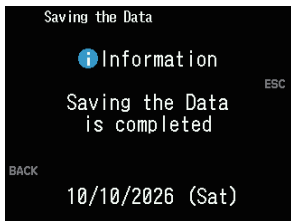
- Select "New" or the name of an existing file, and press the [ENC] control
The file name input screen appears.



- Enter the file name



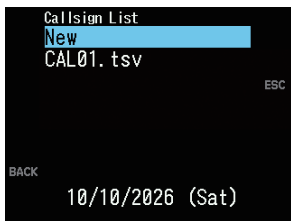
- Press [ENC] control
The file name is set, and saving starts. When saving is completed, the "data writing completed" screen appears.



- Press [ESC] to return to the frequency screen

Saving Callsign List Only

- Access Menu No. 803
The file selection screen appears.



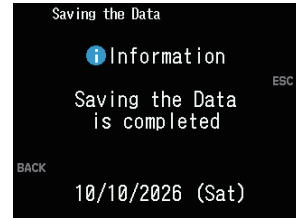
- Select "New" or the name of an existing file, and press the [ENC] control
The file name input screen appears.
If you select the file name of an existing file, the file name input screen does not appear and the data is overwritten.



- Enter the file name



- Press [ENC] control
The file name is set, and saving starts. When saving is completed, the "data writing completed" screen appears.



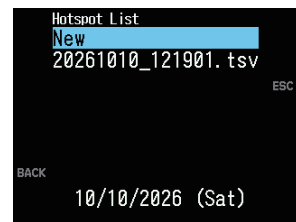
- Press [ESC] to return to the frequency screen



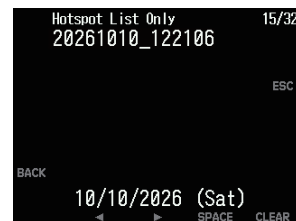
- ◆ The menu cannot be called up when no microSD memory card is inserted into this unit.
- ◆ Only the first 19 characters of a file name are displayed on the file list screen.

Saving the Hotspot List Data

- Access Menu No. 804
The file selection screen appears.



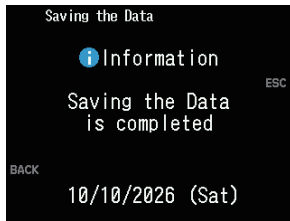
- Select "New" or the name of an existing file, and press the [ENC] control
The file name input screen appears.



- Enter the file name



- Press [ENC] control
The file name is set, and saving starts. When saving is completed, the "data writing completed" screen appears.



- Press [ESC] to return to the frequency screen

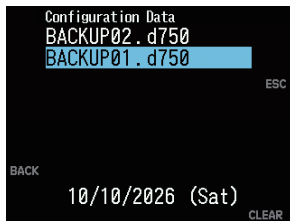
Loading Data Saved on a microSD Memory Card into This Unit (Import)



◆ We cannot guarantee operation if you load a file that is downloaded from websites other than our company's website or one that is created using applications other than a PC application.

Loading Configuration Data

- Access Menu No. 810
A configuration data list is displayed.



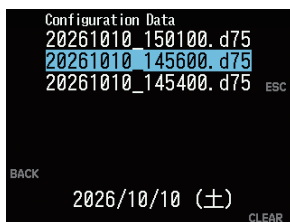
- Select the file you want to load, and press the [ENC] control
Loading starts.



- Press [OK] to restart this unit

Loading Configuration Data + Voice Messages

- Access Menu No. 811
A configuration data list is displayed.



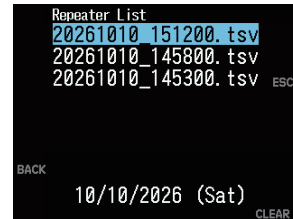
- Select the file you want to load, and press the [ENC] control
Loading starts.



- Press [OK] to restart this unit

Loading the Repeater List

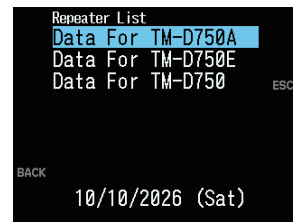
- Access Menu No. 812
The repeater list is displayed.



- Select "Data For TH-D75A", "Data For TH-D75E" or "Data For TH-D75", and press the [ENC] control
The region of the data to be imported is displayed.

When using this unit in Japan, be sure to select "Data For TH-D75". Please take note that only some repeaters in Japan will be imported if you select "Data For TH-D75A" or "Data For TH-D75E".

- Data For TH-D75A** : This repeater list is primarily for use in the North American region.
- Data For TH-D75E** : This repeater list is primarily for use in the European region.
- Data For TH-D75** : This repeater list is primarily for use within Japan.



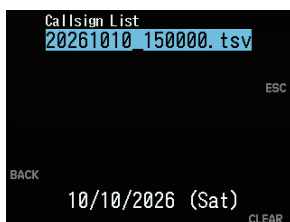
- Select a region and press the [ENC] control
Loading of the repeater list starts. When loading is completed, the "data loading completed" screen appears.
- Press [OK] to restart this unit

Loading the Callsign List



- ◆ When the Callsign list is loaded, the transmission history and reception history are automatically initialized.

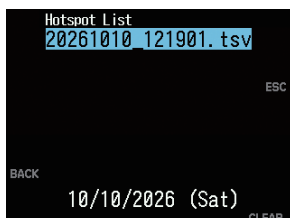
- 1 Access Menu No. 813
The Callsign List is displayed.



- 2 Select the file you want to load, and press the [ENC] control
Loading of the Callsign list starts. When loading is completed, the "data loading completed" screen appears.
- 3 Press [OK] to restart this unit

Callsign list only

- 1 Access Menu No. 814
The hotspot list appears.



- 2 Select the file you want to load, and press the [ENC] control
Loading of the hotspot list starts. When loading is completed, the "data loading completed" screen appears.
- 3 Press [OK] to restart this unit

Deleting a File

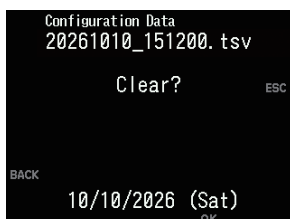
Follow the steps below to delete the configuration files stored in the microSD memory card.

- 1 Access Menu No. 810, 811, 812 or 813
The different data lists are displayed.

Config Data : Menu No. 810
19-4-1 : Menu No. 811
Repeater List : Menu No. 812
Callsign List : Menu No. 813



- 2 Select the file you want to delete, and press the [CLEAR] control
A file deletion confirmation screen is displayed.



- 3 Press [OK]

The file is now deleted. After deletion is complete, the display returns to the file list screen.

