ICOM

OPERATING GUIDE

VHF DIGITAL TRANSCEIVERS
IC-F1100D series
UHF DIGITAL TRANSCEIVERS
IC-F2100D series

Icom Inc.

INTRODUCTION

Thank you for choosing this Icom product.
This product is designed and built with Icom's state of the art technology and craftsmanship. With proper care, this product should provide you with years of trouble-free operation.

IMPORTANT

FIRST, CAREFULLY READ INSTRUCTIONS that is provided with the transceiver.

SAVE THIS OPERATING GUIDE— This operating guide contains additional important operating instructions for the following transceivers.

• IC-F1100D / IC-F2100D: Non-display type
• IC-F1100DS / IC-F2100DS: Simple key type
• IC-F1100DT / IC-F2100DT: Ten-key type

In this operating guide, the Ten-key type is used for the main illustrations.

Icom is not responsible for the destruction, damage to, or performance of any Icom or non-Icom equipment, if the malfunction is because of:
• Force majeure, including, but not limited to, fires, earthquakes, storms, floods, lightning, other natural disasters, disturbances, riots, war, or radioactive contamination.
• The use of Icom transceivers with any equipment that is not manufactured or approved by Icom.

Section 1   PANEL DESCRIPTION

1 PANEL DESCRIPTION

Front, top and side panels

[Rotary Selector]*1

Antenna
Connector

[VOL]
[Emer]*1

Status
indicator

Speaker

[PTT]

Speaker
microphone
jack

Microphone

[Up]*1,2
[Upper]*1,4

Function
display*2
[P0], [P1],
[P2], [P3]*1, 2

[Down]*1,2
[Lower]*1,4
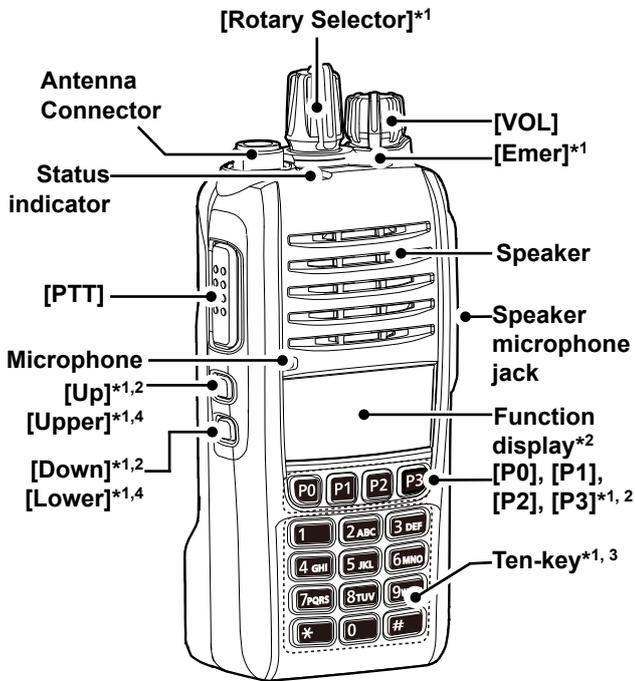
Ten-key*1, 3

*1: Dealer assignable.
*2: Only for the Simple key and Ten-key types.
*3: Only for the Ten-key type.
*4: Only for the Non-Display type.

◇ Status indicator

• Lights red: Transmitting.
• Lights green: Receiving or squelch is open.
• Lights or blinks orange: A matching signal is received,
                           depending on the presetting.
• Slowly blinks green: The battery should be charged.
• Quickly Blink green: The battery is exhausted.
ⓘ Refer to the Status indicator section.(pp.1-4 ~1-5)

◇ Speaker microphone jack

Connects to an optional speaker microphone or
headset.

CAUTION: DO NOT use the transceiver without the
connector cover or optional equipment attached.
The transceiver meets IP67 requirements for dust-
tight and waterproof protection only when the
connector cover or the HM-168LWP, HM-171GPW,
HS-94LWP, or HS-95LWP is attached.

◇ About the Software Key functions

Dealers can assign the Software Key functions to the
following keys. See pages 1-6 ~ 1-12 for details.

Non-display type
[Upper], [Lower], and [Emer]

Simple key type
[P0], [P1], [P2], [P3], [Up], [Down], and [Emer]

Ten-key type
[P0], [P1], [P2], [P3], [Up], [Down], and [Emer]

The following Software keys are assigned at default:

Key	Assigned Software Key
[Upper] or [Up]	Monitor
[Lower] or [Down]	AquaQuake
[Emer]	Emergency
[P0]	Call
[P1]	High/Low
[P2]	Scan Start/Stop
[P3]	Lock

1   PANEL DESCRIPTION

Function display

<For the Simple key and Ten-key types>

❶ ❷❸❹❺ ❻ ❼ ❽
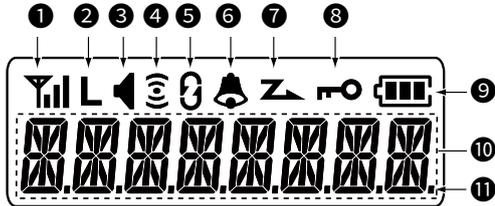
❶ **SIGNAL STRENGTH INDICATOR** Yıl
Displays the relative receive signal strength level.

❷ **LOW POWER ICON** L
Displayed when low output power is selected.

❸ **AUDIBLE ICON**
  • Displayed when the channel is in the 'Audible' (unmuted) mode.
  • Displayed when a matching 2-Tone or 5-Tone is received.

❹ **GPS ICON***
Displayed when a GPS signal is received, depending on the presetting.
* The HM-171GPW is required to use the GPS function.

❺ **ENCRYPTION ICON**
Displayed when the Encryption function is ON.

❻ **BELL ICON**
Displayed when a matching signal is received, depending on the presetting.

❼ **SCAN ICON**
Displayed or blinks while scanning.

❽ **KEY LOCK ICON**
Displayed when the Key Lock function is ON.

❾ **BATTERY INDICATOR**
Displays the remaining battery charge.

Indication	▮▮▮	▮▮	▮	
Battery Status	Full	Mid	Charging required	Battery exhausted

▭ blinks when the battery is exhausted.

❿ **ALPHANUMERIC READOUT**
Displays the selected Zone number, channel number, and, if entered, the channel name.

⓫ **SHIFT INDICATOR**
Displayed when the Shift function is ON.
ⓘ A user can use a Software Key's secondary function in the Shift mode.

1 PANEL DESCRIPTION

Status indicator

The Status indicator indicates the status of various parameters of the transceiver, as described below.
(Reference: R=Red, G=Green, O=Orange)

• Programming:
  Blinks while reading or writing data.

• Programming Error:
  Continuously blinks green and red if programming fails.

• Channel Error:
  Continuously blinks red and orange when you select a blank channel, or an unlocked channel.

• TX low Battery 1:
  Blinks while detecting a low battery while transmitting.

• TX low Battery 2:
  Blinks while detecting a very low battery while transmitting.

• TX:
  Lights while transmitting.

• Bell (Blink):
  Blinks about twice every second, when the preset signal is received.*

• Bell (ON):
  Blinks about once every second, when the preset signal is received.*

* Depending on the "Bell" setting, the Status indicator blinks:
  • When a call that includes a matching 2-Tone code is received.
  • When a call that includes a matching 5-Tone code is received.
  • When a Call Alert is received.
  • When a Message is received.
  • When a Status call that includes a matching status number is received.

• Scan
  Slowly blinks green while scanning for a channel with a signal.

• RX:
  Lights green while receiving a signal.

• CH Access:
  Blinks orange while making a call.

1-4

1 PANEL DESCRIPTION

Status indicator (Continued)

• Audible:
  Slowly blinks orange while in the Audible mode.

• Power ON:
  Lights orange, then blinks red, orange, and green twice at transceiver startup.

• Success:
  Slowly blinks orange and then green when your call was successful.

• Failure:
  Slowly blinks orange and then red when your call failed, or it was refused.

• TX Error:
  Blinks when transmission is inhibited (Lockout, TX Inh, or TOT Penalty timer).

• Emergency:
  Blinks while the Emergency Locator tone is sounding.

