

■ Important

SAVE THESE INSTRUCTIONS—This instruction manual contains basic operating instructions for the IC-V3500. For advanced operating instructions, see the **ADVANCED MANUAL** on the Icom website.

The Advanced manual can be downloaded from the following internet address:

<https://www.icomjapan.com/support/>

This instruction sheet includes some functions that are usable only when they are preset by your dealer. The transceiver may have other functions and operations that are not described in this instruction sheet. Ask your dealer for details.

■ Explicit definitions

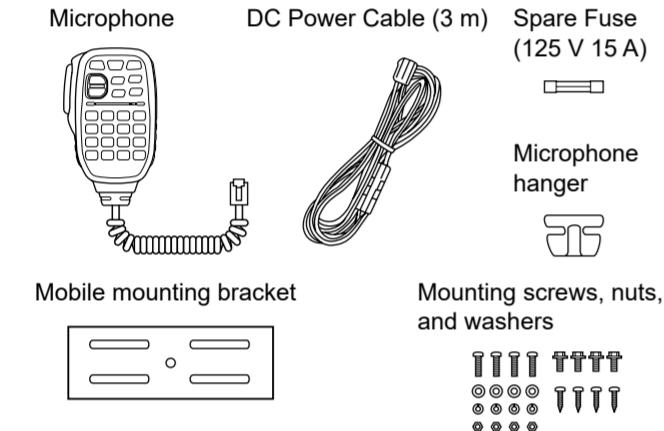
WORD	DEFINITION
⚠ DANGER!	Personal death, serious injury or an explosion may occur.
⚠ WARNING!	Personal injury, fire hazard or electric shock may occur.
CAUTION	Equipment damage may occur.
NOTE	If disregarded, inconvenience only. No risk of personal injury, fire or electric shock.

Icom is not responsible for the destruction, damage to, or performance of any Icom or non-Icom equipment, if the malfunction is because of:

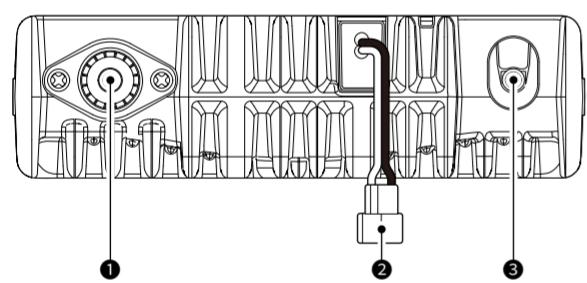
- Force majeure, including, but not limited to, fires, earthquakes, storms, floods, lightning, other natural disasters, disturbances, riots, war, or radioactive contamination.
- The use of Icom transceivers with any equipment that is not manufactured or approved by Icom.

■ Supplied accessories

NOTE: Some accessories may not be supplied, or the shape may differ, depending on the transceiver version.



◊ Rear panel



① ANTENNA CONNECTOR [ANT]

Connects to a 50 Ω antenna through a 50 Ω PL-259 coaxial cable.

② POWER RECEPTACLE [DC13.8V]

Connect a 13.8 V DC ±15% power source with the supplied DC power cable.

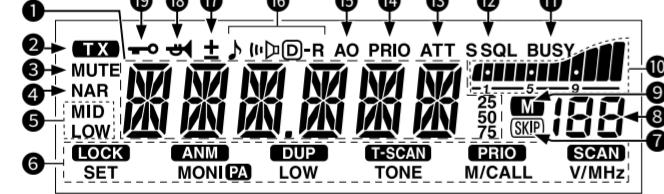
NOTE: DO NOT use a cigarette lighter socket as a power source when operating in a vehicle. The plug may cause voltage drops, and ignition noise may be superimposed onto the transmit or receive audio.

③ SPEAKER JACK [SP]

Connects to a 4 Ω speaker.

④ Audio output power is more than 3.5 W.

◊ Function display



① FREQUENCY READOUT

Displays the operating frequency, channel name, Set mode contents, and so on.