QSO Log (Communication History)

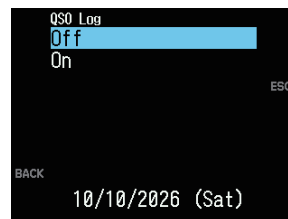
You can record communication history on a microSD memory card.

- 1 Access Menu No. 170

Select "On"

"On" : Records communication history.

"Off" : Does not record communication history.



Recorded files are named as follows:

- YYYYMMDD_HHMMSS.tsv

Example: 20260330_125303.tsv

(Communication history from March 30, 2026, 12:53:03)

The items that can be recorded in the communication history are listed in the table below.

Communication History Item	Description
TX/RX	Transmission/reception
Date	Date and time (YYYY/MM/DD HH:MM)
Frequency	Frequency (xxx.xxx.xxx)
Mode	DV/ FM/ NFM
My Latitude	Latitude of your station at the time of transmission/reception (yy yy yy {N/S})
My Longitude	Longitude of your station at the time of transmission/reception (yy yy yy {E/W})
My Altitude	Altitude of your station at the time of transmission/reception
RF Power	RF output (S-LOW/ LOW1/ LOW2/ MID/ HIGH)
S Meter	RX signal level
Caller	My Callsign
Memo	Memo
Called	Destination Callsign
RPT1	Access repeater Callsign
RPT2	Destination repeater Callsign
Message	Message addressed to your station
Repeater Control	Unable to repeat / No response / ACK / Retransmit request / Repeater control / Auto response
BK	Break Call
EMR	Emergency communication
Fast Data	0:Normal Data/ 1:Fast Data
Latitude	Latitude of the other station
Longitude	Longitude of the other station
Altitude	Altitude of the other station
Course	Course of the other station
Speed	Speed of the other station



- ◆ The save format is TSV (tab-delimited text) format.
- ◆ If a file with the same name already exists, "(n)" is added to the end of the file name when saving.
- ◆ Communication histories with the same date are saved to a single log file. When the date changes, pressing [PTT] creates a new file and starts recording.
- ◆ The maximum number of communication history files that can be saved is 4,000.
- ◆ As the number of saved communication history files increases, mounting the microSD memory card when the power is turned ON and unmounting when the power is turned OFF may take a longer time to complete. In such cases, delete the communication history files in the QSO_LOG folder from a PC using Mass Storage mode.
- ◆ Communication histories cannot be displayed on the main transceiver unit.
- ◆ The maximum file size that can be saved in a single recording session is 2 GB. When the file size exceeds 2 GB, the data is saved as a separate file.
- ◆ Position information is recorded only when it has been successfully acquired.
- ◆ APRS history is not recorded.

Displaying microSD Memory Card Information

1 Access the menu

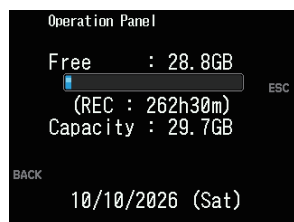
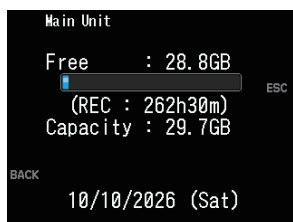
Transceiver

Access Menu No. 840.

Operation Panel

Access Menu No. 841.

The microSD memory card information screen appears. Pressing [BACK] returns to the previous screen.



Configuring the Memory Card Slot to Use

Select the SD card slot to use when saving data to a file or loading data files.

1 Access Menu No. 850

"Main Unit" : Uses the microSD card slot on the transceiver unit.

"Operation Panel" : Uses the microSD card slot on the operation panel.



- ◆ When saving or playing back received and transmitted audio recording files, the microSD card slot on the transceiver unit is used regardless of the setting. Insert a microSD card into the microSD card slot on the transceiver unit.
- ◆ When saving screen captures, the microSD card slot on the operation panel is used regardless of the setting. Insert a microSD card into the microSD card slot on the operation panel.

24 Recording Function

About the Recording Function

This unit can record the contents of communications on a microSD memory card.

- Both RX audio and TX audio are recorded. If the squelch is closed during reception, audio recording is temporarily paused.
- RX audio is recorded from the RX audio of the band selected for recording in the menu.
- Up to approximately 18 hours (2 GB) can be recorded in a single file. When the recording file exceeds 2 GB, recording continues in a new file.
- Audio files are recorded in the WAV format.
 - Bit depth : 16 bit
 - Sampling frequency : 16 kHz
 - Number of channels : 1 (monaural)
- If the Auto Power Off (APO) timer expires while audio recording is in progress, recording stops and the power is turned off.
- Audio recording can only be started when a microSD memory card is inserted in the main unit.



- ◆ A microSD memory card is required to use the recording function.
- ◆ A microSD memory card or microSDHC memory card is not supplied with this product. Please purchase one separately.

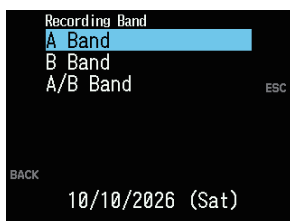
RECORDING AUDIO FILES

Selecting the Band to Record

Select whether to record communication audio from the A Band or the B Band.

1 Access Menu No. 302

- "A Band" : Records audio from the A Band.
- "B Band" : Records audio from the B Band.
- "A/B Band" : Records audio from both the A Band and B Band simultaneously into a single file.



- ◆ If the setting is changed while recording is in progress, recording will stop automatically. Recording switches to the other band, and recording to a new file starts.

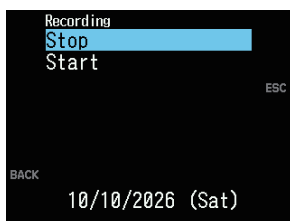
Recording Communication Audio

Turn the recording function on and start recording. If the squelch on the selected recording band is closed, recording starts when the squelch opens.

After inserting a microSD memory card into the main unit:

1 Access Menu No. 301

- "Stop" : Stops recording.
- "Start" : Starts recording.



- ◆ If there is insufficient free space on the microSD memory card when recording starts, or if the card runs out of free space during recording, an insufficient microSD memory card space screen appears. Replace the card with another microSD memory card.

OPERATION OF THE AUDIO FILE

Playing Audio Files

1 Access Menu No. 300

The audio files folder list appears.

2 Select a folder and press the [ENC] control

The recording file list appears. Recorded audio files can be played and cleared.

3 Select the file you want to play, and press the [ENC] control

Playback starts. After playback ends, the display returns to the audio file list menu.