1 PANEL DESCRIPTION

Assignable Software Key functions

Category	Assignable function	Reference	Digital (NXDN)		Analog			
			Conventional	Single-site Trunk	2-Tone	5-Tone	MDC	BIIS
–	Disable	p. 1-8	✓	✓	✓	✓	✓	✓
	Null	p. 1-8	✓	✓	✓	✓	✓	✓
	Reset	p. 1-8	✓	✓	✓	✓	✓	✓
	Shift *	p. 1-8	✓	✓	✓	✓	✓	✓
Channel / Scan	Bandwidth	p. 1-8	N/A	N/A	✓	✓	✓	✓
	CH Up*, CH Down*	p. 1-8	✓	✓	✓	✓	✓	✓
	C.Tone CH Select *	p. 1-8	N/A	N/A	✓	✓	✓	✓
	Encryption	p. 1-8	✓	✓	N/A	N/A	N/A	N/A
	High/Low	p. 1-8	✓	✓	✓	✓	✓	✓
	Monitor	p. 1-8	✓	N/A	✓	✓	✓	✓
	MR-CH1/2/3/4	p. 1-9	✓	✓	✓	✓	✓	✓
	Prio A, Prio B	p. 1-9	✓	✓	✓	✓	✓	✓
	Prio A (Rewrite), Prio B (Rewrite)	p. 1-9	✓	✓	✓	✓	✓	✓
	Scan Start/Stop	p. 1-9	✓	✓	✓	✓	✓	✓
	Scan Add/Del (Tag)*	p. 1-9	✓	✓	✓	✓	✓	✓
	Talk Around	p. 1-9	✓	✓	✓	✓	✓	✓
	Tone/RAN CH Select *	p. 1-9	✓	N/A	✓	✓	✓	✓
	Zone Select*	p. 1-10	✓	✓	✓	✓	✓	✓
	Zone Up*, Zone Down*	p. 1-10	✓	✓	✓	✓	✓	✓
Signaling / Call	Call	p. 1-10	N/A	N/A	✓	✓	N/A	N/A
	Call A, Call B	p. 1-10	N/A	N/A	✓	✓	N/A	N/A
	Call Alert	p. 1-10	✓	✓	N/A	N/A	✓	N/A
	Re-dial	p. 1-10	✓	✓	✓	✓	✓	✓
	Call List Select*	p. 1-10	✓	✓	✓	✓	N/A	N/A
	Call List Up*, Call List Down*	p. 1-10	✓	✓	✓	✓	N/A	N/A
	Digital Button*	p. 1-10	✓	✓	N/A	N/A	N/A	N/A
	DTMF Autodial	p. 1-10	✓	✓	✓	✓	✓	✓
	Emergency	p. 1-11	✓	✓	✓	✓	✓	✓
	Group *	p. 1-11	✓	✓	N/A	N/A	N/A	N/A
	Individual *	p. 1-11	✓	✓	N/A	N/A	N/A	N/A
	ID-MR Select *	p. 1-11	N/A	N/A	N/A	✓	N/A	N/A

✓: Applicable
N/A: Not Applicable
Depending on the transceiver's model type, some functions may not be assignable.
* For only the Simple key and Ten-key types.

1 PANEL DESCRIPTION

Assignable Software Key functions (Continued)

Category	Assignable function	Reference	Digital (NXDN)		Analog			
			Conventional	Single-site Trunk	2-Tone	5-Tone	MDC	BIIS
Signaling / Call	Message *	p. 1-11	✓	✓	N/A	N/A	N/A	N/A
	Re-dial *	p. 1-11	✓	✓	✓	✓	✓	✓
	Status	p. 1-11	✓	✓	N/A	N/A	N/A	N/A
	Status Up *, Status Down *	p. 1-11	✓	✓	N/A	N/A	N/A	N/A
	TX Code Enter *	p. 1-11	✓	✓	N/A	✓	N/A	N/A
Functions	Announce	p. 1-12	✓	✓	✓	✓	✓	✓
	AquaQuake	p. 1-12	✓	✓	✓	✓	✓	✓
	Light *	p. 1-12	✓	✓	✓	✓	✓	✓
	Lock	p. 1-12	✓	✓	✓	✓	✓	✓
	Lone Worker	p. 1-12	✓	✓	✓	✓	✓	✓
	Siren	p. 1-12	✓	✓	✓	✓	✓	✓
	Sp. Func 1/2	p. 1-12	✓	✓	✓	✓	✓	✓
	Surveillance	p. 1-12	✓	✓	✓	✓	✓	✓
	User Set Mode *	p. 1-12	✓	✓	✓	✓	✓	✓
GPS	GPS Display *	p. 1-12	✓	✓	✓	✓	✓	✓

✓: Applicable
N/A: Not Applicable
Depending on the transceiver's model type, some functions may not be assignable.
* For only the Simple key and Ten-key types.

1 PANEL DESCRIPTION

Assignable Software Key functions (Continued)

Disable
Set to disable the key.

> **NOTE:** This key function is assignable to only [Ext. Emer].

Null
No function.

Reset

In the Analog mode

Push to reset the destination station code to the default, if it has been manually changed.
While in the Audible mode, push to return to the Inaudible mode and automatically send a reset code or Clear Down signal.

In the Digital mode

● Push to reset the destination Unit ID and call type to the default, if they have been manually changed.
● Push to cancel the Talk Back function, if it is activated.
● While in the selection mode (Message, Status Message, and so on), push to return to the Standby mode.

Shift
1. Push to enter the Shift mode.
   • The Shift indicator is displayed.
   ⓘ A user can use a Software Key's secondary function in the Shift mode.
2. Push this key again to return to the Normal mode.

Category: Channel/Scan

Bandwidth
Push to temporarily set the bandwidth to Wide* or Narrow.
ⓘ The wide bandwidth can be preset to either 25.0 kHz (Wide) or 20.0 kHz (Mid).
  Depending on the presetting, Middle may be selectable.
* The Wide bandwidth cannot be used in the USA version transceivers.

CH Up, CH Down
● Push to select an operating channel.
● After pushing a Software Key, push to select an option, setting, and so on.

C.Tone CH Select
Push to display the Continuous Tone Channel selection mode. Then push [CH Up] or [CH Down] to select a tone frequency or code. After selecting, push this key again to save.

Encryption
Push to turn the Encryption function ON or OFF.
ⓘ The Voice or Data Encryption function provides private communication between stations by using an Encryption Key and Key ID.

High/Low
Push to select the transmit output power level temporarily or permanently, depending on the presetting.

Monitor
● Hold down to unmute the channel. (Audible mode)
● Push to enter the Inaudible mode.
● Activates the following function on each channel, depending on the presetting.
  ⓘ After the communication is finished, push to send a 'reset code' (5-Tone).
● Depending on the presetting, hold down for 1 second to cancel the scan.

> **NOTE:** The audible (unmuted) mode may automatically return to the Inaudible (muted) mode, after the preset time period ends.

● Depending on the presetting, holding down this key for 1 second may cancel the Scan.

1 PANEL DESCRIPTION

Assignable Software Key functions (Continued)

Category: Channel/Scan (Continued)

MR-CH 1, MR-CH 2, MR-CH 3, MR-CH, 4
Push to directly select the set Memory channel (1, 2, 3 or 4).

Prio A, Prio B
Push to select the Priority A or Priority B channel.

Prio A (Rewrite), Prio B (Rewrite)
- Push to select the Priority A or Priority B channel.
- Hold down for 1 second to assign the operating channel to the Priority A or Priority B channel.

Scan Start/Stop
<For the Simple key and Ten-key types>
- Push to start or cancel a Scan.
  ⓘ When a scan started with the Power ON Scan or Auto Scan function, pushing this key pauses the scan. The paused scan resumes after the preset time period has passed.
- Hold down for 1 second to display the Scan group. Then push [CH Up] or [CH Down] to select a list.

> **NOTE:** When Mode Dependent Scan is ON, a user may not be able to display the Scan list, depending on the presetting.

<For the Non-display type>
- While a scan is paused by detecting a signal, hold down for 1 second to temporarily remove the channel from the scan group.
  After the scan is canceled, the removed channel automatically returns to the scan group.

Scan Add/Del (Tag)
- Push to add a channel to, or delete it from the current scan group.
  - When a channel is added to the current scan group, the display shows "SCAN ON."
  - When a channel is deleted from the current scan group, the display shows "SCAN OFF."
  - After displaying "SCAN ON" or "SCAN OFF," the current scan group text is displayed.
- You can add a channel to, or delete it from a selected Scan group.
1. Hold down for 1 second to display the current scan group, and then push [CH Up] or [CH Down] to select a group.
2. Push this key to add a channel to, or delete it from the selected group.
   ⓘ When a channel is added to the selected scan group, the display shows "SCAN ON."
   ⓘ When a channel is deleted from the selected scan group, the display shows "SCAN OFF."
3. Hold down this key to exit the Scan group selection mode.

- While a Scan is paused by detecting a signal on a channel (except for primary or secondary channel), push this key to remove the channel from the Scan group.

> **TIP:** When the Nuisance Delete function is ON, the removed channel is automatically added to the Scan group again, after the Scan is canceled.

Talk Around
<For the Simple key and Ten-key types>
Push to turn the Talk Around function ON or OFF.

<For the Non-display type>
- Hold down for 1 second to turn ON the Talk Around function.
- Push to turn OFF the function.
ⓘ The Talk Around function equalizes the transmit frequency to the receive frequency, for transceiver-to-transceiver communication.

Tone/RAN CH Select

In the Analog mode

Push to display the Continuous Tone screen. Then push [CH Up] or [CH Down] to select a tone frequency or code.

In the Digital mode

Push to display the RAN CH screen. Then push [CH Up] or [CH Down] to select a RAN code.

1   PANEL DESCRIPTION

Assignable Software Key functions (Continued)

Zone Select
Push to enter the Zone Select screen. Then, push [CH Up] or [CH Down] to select a zone.

> **TIP: What is a "Zone"?**
> Certain channels are grouped together and assigned to a Zone according to their intended use.
> For example, Analog channels 'Station 1' and 'Station 2' are assigned to an "Analog" Zone, and Digital channels 'Station 3' and 'Station 4' are assigned to a "Digital" Zone.

Zone Up, Zone Down
Push to select an operating zone.

Category: Signaling/Call

Call
Push to make a call to the preset destination in the channel.

Call A, Call B
Push to transmit a set 2-Tone or 5-Tone code.
ⓘ The code is transmitted to the selected station in Call Key Assign.

Call Alert
Hold down for 1 second to transmit a Call Alert.

Call List Select
1. Push to display the Call List selection mode.
2. Push [CH Up] or [CH Down] to select an ID name (or ID code).
3. After selecting, push this key again to set, and return to the Standby mode.