- ◆ The audio file list cannot be displayed while the recording function (Menu No. 301) is On.
- ◆ If there is an error in the audio file format, an error screen is displayed and the file cannot be played back. Check the format of the audio file.

Key Operations during Audio File Playback

Key	Operation
[PAUSE]	Pauses playback. Pressing it again resumes playback.
[ESC]	Stops playback and returns to the frequency screen.
[REW]	Pressing and holding starts fast reverse playback. Releasing it resumes normal playback.
[FF]	Pressing and holding starts fast forward playback. Releasing it resumes normal playback.
[ENC] control	Turning the control switches the file to be played.

Deleting Audio Files

- 1 Access Menu No. 300
The audio files folder list appears.
- 2 Select the folder or file in the folder you want to erase
If a folder is selected, all files in the folder and the folder itself will be deleted.
- 3 Press [CLEAR]
The audio files folder or audio file deletion confirmation screen appears.



- 4 Press [OK]
The files are erased and the audio files folder or audio file list menu reappears.

Configuring the Audio File Split Method

- 1 Access Menu No. 303
Make a selection from "Continuous" and "Split".
"Continuous" : When recording resumes, it continues from the end of the same file. Audio is saved in a single file until recording is stopped or the maximum recording time is reached.
"Split" : A new recording file is created each time there is a switch between transmission and reception, or each time the RX signal is interrupted.



25 Voice Message Memory

About the Voice Message Memory

You can record voice messages to a maximum of four channels and transmit them. This feature is useful for transmitting standard voice messages.

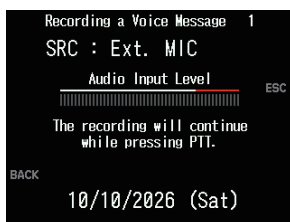


- ◆ Voice messages can also be recorded using an external microphone and a Bluetooth headset.
- ◆ Voice messages are recorded to the internal memory of the main unit. They are not recorded to a microSD memory card.
- ◆ Only Channel 1 can record for up to 30 seconds of audio. Channels 2 through 4 can each record up to 15 seconds.

Recording Voice Messages

You can record audio from a microphone into a voice message memory channel.

- 1 Access Menu No. 310
The voice message list appears.
- 2 Select the channel you want to record
Make a selection from "1" (Ch), "2" (Ch), "3" (Ch) and "4" (Ch).
Recording up to 30 seconds is possible only with channel 1. The maximum duration for all other channels is 15 seconds.
- 3 Press [REC]
The recording standby screen appears.



- 4 Press and hold [PTT], and speak into the microphone at the same time
Recording continues while [PTT] is pressed.
- 5 Release [PTT]
Recording stops, and the voice message is saved.
- 6 Press [BACK]
The display returns to the voice message list menu.



Playing back and Checking the Content of Voice Messages

Below are the steps to play back and check the content of a recorded voice message.

- 1 Access Menu No. 310
The voice message list appears.
- 2 Select the channel you want to play back
Make a selection from "1" (Ch), "2" (Ch), "3" (Ch) and "4" (Ch).

- 3 Press [PLAY]
Playback starts. Pressing [PTT] stops playback and returns to the frequency screen. After playback ends, the display returns to the voice message list menu.



- ◆ Recording starts only when using the microphone [PTT].
- ◆ Playback is output at the volume configured for the transmitting band.

Playing back and Transmitting Voice Messages

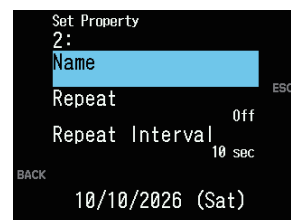
Below are the steps to transmit the details of the recorded voice message channel.

- 1 Access Menu No. 310
The voice message list appears.
- 2 Select the channel you want to play back and transmit
- 3 Press [SEND]
Playback and transmission of the voice message start. Pressing [PTT] stops playback and returns to the frequency screen. After playback and transmission ends, the display returns to the frequency screen.
When "22-1-1" is enabled, the standby screen is displayed after playback transmission ends. A countdown is displayed until transmission starts.

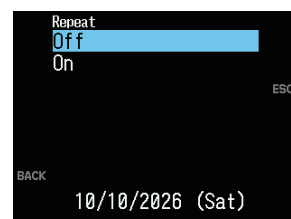
Configuring Repeat Playback

This function repeatedly plays back and transmits a voice message from a single channel. It is useful for repeating a CQ such as during a contest.

- 1 Access Menu No. 310
The voice message list appears.
- 2 Select the channel to configure for repeat playback
- 3 Press [EDIT]
The voice message memory editing screen appears.



- 4 Select "Repeat" and press [ENC] control
- 5 Select "Off" or "On"
"Off" : Turns off the Repeat Playback function.
"On" : Turns on the Repeat Playback function.

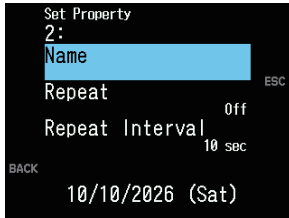


- 6 Press [ENC] control
Repeat playback is now configured.

Configuring Repeat Playback Interval

You can change the repeat playback interval for repeat playback transmission. The default setting is [10 sec].

- 1 Access Menu No. 310
The voice message list appears.
- 2 Select the channel for which you want to change the repeat playback interval
- 3 Press [EDIT]
The voice message memory editing screen appears.



- 4 Select "Repeat Interval" and press [ENC] control

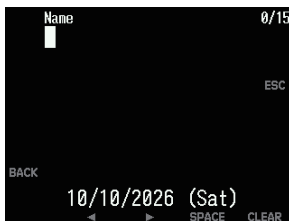


- 5 Select a repeat playback interval
Select a time between 0 and 60 (sec).
- 6 Press [ENC] control
The repeat playback interval is set. The voice message memory editing screen reappears.

Registering a Voice Message Memory Name

This function assigns a name to a voice message memory channel.

- 1 Access Menu No. 310
The voice message list appears.
- 2 Select the channel for which you want to register a memory name
- 3 Press [EDIT]
The voice message memory editing screen appears.
- 4 Select "Name" and press [ENC] control
- 5 Enter the memory name and press the [ENC] control



The memory name is now registered. The voice message memory editing screen reappears.

Erasing Voice Messages

Below are the steps to delete a registered voice message memory channel.

- 1 Access Menu No. 310
The voice message list appears.
- 2 Select the channel you want to delete
- 3 Press [CLEAR]
A voice message deletion confirmation screen is displayed.
- 4 Press [OK]
The voice message is deleted, and the display returns to the voice message list menu.



TX Monitoring of Voice Messages

This function allows you to monitor the voice message that is played back during voice message playback and transmission.