> **NOTE:**
> • On a 5-Tone channel, hold down to enter the 5-Tone TX Code Edit screen.

Call List Up, Call List Down
Push to select an ID or code without entering the Call List selection mode.

Digital Button
● Push to enter the Application selection mode.
● Hold down for 1 second to select the call type between Individual (INDIV) and Group (GROUP), then automatically enter the application selection mode.
● While in the application selection mode, hold down for 1 second to return to the standby screen.

DTMF Autodial
<For the Simple key and Ten-key types>
● Push to display the DTMF Code Selection screen, and then select a DTMF code using [CH Up] or [CH Down], then push this key again to transmit the DTMF code.

<For the Non-display type>
● Push to transmit a DTMF code set in Code No. 1.

1 PANEL DESCRIPTION

Assignable Software Key functions (Continued)

Emergency

1. Hold down during the Emer SW ON Timer (Sec) period to enter the Emergency mode.
2. After the Reminder Timer period has passed, an Emergency call is automatically transmitted once, or repeatedly.

NOTE:
• Set the related settings using the programming software.

ⓘ Hold down during the Emer SW OFF Timer (Sec) period to cancel the Emergency function, before transmitting an Emergency call.

Group

● Push to enter the Application selection mode with the Call Type "Group."
● While in the application selection mode, hold down for 1 second to return to the standby screen.

Individual

● Push to enter the Application selection mode with the Call Type "Individual."
● While in the application selection mode, hold down for 1 second to return to the standby screen.

ID-MR Select

● Push to recall the received ID code. The transceiver can memorize up to 5 codes, and select a desired one using [CH Up] or [CH Down].
● Hold down for 1 second to clear the selected ID code.

Message

1. While in the Standby mode, push to display the Message List screen.
2. Push [CH Up] or [CH Down] to select a message.
3. Push [PTT] to send the message to the currently selected station or group.
ⓘ See pages 5-7 for details.

Re-dial

Push to send the last transmitted DTMF code number.
ⓘ Redial will be cleared when the transceiver is turned OFF once.

Status
<For the Simple key and Ten-key types>

● Hold down for 1 second to transmit a Status call in the Standby mode.
● You can select a status message, as described below.
1. Push to display the Status Message selection screen, and then select a status message using [CH Up] or [CH Down].
2. Push [PTT] to transmit a Status call.

<For the Non-Display type>

Hold down for 1 second to transmit a Status call.
ⓘ See page 5-6 for details.

Status Up, Status Down

● While in the Standby mode, push to select a status message.
● When a received message is displayed:
  • Push to cancel the automatic scroll.
  • Push to manually scroll the message that contains more than 8 characters.

TX Code Enter

Push to enter the TX Code edit mode (5-Tone).

1 PANEL DESCRIPTION

Assignable Software Key functions (Continued)

Category: Functions

Announce
Push to turn the Channel Announce function ON or OFF.

AquaQuake™
While holding down this key, the AquaQuake water draining function removes water from the speaker grill by vibrating the internal speaker.
ⓘ Water in the speaker grill may muffle the sound coming from the speaker.

NOTE:
• After the specified period of time, this function automatically stops, even if a user continues to hold down this key.
• This key works with only the internal speaker.

Light
Push to turn ON the backlight for about 5 seconds, even if the backlight setting is OFF.

Lock
Hold down for 1 second to turn the Key Lock function ON or OFF.
ⓘ All assignable keys except the following are electronically locked: [Monitor], [Call], [Call A], [Call B], [Emergency], [Light], [Lock], [Lone Worker], [Siren], [Surveillance], [Sp. Func 1] [Sp. Func 2], [Shift], and [PTT]. You can also make or receive calls, or turn the transceiver ON or OFF, while the Key Lock function is ON.

Lone Worker
Push to turn the Lone Worker function ON or OFF.
ⓘ If no operation occurs during a specified period, the Lone Worker function automatically makes the transceiver enter the Emergency mode.

NOTE: To use the Lone Worker function, set the related settings using the programming software.

Siren
Hold down for the Emer SW ON Timer period to emit a siren sound from the speaker to let surrounding people know that the user is in an Emergency situation.
ⓘ The siren will sound continuously until the transceiver is turned OFF.

Sp. Func 1, Sp. Func 2
Sp. Func 1 and Sp. Func 2 are reserved for PC commands.

Surveillance
Push to turn the Surveillance function ON or OFF. When this function is turned ON, the beep do not sound, and the backlight and the status indicator do not light, even when a signal is received, or a key is pushed.

User Set Mode
● Hold down for 1 second to enter the User Set mode. The User Set mode is used to change settings, without using a PC.
ⓘ Hold down for 1 second again to exit the User Set mode.
● In the User Set mode, momentarily push this key to select an item, and then push [CH Up] or [CH Down] to change the value or setting.

NOTE: To use the [User Set Mode], [CH Up] or [CH Down] must be assigned to any assignable keys using the programming software.

Category: GPS
GPS Display
Push to display the "GPS Position."

Section 2 BASIC OPERATION

2   BASIC OPERATION

Turning ON the transceiver

◇ Turning ON the transceiver

NOTE: Before using the transceiver for the first time, the battery pack must be fully charged for optimum life and operation. See the INSTRUCTIONS for details.

Rotate [VOL] to turn ON the transceiver.
• The battery voltage or the opening text may be displayed, depending on the presetting.

◇ Adjusting the audio level

When receiving a call, rotate [VOL] to adjust the audio output level.

[Rotary Selector]
[VOL]
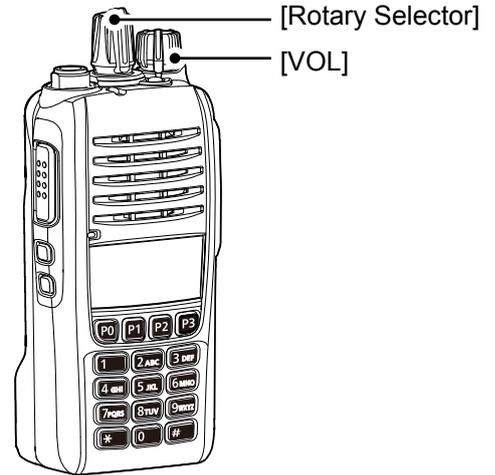
◇ Entering the password

<For the Simple key and Ten-key types>
If the transceiver is preset for a Power ON Password, "PASSWORD" is displayed when turning ON the transceiver.
In that case, enter the password.
1. Push the appropriate keys to enter numbers, as described below.

Key	[P0]	[P1]	[P2]	[P3]	[Down]
Number	0 5	1 6	2 7	3 8	4 9

2. After entering the correct password, the transceiver automatically displays the Standby screen.

PASSWORD

▼

01 ch-01
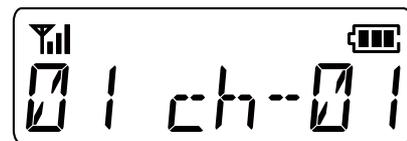
Standby screen (Example)

<For the Ten-key type>
● You can also enter the password using the Ten-key.

NOTE: If the transceiver does not display the Standby screen after entering the password, the entered code may be incorrect. Turn OFF the transceiver, then ON again to re-enter the password.

2   BASIC OPERATION

Selecting a Zone

◇ Selecting a Zone

<For the Simple key and Ten-key types>
Select a Zone type:
Conventional, Multi-site Conventional,
Single-site Trunking, or Voting

TIP: What is a "Zone"?
Certain channels are grouped together and assigned
to a Zone according to their intended use.
For example, Analog channels 'Station 1' and
'Station 2' are assigned to an "Analog" Zone, and
Digital channels 'Station 3' and 'Station 4' are
assigned to a "Digital" Zone.

To select a Zone:
● Rotate [Rotary Selector]*.
● Push [Zone Up] or [Zone Down].
● Push [Zone Select] to enter the Zone selection
  mode, then, push [CH Up] or [CH Down] to select a
  Zone.
• The selected Zone number or name is briefly displayed,
  and returns to the Standby screen.

*When "Zone" is assigned.

2   BASIC OPERATION

Selecting a channel

◇ Selecting an operating channel

To select a Zone:
● Rotate [Rotary Selector].
● Push [CH Up] or [CH Down].

<Voting operation>
The transceiver automatically starts scanning when a Zone specified for the Voting operation is selected. The Voting scan detects the signal strength of the repeaters, and automatically selects the strongest one.

<Automatic Scan operation>
Depending on the presetting, when the user turns ON the transceiver, a scan automatically starts. The scan stops when a call is received.

◇ Selecting the Priority A or B channel

Push [Prio A], [Prio A (Rewrite)], [Prior B], or [Prio B (Rewrite)] to select the Priority A or Priority B channel.

◇ Rewriting the Priority A or B channel

Hold down [Prio A (Rewrite)] or [Prio B (Rewrite)] for 1 second to set the currently selected channel as the Priority A or B channel.

◇ Selecting a Continuous tone channel

In the Analog mode

<For the Simple key and Ten-key types>
1. Push [C.Tone CH Select] to enter the Continuous Tone Channel selection mode. Then push [CH Up] or [CH Down] to select a tone frequency/code.
2. After selecting, push [C.Tone CH Select] again to set.

◇ Selecting a RAN channel

In the Digital mode

<For the Simple key and Ten-key types>
1. While in the Digital mode, push [Tone/RAN CH Select] to enter the RAN CH selection mode.
2. Push [CH Up] or [CH Down] to select a RAN channel.
   • Sets the selected channel.