- 1 Access Menu No. 311
- 2 Select "Off" or "On"
 "Off" : Turns off the TX Monitor function.
 "On" : Turns on the TX Monitor function.



26 Voice Guidance

Voice Guidance is a function that reads aloud operating status information, such as the frequency displayed on the screen, memory channel, and function settings.

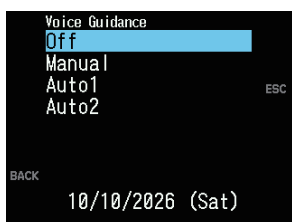
Configuring the Voice Guidance Mode

The default setting is [Off].

1 Access Menu No. 922

Make a selection from "Off", "Manual", "Auto1" and "Auto2"

- "Off" : Turns off the Voice Guidance function.
- "Manual" : Briefly pressing [⏻] announces the current status.
- "Auto1" : Announces status changes resulting from operation and the displayed information.
- "Auto2" : Announces status changes resulting from operation and the displayed information. When announcing a memory channel, if a memory name has been registered, the memory name (only the pronounceable characters) is announced instead of the frequency.



- ◆ Voice Guidance is available in English only. The announcements correspond to the display information when Menu No. 990 is configured to "English".
- ◆ To improve intelligibility, some announcements may differ from the corresponding display information.
- ◆ With the power of this unit turned off, press and hold [CALL] and the [⏻] Power switch simultaneously for approximately 10 seconds. Release both buttons after a "Beep" sounds. The power of this unit turns on with Voice Guidance mode configured to [Auto1].
- ◆ Similarly, if you want to listen to the current announcement again in "Auto1" and "Auto2", briefly press [⏻].
- ◆ RX sound is not output while a Voice Guidance announcement is being played.

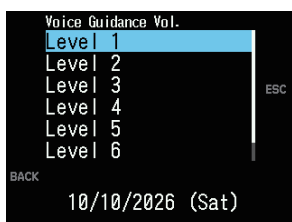
Voice Guidance Volume

This function configures the volume level of Voice Guidance. The default setting is "Level 5".

1 Access Menu No. 923

Make a selection from "Level 1" to "Level 7"

The larger the value, the louder the volume becomes.



Voice Guidance Speed

Follow the steps below to configure the speed of Voice Guidance announcements. The default setting is "Speed 1".

1 Access Menu No. 924

Make a selection from "Speed 1" to "Speed 4"



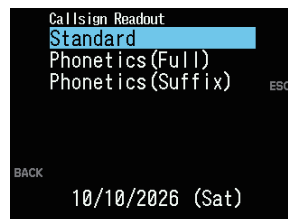
Callsign Readout Method

Follow the steps below to specify how to pronounce the alphabetic characters (A to Z) in the Callsign.

1 Access Menu No. 925

Make a selection from "Medium", "Phonetics (Full)" and "Phonetics (Suffix)"

- "Medium" : Reads out the alphabetic characters as displayed.
- "Phonetics (Full)" : Reads out all characters using phonetic code words.
- "Phonetics (Suffix)" : Reads out only the suffix using phonetic code words.

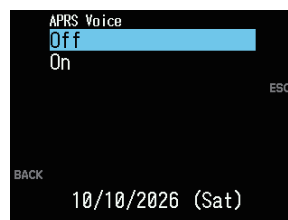


APRS Voice

This function reads out the Callsign of the sender and the message content when an APRS message addressed to your own station is received.

1 Access Menu No. 575

- "Off" : Turns off the APRS Voice function.
- "On" : Turns on the APRS Voice function.



- ◆ APRS Voice (Menu No. 575) operates regardless of the Voice Guidance mode settings (Menu No. 922).

RX Callsign Announce

This function reads out the source Callsign and results of kerchunk to the repeater when a D-STAR signal is received.

1 Access Menu No. 644

For details on the available options and their operation, please refer to "RX Callsign Announce" (p. 112).



- ◆ If "Kerchunk", "Mine", or "All" is selected, Voice Guidance announces the results of kerchunk to the D-STAR repeater.
- ◆ The Voice Guidance announcements for response from the repeater are as follows:
 - "Not available to access the repeater"
→ Error
 - "Available to access the repeater"
→ Operational
- ◆ RX Callsign Announce (Menu No. 644) operates regardless of the Voice Guidance mode setting (Menu No. 922).

The Weather Alert is available only in the USA and Canada.

When activated, this function will check for a received NOAA 1050 Hz tone. When the tone is received, the weather alert tone will sound.

The transceiver stops scanning at a frequency or memory channel on which a signal is detected. It then continues scanning according to which resume mode you have selected.

You can choose one of the following modes.

1



2 Set the Weather Alert to “On” or “Off”.

- When activated, the <W> icon appears on the display.
- When a signal is being received, the <W> icon blinks.



◆ This function can not be set to On when the priority scan or FM radio mode is On.

Weather Channel

Whether or not the Weather Alert is activated, you can still access the weather channels. The Weather Alert simply notifies you of activity on the weather channels.

- 1 Press [MR] to switch to the memory mode.
- 2 Press and hold [◀]/[▶] to select the memory channel group “Weather”.
- 3 Press [▲]/[▼] or rotate the [ENC] control to select your desired channel.

Channel No.	Frequency (MHz)	Memory Name	Location
A1	162.550	WX 1	NOAA/Canada
A2	162.400	WX 2	NOAA/Canada
A3	162.475	WX 3	NOAA/Canada
A4	162.425	WX 4	NOAA
A5	162.450	WX 5	NOAA
A6	162.500	WX 6	NOAA
A7	162.525	WX 7	NOAA
A8	161.650	WX 8	Canada
A9	161.775	WX 9	Canada
A10	163.275	WX 10	—

The memory channel only for the weather alert is scanned.

1



2 Set the Weather Alert Scan to “Off”, [15], [30], or [60] minutes.

When the weather channel scanning time is set:

Auto scanning starts after the set time.

When the weather channel scanning is set to Off:

After selecting the memory channel group “Weather”, press and hold [MR] to start the weather channel scan.

- When selecting the memory channel group “All Groups”, the weather channel scan does not work.
- Scanning stops when the channel with the highest signal level is received or no signal is received in all scanned channels.
- Memory scanning stops when performing any operation other than [MONI], “Key Lock” (press and hold[F]), [▲]/[▼], and [ENC] control.

Configuring the Display Language

You can select either English or Japanese.

- 1 Access Menu No. 990

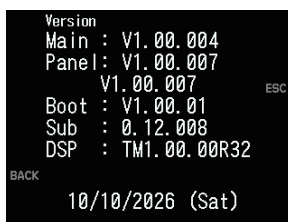


2

Displaying the Firmware Version

You can view the firmware version of the current transceiver.