2   BASIC OPERATION

Call procedure

When your system uses tone signaling (except CTCSS and DTCS), a call procedure may be necessary prior to voice transmission. The tone signaling employed may be a selective calling system, which enables you to call only specific stations, and prevents unwanted stations from contacting you.

1. Select a channel according to your system operator's instructions.
   ⓘ This may not be necessary, depending on the presetting.
2. Push [Call].
3. After transmitting, the remainder of your communication can be carried out in the normal way.

Selective calling

Non-selective calling
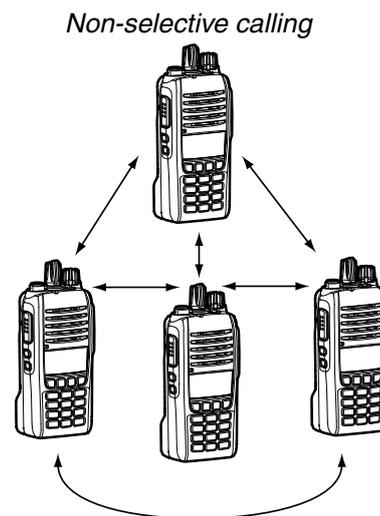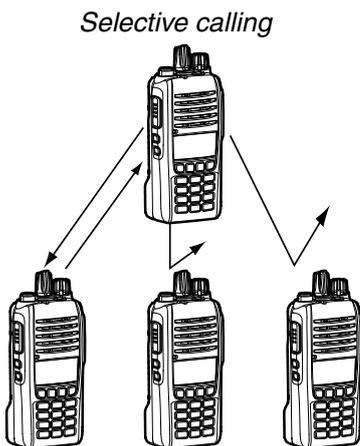
2   BASIC OPERATION

Receiving and transmitting

CAUTION: **DO NOT** transmit without an antenna. It may damage the transceiver.

Receiving:
1. Turn ON the transceiver. (p. 2-2)
2. Select a channel. (p. 2-4)
3. When receiving a call, rotate [VOL] to adjust the audio output level to a comfortable listening level.

NOTE: Depending on the presetting, the transceiver may automatically transmit the microphone audio for the preset time period when a matched signal is received. (Auto TX function)

Transmitting:
1. Wait for the channel to become clear to avoid interference.
2. While holding down [PTT], speak at your normal voice level.
   ① When a tone signaling system is used, the call procedure described to the right may be necessary.
3. Release [PTT] to receive.

IMPORTANT: To maximize the readability of your signal.
 1. Pause briefly after pushing [PTT].
 2. Hold the microphone 5 to 10 cm (2 to 4 inches) from your mouth, then speak at your normal voice level.

◇ **Transmitting notes**

Transmit inhibit function
The transceiver has several inhibit functions which restrict transmission under the following conditions:
• The channel is in the Inaudible mode ("◀": Audible icon is not displayed.)
• The channel is busy. However, depending on the presetting, you can transmit when a call is received that includes a non-matching (or matching) CTCSS (DTCS), RAN (Radio Access Number), Individual ID, or Group ID.
• The selected channel is a 'receive only' channel.

Time-Out Timer
If continuous transmission exceeds the preset Time-Out Timer time, the transmission is cut off.

Penalty timer
After the transmission is cut off by the Time-Out Timer, transmission is further inhibited for a preset penalty period of time.

◇ **Sending a call to a destination**

When a tone frequency (2-Tone) or code (5-Tone) is preset in the Call List, a user can select it as a destination.

<For the Simple key and Ten-key types>
1. Push [Call List Select] to enter the Call List selection mode.
2. Push [CH Up] or [CH Down] to select an ID or code.
   • The selected ID or code is briefly displayed and set.
3. Push [Call] to make a call to the selected destination.

Section 3   ADVANCED OPERATION

3   ADVANCED OPERATION

DTMF calls

◇ Autodial

A user can quickly send DTMF tones that have been
pre-entered into the transceiver.

<For the Simple key and Ten-key types>
1. Push [CH Up] or [CH Down] to select a channel.
2. Push [DTMF Autodial] to enter the DTMF Autodial
    List selection mode.
3. Push [CH Up] or [CH Down] to select a DTMF
    Memory, then push [DTMF Autodial] to send the
    DTMF code.
    • After sending, automatically returns to the standby
      screen.

<For the Non-display type>
● Push [DTMF Autodial] to send the preset DTMF
  code No.1.

NOTE: You can also send a DTMF code even when
transmitting a call.

3   ADVANCED OPERATION

Emergency call

IMPORTANT: It is recommended that the dealer sets an Emergency channel in each Zone, to provide a reliable Emergency call operation.

NOTE: Depending on the presetting, the following functions may be automatically activated.

Auto TX function
After an Emergency call transmission, the transceiver transmits the microphone audio for a preset period of time.

Auto RX function
After an Emergency call transmission, the transceiver stands by in the Audible mode for a preset period of time.

TIP: A user can transmit the Emergency call in the 2-Tone, 5-Tone, NXDN™, or MDC 1200.

◇ Transmitting an Emergency call

When the transceiver enters the Emergency mode, a countdown starts. The transceiver counts down during the Reminder Timer set time.
Before the Reminder Timer set time expires, the transceiver transmits an Emergency call once, or repeatedly*, on the specified Emergency channel.
If no Emergency channel is specified, the Emergency call is made on the previously selected channel.
* Depending on the presetting.

ⓘ The transceiver automatically transmits a repeat Emergency call until it receives an acknowledgement, or until a user turns OFF the transceiver.
ⓘ If the transceiver is set for the Silent operation, it transmits an Emergency call without a beep sounding or the status indicator lighting.

The transceiver enters the Emergency mode through the following functions:

• **The [Emergency] key**
When a user holds down [Emergency] for the Emer SW ON Timer (Sec) preset time.

ⓘ If a user holds down [Emergency] for the Emer SW OFF Timer (Sec) set time before the Reminder Timer expires, the Emergency mode is canceled.
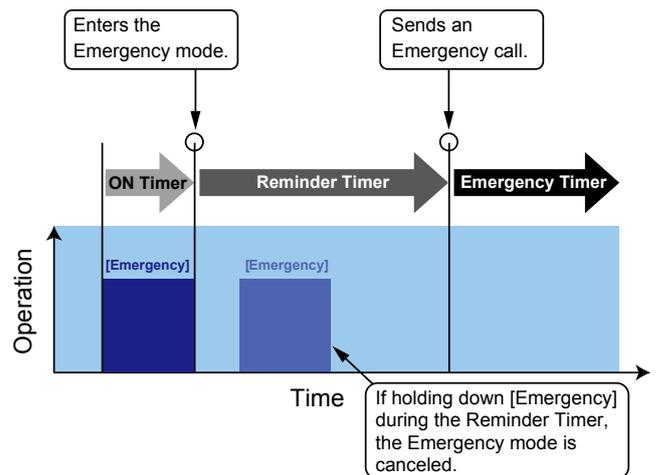
3   ADVANCED OPERATION

Emergency call

◇ Transmitting an Emergency call (Continued)
The transceiver enters the Emergency mode through the following functions:

• The Man Down function
When the transceiver is tilted past the preset angle for the ON Timer (Sec) preset time.

ⓘ If a user raises the transceiver back from the preset angle towards the vertical position before the Reminder Timer set time expires, the Emergency mode is canceled.

Enters the Emergency mode.

Sends an Emergency call.

ON Timer | Reminder Timer | Emergency Timer

Angle

Past the preset degrees

Preset angle

Time

If raised back from the preset angle during the Reminder Timer, the Emergency mode is canceled.
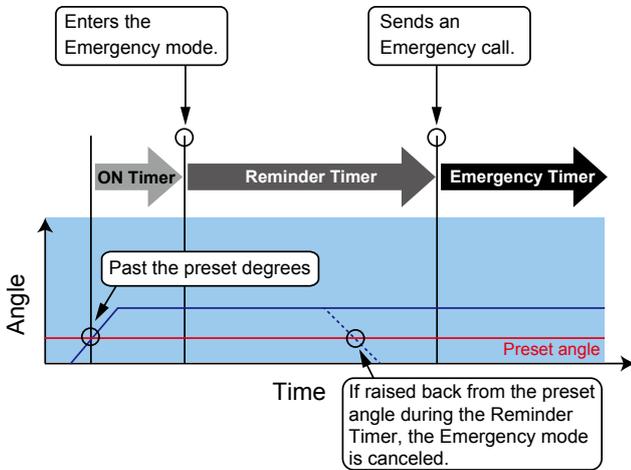
Man Down With Stationary
• The transceiver leans past the preset angle for the ON Timer preset time.
   AND
• The transceiver is detected as stationary (no motion) for the ON Timer set time.

ⓘ If a user raises the transceiver back from the preset angle towards the vertical position, or when the user moves the transceiver before the Reminder Timer set time expires, the Emergency mode is canceled.

Enters the Emergency mode.

Sends an Emergency call.

ON Timer | Reminder Timer | Emergency Timer

Acceleration

No motion is detected.

Stationary Sensitivity

If moving during the Reminder Timer, the Emergency mode is canceled.

Angle

Past 45 degrees

Preset angle

Time

If raised back from the preset angle during the Reminder Timer, the Emergency mode is canceled.
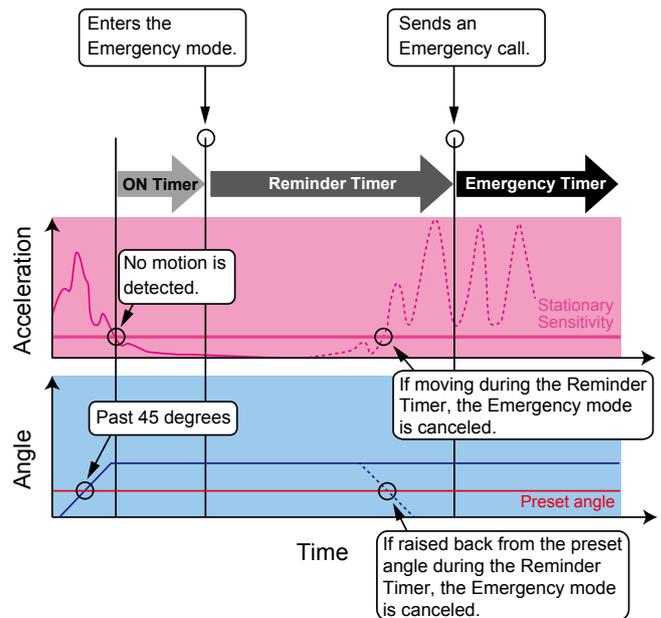
3   ADVANCED OPERATION

Emergency call

◇ Transmitting an Emergency call (Continued)
The transceiver enters the Emergency mode through
the following functions:

• **The Lone Worker function**
When no operation occurs for the ON Timer preset time.

ⓘ If a user pushes any key before the Reminder
Timer set time expires, the Emergency mode is
canceled.

Enters the Emergency mode.

Sends an Emergency call.

ON Timer | Reminder Timer | Emergency Timer

[PTT] [PTT] [PTT]   [KEY]

No operation is detected.

Operation

Time

If pushing any key during Reminder Timer, the Emergency mode is canceled.
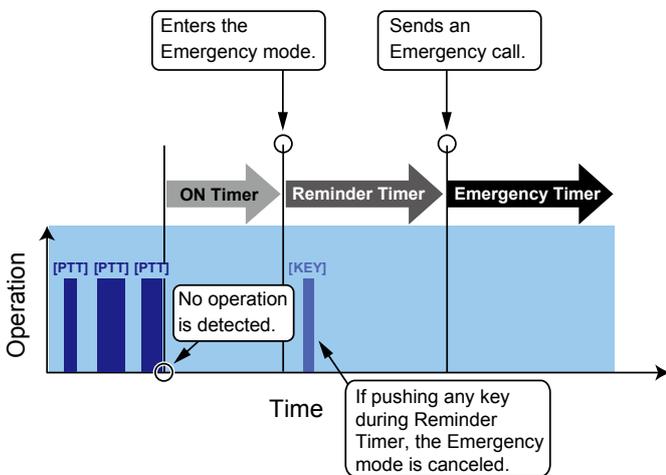
Lone Worker With Stationary
• When no operation occurs for the ON Timer preset
time.
   AND
• The transceiver is detected as stationary (no motion)
for the ON Timer set time.

ⓘ If a user pushes any key, or moves the transceiver
before the Reminder Timer set time expires, the
Emergency mode is canceled.

(Example)
• ON Timer: 60 minutes
• Reminder Timer: 60 seconds
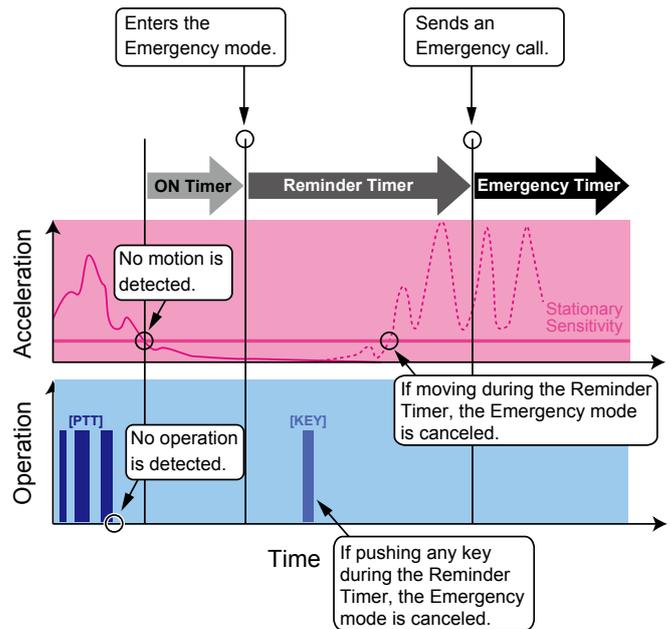
Enters the Emergency mode.

Sends an Emergency call.

ON Timer | Reminder Timer | Emergency Timer

Acceleration

No motion is detected.

Stationary Sensitivity

If moving during the Reminder Timer, the Emergency mode is canceled.

Operation

[PTT]   [KEY]

No operation is detected.

Time

If pushing any key during the Reminder Timer, the Emergency mode is canceled.

3   ADVANCED OPERATION

◇ Transmitting an Emergency call (Continued)
The transceiver enters the Emergency mode through
the following functions:

• **The Stationary Detection function**
When the transceiver is detected as being stationary
(no motion) for the ON Timer preset time.

ⓘ If a user moves the transceiver during the
Reminder Timer set time, the Emergency mode is
canceled.
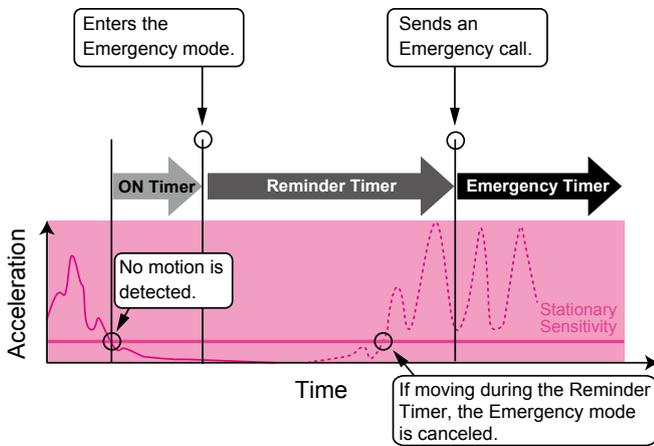
• **The Motion Detection function**
When the transceiver continuously moves for the ON
Timer preset time.

ⓘ If a user holds down [Emergency] for the Emer SW
OFF Timer (Sec) set time, before the Reminder
Timer set time expires, the Emergency mode is
canceled.

3-6
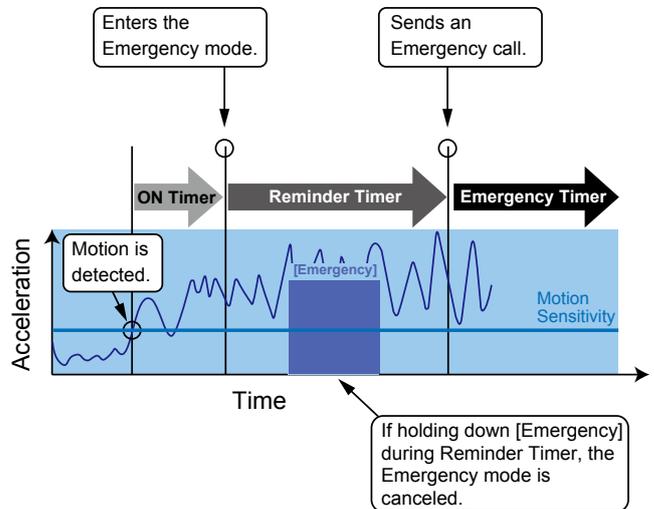
3   ADVANCED OPERATION

Sounding a Siren

Hold down [Siren] for the Emer SW ON Timer (Sec) period to emit a siren sound from the speaker to let surrounding people know that the user is in an Emergency situation.

The siren will sound continuously until the transceiver is turned OFF.

Radio Access Number (RAN)

Radio Access Number (RAN) is a signaling system designed for digital radio communications. When a channel is set up with a RAN, the squelch will open only when a call containing a matching RAN is received. If a call containing a different RAN is made on the same channel a user is using, a user will not hear the call.

3   ADVANCED OPERATION

AquaQuake™ Water Draining function

By vibrating the speaker cone, the AquaQuake Water Draining function clears water from the speaker grill to maintain clear audio.

1. Hold down [AquaQuake] to turn ON the AquaQuake water draining function.
   • A low frequency vibration is generating to remove water from the speaker grill.
   • Water in the speaker grill may muffle the sound coming from the speaker.
2. Release the key to turn OFF the function.

NOTE:
• After the specified period of time expires, this function automatically stops, even if a user continues to hold down this key.
• This key works for only the internal speaker.

Section 4   USER SET MODE

4   USER SET MODE

User Set Mode description

<For the Simple key and Ten-key types>
The user can enter the "User Set Mode" to customize certain transceiver setting without using the programming software.

<For the Non-display type>
The user can also customize the Beep function, Beep level, the Ringer level, the microphone gain, the VOX function, the VOX gain and the squelch level.
See pages 4-6 to 4-7 for detailed settings.

◇ **Operation in the User set mode**

Example: Changing the Ringer level 3 to 5.