- 1 Access Menu No. 992
The current firmware version is displayed.



About the Firmware

You can perform a firmware update by installing a microSD card containing firmware data into this unit.

The latest firmware can be downloaded from the following URL.
(This URL is subject to change without notice.)

- 1 Download the firmware from the above website on a PC
- 2 Store the firmware data in the "FIRMWARE" folder of the microSD card
For more information on the folder structure inside the microSD, please refer to "Folder Structure of the microSD Memory Card" (p. 127).
- 3 With the power of this unit turned off, insert the microSD card containing the firmware data into the SD card slot of the operation panel
- 4 Press and hold the [⏻] power switch and [MENU] simultaneously for more than 10 seconds to turn on the power
- 5 Release your fingers after the startup tone sounds and when the Firmware Write mode screen is displayed
The current firmware version is displayed.



- 6 Press [SD]



- 7 Select the firmware data and press the [ENC] control
Extraction of the firmware data starts. Wait until the file extraction is complete.
- 8 When "Update the firmware?" is displayed, press [YES]
To cancel the firmware update, press [NO] and turn off the power of this unit.



Options (Sold Separately)

The following options are available for use with this unit.

List of Options

MC-62	Hand microphone with keypad
PG-3B	Noise filter
E30-3462-*5	DC power extension cable (6 m)/ Equipped with 20 A × 2 fuses
E3A-1040-*1	Panel extension cable (8 m)
E3A-1040-*0	Microphone extension cable (4 m)
E30-3399-*5	Speaker extension cable (4 m)
E30-7608-*5	Data communication cable
KPS-15	Regulated DC power supply
KHS-56BT	Bluetooth wireless headset
MCP-D750	Memory control program

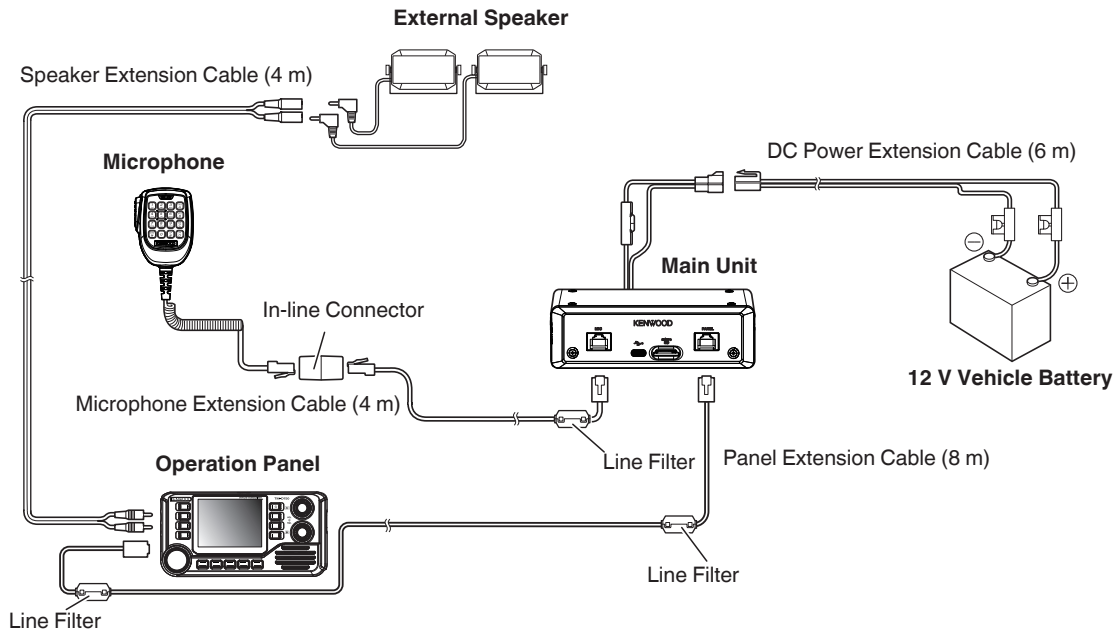


Optional products available for use with this unit may be added or discontinued. For more information about the optional products, please refer to the catalogs and other materials.

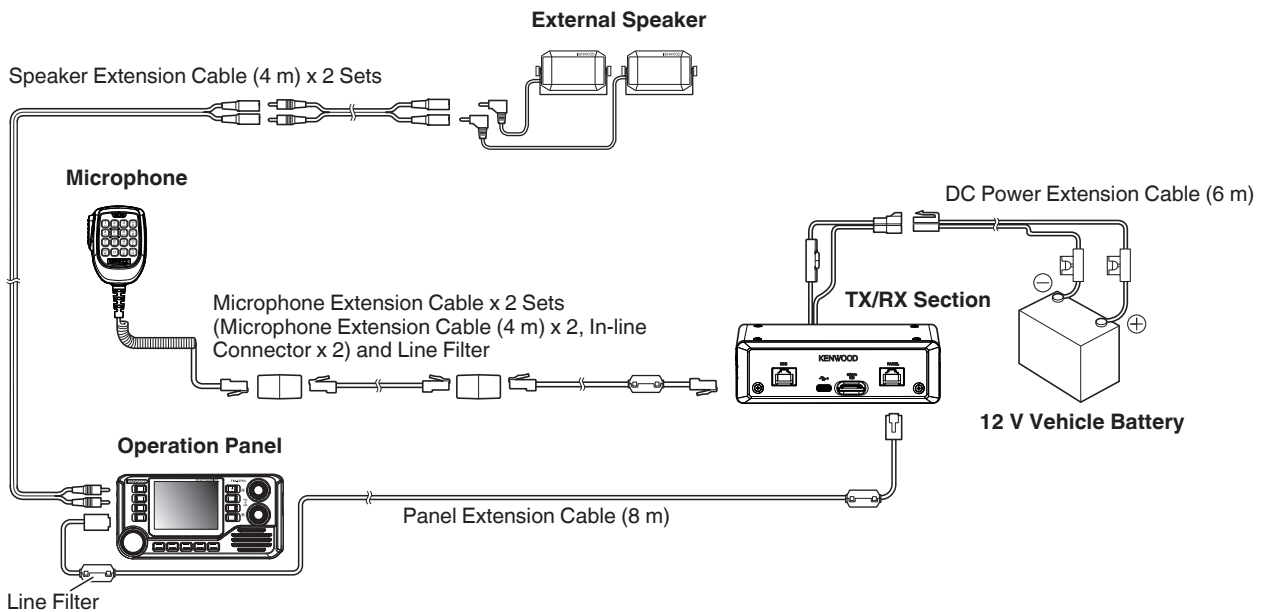
Connecting the Panel Extension Cable, Microphone Extension Cable, and Speaker Extension Cable

You can connect up to two sets of microphone extension cables and speaker extension cables.