1. Hold down [User Set Mode] for 1 second to enter the User set mode.
2. Push [User Set Mode] to select an item.
   (Example: Selecting Ringer (RINGV))

3. Push [CH Up] or [CH Down] to select an option.
   (Example: Selecting Level 5)

   • The selected option is automatically set.

4. Hold down [User Set Mode] for 1 second to return to the Standby screen.

4   USER SET MODE

User Set Mode items

Item	Description	Display	Reference
Backlight	Sets the Key Backlight status.	LIGT	p. 4-4
Beep	Turns the key-touch beeps ON or OFF.	BEEP	p. 4-4
Beep Level	Sets the beep and announce output level.	BEEPV	p. 4-4
Ringer Level	Sets the Ringer output level.	RINGV	p. 4-4
SQL Level (Squelch Level)	Sets the squelch level.	SQL	p. 4-4
AF Min Level (AF Minimum Level)	Sets the minimum audio output level.	AFMIN	p. 4-4
Mic Gain (Microphone Gain)	Sets the microphone sensitivity.	MIC	p. 4-4
VOX	Turns the VOX function ON or OFF.	VOX	p. 4-4
VOX Gain	Sets the VOX gain.	VGAIN	p. 4-4
VOX Delay (Sec)	Sets the VOX Delay.	VDLY	p. 4-4
Battery Voltage	Displays the battery voltage.	BATT	p. 4-4
Signal Moni (Signal Monitor)	Sets whether or not to release the mute while using a 2-Tone, 5-Tone, or DTMF code signaling.	SMON	p. 4-4
Lone Worker	Turns the Lone Worker function ON or OFF.	LONE	p. 4-4
Stationary Sensitivity	Sets the acceleration sensor sensitivity to detect if the user is stationary or not for the Stationary Detection function.	STNARY	p. 4-5
Motion Sensitivity	Sets the acceleration sensor sensitivity to detect whether the user is moving or not, for the Motion Detection function.	MOTION	p. 4-5

4 USER SET MODE

User Set Mode items

Backlight

<For the Simple key and Ten-key types>
Sets the Backlight status.
- OFF: Turns OFF the backlight.
- OFF Auto: When pushing any key (except [PTT]), the backlight automatically turns ON for 5 seconds.
- OFF Auto2: When pushing any key (except [PTT]) or when changing the displayed contents of the LCD, the backlight automatically turns ON for 5 seconds.
- ON: The backlight turns ON all the time.

Beep

Turns the key-touch beeps ON or OFF.

Beep Level

Sets the beep and announce output level.
- Range: 1 ~ 5, or 1 (Linked) ~ 5 (Linked). When setting the Linked option, the beep level is adjustable with [VOL].

Ringer Level

Sets the Ringer output level.
- Range: 1 ~ 5, or 1 (Linked) ~ 5 (Linked). When setting the Linked option, the ringer level is adjustable with [VOL].

SQL Level (Squelch Level)

Sets the squelch level.
- Range: 0 (open) ~ 9 (tight)

AF Min Level (AF Minimum Level)

Sets the minimum audio output level.
This function determines the minimum audio output level not to let the audio level become lower than the set level.
- Range: 0 ~ 255

Mic Gain (Microphone Gain)

Sets the microphone sensitivity.
- Range: 1 (low sensitivity) ~ 4 (high sensitivity)

VOX

Turns the VOX function ON or OFF.

NOTE: To use the function, a headset and a VOX converter cable are required (purchase separately).

VOX Gain

Sets the VOX gain.
The VOX function automatically switches between receive and transmit by detecting sounds.
Higher values make the VOX function more sensitive to sounds.
- Range: 1 ~ 10.

VOX Delay (Sec)

Sets the period of time the transceiver continues transmitting after the user stops speaking, and then the VOX switches to receive.
- Range: 0.5 ~ 3.0 seconds

Battery Voltage

<For the Simple key and Ten-key types>
Sets whether or not to display the battery voltage when turning ON the transceiver.

Signal Moni (Signal Monitor)

Sets whether or not to release the mute while using a 2-Tone, 5-Tone, or DTMF code signaling.
- OFF: The mute status is kept (Inaudible) even when pushing [Monitor].
- ON: The mute is released (Audible) when pushing [Monitor].

Lone Worker

Sets whether or not to automatically enter the Emergency mode when no operation occurs during the set period of time.

4 USER SET MODE

User set mode items

Stationary Sensitivity

Sets the acceleration sensor sensitivity to detect if the user is stationary or not for the Stationary Detection function.
• Range: 1 (high sensitivity) ~10 (low sensitivity)

ⓘ If you set at a higher level, the transceiver will enter the Emergency mode more easily.
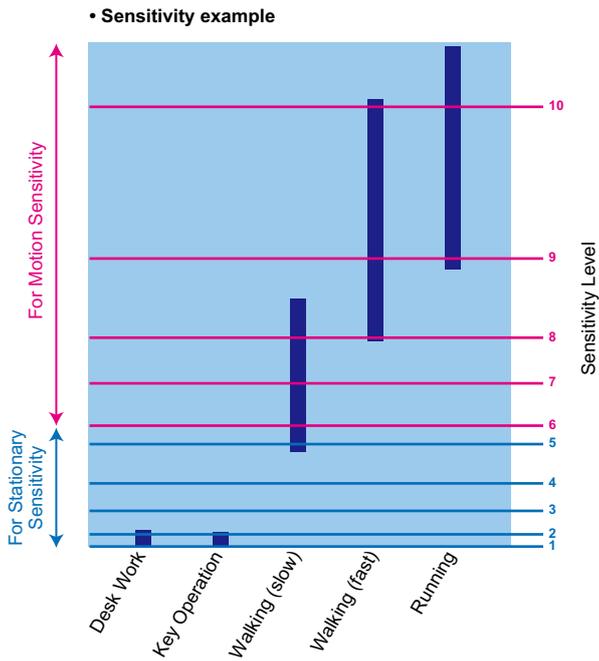
• Sensitivity example

Motion Sensitivity

Sets the acceleration sensor sensitivity to detect whether the user is moving or not, for the Motion Detection function.
This setting is used for the Stationary Detection function, and it determines the acceleration threshold level to activate the Stationary Detection's ON Timer (Sec).
• Range: 1 (high sensitivity) ~10 (low sensitivity)

ⓘ If you set at a lower level, the transceiver will enter the Emergency mode more easily.

4 USER SET MODE

User setting for the Non-display type

◇ User setting operation

For the Non-display type, the Beep function, Beep level, the Ringer level, the microphone gain, the VOX function, the VOX gain and the squelch level are settable with key operation and hearing beeps.

◇ Turning the Beep function ON or OFF

NOTE: Turn ON the Beep function when you set the Beep level, the Ringer level, the microphone gain, the VOX function, the VOX gain and the squelch level.

1. Rotate [VOL] to turn OFF the transceiver.
2. Set [Rotary Selector] to any channel other than Channel 16.
3. While holding down [Lower], rotate [VOL] to turn ON the transceiver.
   • The transceiver enters the Beep level set mode.
4. Push [Lower] to turn the Beep function ON or OFF.

   ⓘ **Information**
   • If a beep sounds after pushing [Lower], the Beep function is ON. If no beep sounds after pushing [Lower], the Beep function is OFF.
   • The transceiver saves the setting every time you change it.
   • If desired, push [Upper] to adjust the Beep level.

5. Rotate [VOL] to turn OFF the transceiver, then turn ON again to restart the normal operation.

◇ Setting the Beep level

1. Rotate [VOL] to turn OFF the transceiver.
2. Set [Rotary Selector] to any channel other than Channel 16.
3. While holding down [Lower], rotate [VOL] to turn ON the transceiver.
   • An opening beep sounds and the selected channel number will be announced.
   • The transceiver enters the Beep level set mode.
4. Push [Upper] to change the Beep level.
   • A beep at the set level sounds every time you push [Upper].
   ⓘ Repeatedly pushing [Upper] changes the Beep level as shown below.
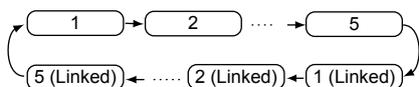
   ⓘ The settable range: 1 to 5 and 1 (Linked) to 5 (Linked). When setting the Linked option, the Beep level is adjustable with [VOL].
5. Rotate [VOL] to turn OFF the transceiver, then turn ON again to restart the normal operation.

◇ Setting the Ringer level

NOTE: Be sure to turn ON the Beep function before you start setting the Ringer level.

1. Rotate [VOL] to turn OFF the transceiver.
2. Set [Rotary Selector] to Channel 16.
3. While holding down [Lower], rotate [VOL] to turn ON the transceiver.
   • An opening beep sounds and the selected channel number will be announced.
   • The transceiver enters the Ringer level set mode.
4. Push [Upper] to increase, or push [Lower] to decrease the Ringer level.
   • A beep at the set level sounds every time you push [Upper] or [Lower].
   ⓘ Repeatedly pushing [Upper] or [Lower] changes the Ringer level as shown below.
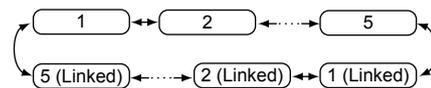
   ⓘ The settable range is : 1 to 5 or 1 (Linked) to 5 (Linked). When setting the Linked option, the Ringer level is adjustable with [VOL].
5. Rotate [VOL] to turn OFF the transceiver, then turn ON again to restart the normal operation.

◇ Setting the microphone gain

The higher value makes the microphone more sensitive to the user voice.

NOTE: Be sure to turn ON the Beep function before you start setting the microphone gain.

1. Rotate [VOL] to turn OFF the transceiver.
2. Set [Rotary Selector] to Channel 16.
3. While holding down [Upper], rotate [VOL] to turn ON the transceiver and enter the microphone gain adjustment mode.
4. Push [Upper] to increase, or push [Lower] to decrease the microphone gain.
   ⓘ The adjustable range is between 1 (low sensitivity) to 4 (high sensitivity).
   • A beep sounds after pushing [Upper] or [Lower]. An error beep sounds if you try to exceed the adjustable range.
5. Rotate [VOL] to turn OFF the transceiver, then turn ON again to restart the normal operation.

4   USER SET MODE

◇ Setting the squelch level

The squelch circuit mutes the received audio signal, depending on the signal strength.

NOTE: Be sure to turn ON the Beep function before you start setting the squelch level.

1. Rotate [VOL] to turn OFF the transceiver.
2. Set [Rotary Selector] to any channel other than Channel 16.
3. While holding down [Upper], rotate [VOL] to turn ON and enter the squelch level adjustment mode.
4. Push [Upper] to increase the squelch level or push [Lower] to decrease the squelch level.
   ① The settable range is between 0 (open) to 9 (tight).
   • A beep sounds after pushing [Upper] or [Lower]. An error beep sounds if you try to exceed the settable range.
5. Rotate [VOL] to turn OFF the transceiver, then turn ON again to restart the normal operation.

◇ Setting the VOX function

The VOX function can be turned ON or OFF. The VOX function automatically switches between receive and transmit during voice operation.

NOTE: Be sure to turn ON the Beep function before you start setting the VOX function.

1. Rotate [VOL] to turn OFF the transceiver.
2. Set [Rotary Selector] to any channel other than Channel 16.
3. While holding down [PTT] and [Upper], rotate [VOL] to turn ON the transceiver and turn the VOX function ON or OFF.
   • When the VOX function is ON, a beep sounds.
   • When the VOX function is OFF, two beeps sound.
4. Rotate [VOL] to turn OFF the transceiver, then turn ON again to restart the normal operation.

◇ Setting the VOX Gain

The higher value makes the VOX function more sensitive to the user voice.

NOTE: Be sure to turn ON the Beep function before you start setting the VOX gain.

1. Rotate [VOL] to turn OFF the transceiver.
2. Set [Rotary Selector] to Channel 16.
3. While holding down [PTT] and [Upper], rotate [VOL] to turn ON the transceiver and turn the VOX function ON or OFF.
   ① The adjustable range is between 1 (low sensitivity) to 4 (high sensitivity).
   • A beep sounds after pushing [Upper] or [Lower]. An error beep sounds if you try to exceed the settable range.
4. Rotate [VOL] to turn OFF the transceiver, then turn ON again to restart the normal operation.

Section 5   NXDN™ OPERATION

5   NXDN™ OPERATION

NXDN™ system operation

NXDN has a new "Common Air Interface" (CAI), the name for over-the-air methods by which transceivers and repeaters communicate. NXDN defines the next-generation digital transceiver.

The NXDN system has two operating modes, Conventional and Trunking. In a Conventional system, you manually search for an empty channel. In a Trunking system, the transceiver automatically searches for an empty channel, and sends the information to the target transceiver through a repeater. In this way, the target transceiver automatically selects the receive mode to reply to a received call. In addition, a Control Channel repeater is required.

If you use an NXDN transceiver, you can transmit or receive an Individual Call, Group Call, Status Message, Short Message, Call Alert call, and so on.

The IC-F1100D and IC-F2100D support the following systems:

• **NXDN Conventional operation**
The NXDN Conventional system enables efficient Conventional operation in the digital mode. To select the Conventional Zone, see page 2-3.

• **Multi-site Conventional operation**
The Multi-site Conventional system can support up to 16 sites (each site has one repeater) through an IP network, and enables efficient Conventional operation in the digital mode. To select the Multi-site Conventional Zone, see page 2-3.

• **Single-site Trunking operation**
The Single-site Trunking system enables further effective channel management by sharing a minimum number of channels with a large number of users. To select the Single-site Trunk Zone, see page 2-3.

5   NXDN™ OPERATION

Receiving a call

◇ Receiving an Individual call

When an Individual call is received:
• Mute is released.
• The Status indicator lights green.
• The calling station name (or ID) is displayed while receiving the signal.*

1. Hold down [PTT] to speak.
2. Release [PTT] to receive.

◇ Receiving a Group call

When a Group call is received:
• Mute is released.
• The Status indicator lights green.
• The Group name and the calling station name (or ID) are alternately displayed while receiving the call.
ⓘ When an All Call is received, "All Call" is displayed.* In that case, you cannot reply to it.

1. Hold down [PTT] to speak.
2. Release [PTT] to receive.

◇ Receiving a Status message

When a Status message is received:
• Beeps sound.
• The Status message and the calling station or Group name (or ID) are alternately displayed.*
• " 🔔 " may be displayed or blink, depending on the presetting.*
• The Status Indicator may blink orange once or twice, depending on the presetting.

Push [PTT] or any key to stop the display indication.

◇ Receiving a Message

When a Message is received:
• Beeps sound.
• The Message and the calling station or Group name (or ID) are alternately displayed.
• " 🔔 " may be displayed or blink, depending on the presetting.*
• The Status Indicator may blink orange once or twice, depending on the presetting.

Push [PTT] or any key to stop the display indication.

◇ Receiving a Call Alert call

When a Call Alert call is received:
• Beeps sound.
• "CALLALRT" and the calling station or Group name (or ID) are alternately displayed.*
• " 🔔 " may be displayed or blink, depending on the presetting.*
• The Status Indicator may blink orange once or twice, depending on the presetting.

1. Hold down [PTT] to speak.
2. Release [PTT] to receive.

◇ Receiving a Radio Check call

When a Radio check command is received, the transceiver automatically transmits an acknowledgment call. The RAN code matching may not be necessary, depending on the presetting.

◇ Receiving a Remote Monitor call

When a Remote monitor call is received, the microphone audio is automatically transmitted for a set time period. The RAN code matching may not be necessary, depending on the presetting.

* For the Simple key and Ten-key types. The message may differ, depending on the presetting.

5   NXDN™ OPERATION

Receiving a call

◇ **Receiving a Stun, Kill or Revive**

If a Stun or Kill command is received, the transceiver will display the stun text and you cannot receive or transmit.

If a Stun command is received, you cannot operate the transceiver until a Revive command is received, or the password is input.

If a Kill command is received, you cannot operate the transceiver until it is reprogrammed.

NOTE:
• Depending on the presetting, the transceiver can ignore the Stun, Revive and Kill commands that are from a non-specified station.
• Depending on the presetting, reception may be enabled.

◇ **Receiving an Emergency call**

When an Emergency call is received:
• Beeps sound.
• For the Simple key and Ten-key types. "Emer" and the calling station name (or ID) are alternately displayed. The message may differ, depending on the presetting.

• When the Send Ack function is set to ON by presetting, the transceiver automatically transmits an acknowledgment to the calling station, if the received call type is a Group or All call.
  ➀ If the received call type is Individual, and it requests an acknowledgment be sent back, the transceiver automatically sends the acknowledgment.
1. Hold down [PTT] to speak.
2. Turn OFF the transceiver, change the channel, or push [PTT] or a key to stop the beep and display indication.

5   NXDN™ OPERATION

Transmitting a call

NXDN operation enables you to make a call to a specific station (Individual call) or to a particular group (Group call). Other digital mode transceivers on the channel will not receive a call that does not match their Individual or Group ID and/or Radio Access Number (RAN) code.

◇ Transmitting an Individual or a Group call

\<For the Simple key and Ten-key types\>
1. Push [Digital Button] to enter the Application selection mode.
   • According to the current call type, "INDIV" (Individual call) or "GROUP" (Group call) is briefly displayed, and then "VOICE" is displayed.
   ⓘ If you want to change the call type, hold down [Digital Button] for 1 second in the Standby mode.

2. Push [Digital Button] to select voice call.
3. Push [CH Up] or [CH Down] to select an Individual station or a Group.

4. Push [PTT] to transmit a call.
5. Hold down [PTT] to speak.
6. Release [PTT] to receive.

> **TIP:**
> • You can also directly enter the Individual station (or Group) selection mode by pushing [Call List Select], depending on the presetting.
> • When an Individual ID is set in the Memory CH, you can transmit the Individual call by pushing [PTT] on the channel.
> • For the Ten-key type, you can also push a numeric key to select the preset Individual station or Group, depending on the presetting.

\<For the Non-display type\>
1. Rotate [Rotary Selector] to select a preset Individual station or Group.
2. Push [PTT] to transmit a call.
3. Hold down [PTT] to speak.
4. Release [PTT] to receive.

5   NXDN™ OPERATION

◇ Transmitting a Status message

You can transmit a preset simple message. You cannot transmit a voice signal at the same time.

<For the Simple key and Ten-key types>
1. Push [Digital Button] to enter the Application selection mode.
   • According to the current call type, "INDIV" (Individual call) or "GROUP" (Group call) is briefly displayed, and then "VOICE" is displayed.
   ⓘ If you want to change the call type, hold down [Digital Button] for 1 second in the Standby mode.
2. Push [CH Up] or [CH Down] to select "STATUS," and then push [Digital Button].