■ Connection Using 1 Set

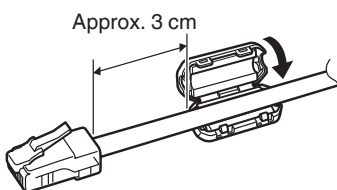


■ Connection Using 2 Sets



■ Installing a Line Filter

Install the line filter at a position approximately 3 cm from the connector that connects to the TX/RX section.



GENERAL INFORMATION

This product has been factory aligned and tested to specification before shipment. Attempting service or alignment without factory authorization can void the product warranty.

SERVICE

When returning this product to your dealer or service center for repair, pack it in its original box and packing material.

Include a full description of the problem(s) experienced.

Include your telephone number along with your name and address in case the service technician needs to contact you; if available, also include your fax number and e-mail address.

Don't return accessory items unless you feel they are directly related to the service problem.

You may return this product for service to the authorized **KENWOOD** dealer from whom you purchased it, or any authorized **KENWOOD** service center. Please do not send subassemblies or printed circuit boards; send the complete product. A copy of the service report will be returned with the product.

SERVICE NOTE

If you desire to correspond on a technical or operational problem, please make your note legible, short, complete, and to the point. Help us help you by providing the following:

- Model and serial number of equipment
- Question or problem you are having
- Other equipment in your station pertaining to the problem



- ◆ Do not pack the equipment in crushed newspapers for shipment! Extensive damage may result during rough handling or shipping.



- ◆ Record the date of purchase, serial number and dealer from whom this product was purchased.
- ◆ For your own information, retain a written record of any maintenance performed on this product.
- ◆ When claiming warranty service, please include a photocopy of the bill of sale or other proof-of-purchase showing the date of sale.

CLEANING

To clean the case of this product, use a neutral detergent (no strong chemicals) and a damp cloth.

Troubleshooting

Please check the table below before requesting for repair. If there is no applicable symptom or if the problem cannot be resolved, perform a reset.

Symptom	Cause	Measure
The power does not turn on.	The power cable is defective or the connection is poor.	Check whether there are any abnormalities in the power cable and whether the polarity is correct.
	A fuse in the power cable has blown.	If the blown fuse is due to reasons other than this unit, replace the fuse after repair.
	The panel cable is connected by mistake to the MIC connector on the main unit, or the MIC cable is connected by mistake to the PANEL connector.	Check to ensure that the MIC cable is correctly connected to the MIC connector on the main unit, and the panel cable to the PANEL connector.
The display turns off when the power is on.	The LCD off function is active.	Press any key other than the Power key to turn the display back on.
No sound is heard from the speaker even when the volume control is rotated.	The squelch is closed.	Lower the squelch threshold level (counterclockwise direction).
	CTCSS is On.	Turn off CTCSS.
	DCS is On.	Turn off DCS.
	This unit is paired with a Bluetooth headset.	Disconnect the communication with the Bluetooth headset.
The frequency cannot be adjusted above (or below) a certain frequency even by turning the encoder.	Programmable VFO is configured.	Reconfigure the programmable VFO frequency setting.
Turning the encoder does not change the frequency.	Key Lock is turned on.	Change the Key Lock type, or cancel Key Lock.
There are frequency bands that cannot be selected.	Band mask is configured.	Check the box for the applicable frequency band in the band mask settings.
Pressing [MR] does not display the memory channel.	Nothing is registered in the memory channels.	Register frequencies to the memory channels.
Memory cannot be recalled.	Memory Recall Method is configured to "Current Band", and no frequency within the currently displayed frequency band is registered in the memory channels.	Change the memory channel recall setting to All Bands, or register frequencies to the memory channels.
Unable to transmit.	TX Inhibit has been activated.	Turn off TX Inhibit.
	TX frequency is out of range.	Change the frequency such that it falls within the TX range before use.
The display flashes or turns off during transmission.	The battery or regulated DC power supply does not have sufficient capacity.	Charge the battery or use a regulated DC power supply with an appropriate capacity.
The transmission output power drops, or "H" (High Power) flashes.	The temperature protection function has activated and is automatically reducing the output.	Switch to RX mode and wait until the temperature drops.
FM repeater cannot be used.	Auto Repeater Offset is Off.	Turn on Auto Repeater Offset.
	The tone frequency, shift, or offset amount do not match.	Set the tone frequency, shift, and offset amount correctly.
Reverse function cannot be turned off.	Shift is On, so turning Reverse OFF would result in a frequency outside the usable frequency band.	Configure Shift to Off, followed by configuring Reverse to Off.
Scan stops immediately.	The squelch threshold level is configured to "Open".	Adjust the threshold to an appropriate level.
Scanning does not resume after it has stopped temporarily.	Scan Resume is configured to Seek.	Configure it to Time (Time-Operated) or Carrier (Carrier-Operated).
Most keys do not function.	Key Lock is turned on.	Turn off Key Lock.
VOX does not function.	The VOX gain setting is too low.	Adjust the VOX gain.
Speaker audio triggers transmission.	The VOX function is On.	Turn off the VOX function.
Signals received are not demodulated correctly.	The settings for the signal format (Demodulation mode) are incorrect.	Try changing to other modes.
	If the RX sound is distorted in AM, then the RX signal is too strong.	Turn on the ATT function.
The display becomes dark.	The temperature of the operation panel is rising.	Turn off the power or place the transceiver in a cool place.
The built-in GPS receiver has difficulty receiving signals depending on the frequency of the transceiver.	The local oscillator circuit of the transceiver is affecting the GPS sensitivity.	Swap the frequencies of A Band and B Band, or change the frequency being used.
The built-in GPS receiver has difficulty receiving signals while transmitting.	The transmitted wave and its harmonics may affect GPS sensitivity in some cases. This is not a malfunction.	Stop transmission and return to reception, and GPS sensitivity will return to normal.

Symptom	Cause	Measure
Unable to connect to a Bluetooth device.	This unit has not been paired with a Bluetooth device (headset, etc.).	Perform a Bluetooth device search, and connect to the Bluetooth device that is found.
No Bluetooth devices are found even after performing a Bluetooth device search.	The Bluetooth device (headset, etc.) is not in pairing standby mode.	Place the Bluetooth device in pairing standby mode, then perform the device search again.
Unable to communicate using the virtual COM port even when this unit is connected to a PC via a USB cable.	The USB Function setting is configured to "Mass Storage".	Configure the USB Function setting to "COM+AF In/Out".
This unit is not detected as a USB audio device even when it is connected to a PC via a USB cable, and RX audio is not input to the PC.	The USB Function setting is configured to "Mass Storage".	Configure the USB Function setting to "COM+AF In/Out". If audio still cannot be heard, check the PC settings.
This unit is not displayed as a removable disk even when it is connected to a PC via a USB cable.	The USB Function setting is configured to "COM+AF In/Out".	Configure the USB Function setting to "Mass Storage".
Unable to read data stored on a microSD memory card	The data format is not supported.	Please use a microSD memory card formatted on this unit.
In DV/DR mode, audio received from the other station sounds garbled ("24-3-1" or "24-3-2") or is interrupted.	Propagation conditions are poor.	Move to a location with better propagation conditions. * If the conditions still do not improve, propagation conditions may be poor between the other station and the access repeater being used by that station. Notify the other station of the situation and request them to adjust their output power. Alternatively, move to a location with better propagation conditions.
In DV/DR mode, QSO is possible through a local repeater, but gateway QSO or QSO with a specific station is not possible.	- The Callsign of your station is not registered with the D-STAR management server. - The gateway is not operating.	- Register the Callsign of your station with the D-STAR management server. - Check with the organization that manages the repeater.
The packet loss icon <  > is displayed during communication in DV/DR mode, and the audio breaks up.	During communications through the Internet network, packet loss has been detected, indicating that part of the data has been lost.	Wait a short while before calling again. * In some cases, data that has become corrupted may be misidentified as packet loss. If this occurs, the <  > icon may appear on the displayed even during a Local Area Call.
The FM indicator flashes in DV mode.	An FM-mode signal is being received.	Wait a short while before calling again.
No message is returned from the repeater after transmission in DR mode (S-meter indicator also does not move).	- Selection for the access repeater is incorrect. - The manually entered repeater frequency is incorrect (or the shift setting is incorrect). - You are outside the repeater's coverage area (or your signal has not reached the repeater).	- Configure the correct access repeater in "FROM". - Configure the repeater frequency (or shift setting) to a correct value. - Move to a location where your signal can reach the repeater, or access another repeater that the signal can reach.
In DR mode, the Unable to Repeat icon is displayed after transmitting (and the Voice Guidance announces an error).	- The destination repeater cannot be reached or is currently in use. - The destination repeater Callsign is incorrect.	- Wait a short while before calling again. - Configure the repeater Callsign correctly.
Unable to transmit using PTT in DV/DR mode.	This unit is in DATA mode.	Transmit using PTT after canceling DATA mode.
Transmission does not end immediately even after releasing PTT in DV/DR mode.	"GPS Info. in Frame" Is On.	Turn off "GPS Info. in Frame" if it is not needed.

Specifications

TM-D750A

GENERAL				
Frequency Range	Band A/B Band A Band B	TX: 144 - 148, 222 - 225, 430 - 450 MHz RX: 108 - 174, 216 - 260, 410 - 470 MHz RX: 108 - 524 MHz		
Mode	TX RX	F1D, F2D, F3E, F7W F1D, F2D, F3E, F7W, A3E		
Operating Temp. Range	-4°F to +140°F (-20 °C to +60 °C)			
Frequency Stability	±2.0 ppm			
Antenna Impedance	50 Ω			
Operating Voltage	DC-IN	DC 11.7 - 15.9 V (STD: DC 13.8 V)		
TX Current Consumption (TYP.)		H	M	L
	144M	13 A	6.5 A	5.0 A
	220M	8 A	6.5 A	5.0 A
	430M	13 A	6.5 A	5.0 A
RX Current Consumption (TYP.)	1.3 A (Rated Power)			
Dimensions	Projections not included			
	Main Unit	140.0(W) x 180(D) x 43(H) mm		
	Operation Panel	183.3(W) x 36.8(D) x 93(H) mm		
Weight (net)	Main Unit	1340 g		
	Operation Panel	370 g		
TRANSMITTER				
RF Power Output		H	M	L
	144M/430M	50 W	10 W	5 W
	220M	20 W	10 W	5 W
Modulation	FM DV	Reactance Modulation GMSK Reactance Modulation		
Max. Modulation Deviation	FM NFM	±5.0 kHz ±2.5 kHz		
Spurious Emissions	-60 dBc or less			
Modulation Distortion (300Hz - 3kHz)	3% or less			
Microphone Impedance	600 Ω			

RECEIVER		Band A	Band B
Circuitry	F1D, F2D, F3E, F7W Double Super Heterodyne A3E Triple Super Heterodyne		
IF Frequency	1st IF 2nd IF 3rd IF	 57.15 MHz 450 kHz 10.8 kHz	 58.05 MHz 450 kHz 10.8 kHz
Sensitivity (TYP.)	Amateur Band		
	FM	12dB SINAD	
	FM/ NFM	144/ 220 MHz	0.16/ 0.20 uV
	FM/ NFM	430 MHz	0.16/ 0.20 uV
	DV	PN9/ GMSK 4.8 kbps, BER 1%	
		144/ 220 MHz	0.22 uV
		430 MHz	0.22 uV
	AM	10 dB S/N	0.50 uV
Except above Amateur Band	AM	10 dB S/N	
		118 - 174 MHz	0.40 uV
		216 - 240 MHz	0.50 uV
		410 - 470 MHz	0.40 uV
	FM	12dB SINAD	
		118 - 144 MHz	0.32 uV
		146 - 175 MHz	0.32 uV
		200 - 222 MHz	0.40 uV
		225 - 240 MHz	0.40 uV
		380 - 400 MHz	0.56 uV
		400 - 430 MHz	0.28 uV
		440 - 490 MHz	0.28 uV
		490 - 524 MHz	0.56 uV
Squelch Sensitivity (TYP.)		0.10 uV	0.10 uV
Spurious Rejection	144 MHz 430 MHz	60 dB or more 60 dB or more	60 dB or more 60 dB or more
IF Rejection		60 dB or more	60 dB or more
Channel Selectivity (FM)	-6 dB -50 dB	12 kHz or more 30 kHz or less	
Audio Output	3W or more / 8 Ω		
GPS			
Supported Satellite	GPS/QZSS/Galileo		
Wireless Connection			
Bluetooth Version, Class	Version 5.0, Class 1 HSP, SPP		
WLAN Frequency Range	2.4 GHz, 5 GHz 802.11 a/b/g/n/ac		
WLAN Security	WPA2-PSK (AES), WPA2/WPA3 Transitional, WPA3-SAE		