> ▏Y▕ill   ▄▄▄
> **STATUS**

3. Push [CH Up] or [CH Down] to select a status, and then push [Digital Button].
4. Push [CH Up] or [CH Down] to select an Individual station or a Group.

> ▏Y▕ill   ▄▄▄
> **STATION 1**

5. Push [PTT] to transmit a Status message.
   • "STAT OK" is displayed when an acknowledgment is received from the targeted station.
   • "STA FAIL " is displayed if an acknowledgment is not received from the targeted station.

TIP:
• Hold down [Status] for 1 second to transmit the preset Status message.
• For the Ten-key type, push a numeric key [0] ~ [9] to directly select the preset Status message to the latest transmitted station or group.
• Hold down a numeric key [0] ~ [9] to directly send the preset Status message to the latest transmitted station or group.

NOTE: If the following settings are configured using the CS-F2100D PROGRAMMING SOFTWARE, the Status message can be automatically transmitted when:

• The transceiver is turned ON or OFF
ⓘ Set the Status message to be transmitted in **Power ON Status** or **Power OFF Status**, respectively.
ⓘ Set the target station ID in **Power Status ID for Conventional** or **Power Status ID for Single-site Trunk**.
  (Digital > Status > **Status Setting**)

• After sending a voice message
ⓘ Set **Send with Voice Call** to "Enable."
ⓘ Set the Status message to be transmitted in **Send Status Number**.
  (Digital > Status > **Status Setting**)

<For the Non-display type>

A Status call can be transmitted by pushing [Status].
1. Rotate [Rotary Selector] to select a Status.
2. Hold down [Status] to transmit a Status call.

5 NXDN™ OPERATION

Transmitting a call

◇ Transmitting a Message

<For the Simple key and Ten-key types>
You can transmit a message of up to 100 characters.

1. Push [Digital Button] to enter the Application selection mode.
   • According to the current call type, "INDIV" (Individual call) or "GROUP" (Group call) is briefly displayed, and then "VOICE" is displayed.
   ① If you want to change the call type, hold down [Digital Button] for 1 second in the Standby mode.
2. Push [CH Up] or [CH Down] to select "MSG," and then push [Digital Button].

```
 Yıl              ▥
 MSG
```

3. Push [CH Up] or [CH Down] to select a message, and then push [Digital Button].

```
 Yıl              ▥
 GoAREA1
```

4. Push [CH Up] or [CH Down] to select an Individual station or a Group.

```
 Yıl              ▥
 STATION1
```

5. Push [PTT] to transmit a Message.
   • "MSG OK" is displayed when an acknowledgment is received from the targeted station.
   • "MSG FAIL" is displayed if an acknowledgment is not received from the targeted station.

TIP:
• Push [Message] to directly enter the Message selection screen in step 3 to the left.
• Hold down [Message] for 1 second to transmit the preset Status message.
• For the Ten-key type, you can directly select a preset message using the numeric key [0] ~ [9].

NOTE:
Set the Message to be transmitted using the CS-F2100D PROGRAMMING SOFTWARE.
(Digital > Message > **Message List**)

5   NXDN™ OPERATION

Transmitting a call

◇ Transmitting a Call Alert call

A Call Alert call enables you to notify another user who may be away from the transceiver that you want to talk.

1. Push [Digital Button] to enter the Application selection mode.
   • According to the current call type, "INDIV" (Individual call) or "GROUP" (Group call) is briefly displayed, and then "VOICE" is displayed.
   ⓘ If you want to change the call type, hold down [Digital Button] for 1 second in the Standby mode.
2. Push [CH Up] or [CH Down] to select "CALLALRT," and then push [Digital Button].

3. Push [CH Up] or [CH Down] to select an Individual station or a Group.

4. Push [PTT] to transmit a Call Alert call.
   • "CA OK" is displayed when an acknowledgment is received from the targeted station.
   • "CA FAIL" is displayed if an acknowledgment is not received from the targeted station.

TIP:
Hold down [Call Alert] for 1 second to transmit the Call Alert call.

◇ Transmitting an Emergency call

An NXDN Emergency call can be transmitted in the same way as the 2-Tone, 5-Tone, or MDC 1200 signaling operation. See "Emergency call" for details. (pp. 3-3 ~ 3-6)

◇ Transmitting Position data

When the GPS function is ON, and the optional HM-171GPW GPS SPEAKER MICROPHONE receives Position data, the longitude and latitude data can be automatically transmitted:

• When a GPS request status message is received.
• At the preset interval.
  ⓘ Set the **Auto** to "Enable."
  ⓘ Set the **Interval Timer [mm:ss]**.
• After sending a voice message.
  ⓘ Set the **Send with Login** and **Send with Logoff** to "Enable."
• After sending a Status Message.
  ⓘ Set the **Send with Status Call** to "Enable."
• After sending a Call Alert.
  ⓘ Set the **Send with Call Alert** to "Enable."
• After sending an Emergency call.
  ⓘ Set the **Send with Emergency** to "Enable."

NOTE: To transmit position data, the settings above are required using the CS-F2100D PROGRAMMING SOFTWARE.
(GPS > **Setting**)

5   NXDN™ OPERATION

Call log

<For the Simple key and Ten-key types>
The transceiver saves a log of the received Individual calls, Call Alert calls, Status Messages, and Messages in the memory, depending on the presetting.
Up to 10 received calls can be saved, and the oldest log is deleted when an 11th call is received. However, once the transceiver is turned OFF, the all records are deleted.

◇ Displaying the Call log

1. Push [Digital Button] to enter the Application selection mode.
2. Push [CH Up] or [CH Down] to select "CALL LOG", and then push [Digital Button].

3. Push [CH Up] or [CH Down] to select the Log then push [Digital Button].
   • The Station Name or ID and the received call type, Status Message, or Message of the latest received call are alternately displayed.

NOTE: To save the call log, set the Call Log settings using the CS-F2100D PROGRAMMING SOFTWARE. (Digital > Option > **Call Log**)

5   NXDN™ OPERATION

Encryption function

The Encryption function enables voice scrambling, which provides private digital communication between stations.
When an encrypted call is received, the squelch will open only when the call contains a matching Key ID*.
If a call containing a different Key ID* is made on the same channel, the squelch will not open, and the user will not hear the call.
* Depending on the presetting, opening the squelch may also require that a matching RAN is included in the call.

Push [Encryption] to toggle the Encryption function ON or OFF.
• "🔓" is displayed when the Encryption function is ON.

ⓘ When the Encryption function is ON, push [PTT] to make an encrypted call.

Section 6   MDC 1200 SYSTEM OPERATION

6   MDC 1200 SYSTEM OPERATION

MDC 1200 system operation

This function is usable in only the Analog mode.

The MDC 1200 signaling system enhances your transceiver's capabilities. The user can receive and transmit PTT ID and Emergency calls, and receive Radio Check, Stun, and Revive calls.

Set one of the assignable software key functions for the MDC 1200 system operations. (pp. 1-6 ~ 1-7)

NOTE:
Set the related settings using the CS-F2100D PROGRAMMING SOFTWARE when using the MDC 1200 system. See the Help file for details.

6   MDC 1200 SYSTEM OPERATION

Receiving a call

◇ Receiving a PTT ID call

When a PTT ID call is received:
• Beeps sound, depending on the presetting.
• The calling station's ID is displayed.[*1]

```
Y.ıl                    (█████)
ID 0001
```

◇ Receiving an MDC Emergency call

When an MDC Emergency call is received:
• Beeps sound.
• The calling station's ID and "Emer" is alternately
  displayed.[*1]

```
Y.ıl                    (███)
    EMER
```

▲▼

```
Y.ıl                    (█████)
ID 0001
```

Hold down [PTT] to speak.

ⓘ The transceiver may automatically transmit an
   acknowledgment to the calling station, depending
   on the setting.
ⓘ To stop the Emergency beeps, turn OFF the
   transceiver, change the channel, or push [PTT] or
   a key.

◇ Receiving an MDC Stun or Revive call

If an MDC Stun call is received that matches your
station ID, the transceiver displays the stun text and
you can not receive[*2] or transmit.

```
Y.ıl                    (████)
DISABLED
```

To use the transceiver again, you need to:
• Receive[*2] an MDC Revive call that matches your
  station ID.
• Enter the password.
• Setup again using the CS-F2100D PROGRAMMING
  SOFTWARE.

[*1] For the Simple key and Ten-key types. The message may
    differ, depending on the presetting.
[*2] Depending on the presetting, reception may be enabled.

6 MDC 1200 SYSTEM OPERATION

Transmitting a call

◇ Transmitting a PTT ID call

You can transmit a call with your station ID.
When another station receives a PTT ID call, your station name (or ID) is displayed.

Push [PTT] to make a call.
• Beeps sound, depending on the presetting.
• Your station ID is transmitted when you push [PTT] (at the beginning of the transmission) or release [PTT] (at the end of transmission), depending on the presetting.

◇ Transmitting an MDC Emergency call

An MDC Emergency call can be transmitted in the same way as the 2-Tone, 5-Tone, or NXDN™ signaling operation. See "Emergency call" for details. (pp. 3-3 ~ 3-6)

The transceiver can also be set to keep the microphone open in the Emergency mode to monitor the situation, depending on the presetting.

◇ Transmitting an MDC Emergency Acknowledgment

When receiving an MDC Emergency call, an MDC Emergency Acknowledgment is automatically transmitted, depending on the presetting.

Count on us!

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