TM-D750E

GENERAL				
Frequency Range				
	Band A/B	TX: 144 - 146, 430 - 440 MHz		
	Band A	RX: 108 - 174, 410 - 470 MHz		
	Band B	RX: 108 - 524 MHz		
Mode				
	TX	F1D, F2D, F3E, F7W		
	RX	F1D, F2D, F3E, F7W, A3E		
Operating Temp. Range		-20 °C to +60 °C		
Frequency Stability		±2.0 ppm		
Antenna Impedance		50 Ω		
Operating Voltage				
	DC-IN	DC 11.7 - 15.9 V (STD: DC 13.8 V)		
TX Current Consumption (TYP.)		H	M	L
		144M	13 A	6.5 A
		430M	13 A	6.5 A
RX Current Consumption (TYP.)		1.3 A (Rated Power)		
Dimensions		Projections not included		
	Main Unit	140.0(W) x 180(D) x 43(H) mm		
	Operation Panel	183.3(W) x 36.8(D) x 93(H) mm		
Weight (net)		Main Unit 1310 g		
	Operation Panel	370 g		
TRANSMITTER				
RF Power Output		H	M	L
		50 W	10 W	5 W
Modulation				
	FM	Reactance Modulation		
	DV	GMSK Reactance Modulation		
Max. Modulation Deviation				
	FM	±5.0 kHz		
	NFM	±2.5 kHz		
Spurious Emissions		-60 dBc or less		
Modulation Distortion (300Hz - 3kHz)		3% or less		
Microphone Impedance		600 Ω		

RECEIVER		Band A	Band B
Circuitry	F1D, F2D, F3E, F7W Double Super Heterodyne A3E Triple Super Heterodyne		
IF Frequency			
1st IF		57.15 MHz	58.05 MHz
2nd IF		450 kHz	450 kHz
3rd IF	A3E	10.8 kHz	10.8 kHz
Sensitivity (TYP.)			
Amateur Band			
FM	12dB SINAD		
FM/ NFM	430 MHz	0.16/ 0.20 uV	0.16/ 0.20 uV
FM/ NFM		0.16/ 0.20 uV	0.16/ 0.20 uV
DV	PN9/ GMSK 4.8 kbps, BER 1%		
	144 MHz	0.22 uV	0.22 uV
	430 MHz	0.22 uV	0.22 uV
AM	10 dB S/N	0.50 uV	0.50 uV
Except above Amateur Band			
AM	10 dB S/N		
	118 - 174 MHz	0.40 uV	0.40 uV
	216 - 240 MHz		0.50 uV
	410 - 470 MHz	0.40 uV	0.40 uV
FM	12dB SINAD		
	118 - 144 MHz	0.32 uV	0.32 uV
	146 - 175 MHz	0.32 uV	0.32 uV
	200 - 222 MHz		0.40 uV
	225 - 240 MHz		0.40 uV
	380 - 400 MHz		0.56 uV
	400 - 430 MHz	0.28 uV	0.28 uV
	440 - 490 MHz	0.28 uV	0.28 uV
	490 - 524 MHz		0.56 uV
Squelch Sensitivity (TYP.)		0.10 uV	0.10 uV
Spurious Rejection	144 MHz	60 dB or more	60 dB or more
	430 MHz	60 dB or more	60 dB or more
IF Rejection		60 dB or more	60 dB or more
Channel Selectivity (FM)	-6 dB 12 kHz or more -50 dB 30 kHz or less		
Audio Output	3W or more / 8 Ω		
GPS			
Supported Satellite	GPS/QZSS/Galileo		
Wireless Connection			
Bluetooth Version, Class	Version 5.0, Class 1 HSP, SPP		
WLAN Frequency Range	2.4 GHz, 5 GHz 802.11 a/b/g/n/ac		
WLAN Security	WPA2-PSK (AES), WPA2/WPA3 Transitional, WPA3-SAE		



◆ Specifications are subject to change without notice, due to advancements in technology.

■ Frequencies That Cannot Be Received

Concerning the received frequency display, an unmodulated signal may be received. This is according to the set intrinsic frequency form. Formulas and examples are shown below:

	<A Band>	<B Band>
V x U reception	$(V_{RX} + 57.15 \text{ MHz}) \times n - (U_{RX} - 58.05 \text{ MHz}) \times m = \pm 57.15 \text{ MHz}, \pm 58.05 \text{ MHz}$ Example) Band A: 146.000 MHz, Band B: 147.6625 MHz, Band B receives an unmodulated signal.	
U x V reception	$(U_{RX} - 57.15 \text{ MHz}) \times n - (V_{RX} + 58.05 \text{ MHz}) \times m = \pm 57.15 \text{ MHz}, \pm 58.05 \text{ MHz}$ Example) Band A: 440.000 MHz, Band B: 147.6625 MHz, Band A receives an unmodulated signal.	
U x U reception	$(U_{RX} - 57.15 \text{ MHz}) \times n - (U_{RX} - 58.05 \text{ MHz}) \times m = \pm 57.15 \text{ MHz}, \pm 58.05 \text{ MHz}$ Example) Band A: 431.84375 MHz, Band B: 440.000 MHz, Band B receives an unmodulated signal.	
V x 220M reception	$(V_{RX} + 57.15 \text{ MHz}) \times n - (220M_{RX} + 58.05 \text{ MHz}) \times m = \pm 57.15 \text{ MHz}, \pm 58.05 \text{ MHz}$ Example) Band A: 145.740 MHz, Band B: 223.500 MHz, Band B receives an unmodulated signal.	
220M x V reception	$(220M_{RX} - 57.15 \text{ MHz}) \times n - (V_{RX} + 58.05 \text{ MHz}) \times m = \pm 57.15 \text{ MHz}, \pm 58.05 \text{ MHz}$ Example) Band A: 223.500 MHz, Band B: 147.535 MHz, Band B receives an unmodulated signal.	
U x 220M reception	$(U_{RX} + 57.15 \text{ MHz}) \times n - (220M_{RX} + 58.05 \text{ MHz}) \times m = \pm 57.15 \text{ MHz}, \pm 58.05 \text{ MHz}$ Example) Band A: 439.780 MHz, Band B: 223.550 MHz, Band B receives an unmodulated signal.	

V_{RX} : VHF reception frequency, U_{RX} : UHF reception frequency, $220M_{RX}$: 220 MHz band reception frequency
n and m are arbitrary integers.

19.2 MHz x n (n = mutiple)
55.95 MHz x n (n = mutiple)
Around 11.0592 MHz x n (n = mutiple) reception
144.385 MHz
147.465 MHz
Around 224.25 MHz reception
442.385 MHz

Transmitter Block Diagram



KENWOOD