④ The frequency decimal point blinks during a scan.

⑤ In the DTMF Memory mode, "d" is displayed in the 100 MHz digits.

② TRANSMIT ICON

④ Displayed while transmitting.

④ Blinks while transmitting when the One-Touch PTT function is ON.

③ AUDIO MUTE ICON

Displayed when the Audio Mute function is ON.

④ NARROW MODE ICON

Displayed when "Narrow" is selected in the Wide/Narrow setting.

⑤ OUTPUT POWER ICONS

Displays the selected output power level.

④ If no output power icon is displayed, the level is set to "High."

⑥ KEY ICONS

Displays the functions of the keys directly below the function display.

⑦ SKIP ICON

Displayed when the selected Memory channel is set as a Skip channel.

⑧ Memory channel NUMBER READOUT

④ Displays the selected Memory channel number.

④ A "C" is displayed when the Call channel is selected.

NOTE: When the VFO mode is selected from the Call Channel mode, a small "c" is displayed instead of the Memory channel number.

⑨ MEMORY ICON

Displayed when the Memory mode is selected.

Thank you for choosing this Icom product.
READ ALL INSTRUCTIONS carefully and completely before using this product.

■ Precautions

⚠ **DANGER! HIGH RF VOLTAGE!** NEVER touch an antenna or antenna connector while transmitting. This could cause an electrical shock or burn.

⚠ **DANGER!** NEVER operate the transceiver near unshielded electrical blasting caps or in an explosive atmosphere. This could cause an explosion and death.

⚠ **DANGER!** NEVER place the transceiver where airbag deployment may be obstructed during mobile operations.

⚠ **WARNING! RF EXPOSURE!** This transceiver emits Radio Frequency (RF) energy. Extreme caution should be observed when operating this transceiver. If you have any questions regarding RF exposure and safety standards, please refer to the Federal Communications Commission Office of Engineering and Technology's report on Evaluating Compliance with FCC Guidelines for Human Radio Frequency Electromagnetic Fields (OET Bulletin 65).

⚠ **WARNING! NEVER** connect the transceiver to an AC outlet. This may pose a fire hazard and/or result in an electric shock.

⚠ **WARNING! NEVER** operate the transceiver during a lightning storm. It may result in an electric shock, cause a fire or damage the transceiver. Always disconnect the power source and antenna before a storm.

⚠ **WARNING! NEVER** cut the DC power cable between the DC plug and fuse holder. If an incorrect connection is made after cutting, the transceiver may be damaged.

⚠ **WARNING! NEVER** connect the transceiver to a power source of more than 16 V DC, such as a 24 V battery. This could damage the transceiver.

⚠ **WARNING! NEVER** operate or touch the transceiver with wet hands. This could cause an electric shock or damage the transceiver.

⚠ **WARNING! NEVER** place the transceiver where the vehicle's normal operation may be hindered or where it could cause bodily injury.

⚠ **WARNING! NEVER** let metal, wire, or other objects contact the transceiver inside or make incorrect contact with connectors on the rear panel. This could cause an electric shock or damage the transceiver.

⚠ **WARNING! NEVER** operate the equipment if you notice an abnormal odor, sound, or smoke. Immediately turn OFF the power and the DC power cable. Contact your Icom dealer or distributor for advice.

CAUTION: DO NOT operate the transceiver while driving a vehicle. Safe driving requires your full attention—anything less may result in an accident.

CAUTION DO NOT reverse the DC power cable polarity. This could damage the transceiver.

CAUTION: DO NOT expose the transceiver to rain, snow, or any liquids. They could damage the transceiver.

CAUTION: DO NOT operate the transceiver without running the vehicle's engine. The vehicle's battery will quickly run out when the transceiver is used while the vehicle's engine is OFF.

CAUTION: DO NOT install or place the transceiver in a place without adequate ventilation or block any cooling vents on the top, rear, sides, or bottom of the transceiver. Heat dissipation may be reduced and damage the transceiver.

CAUTION: DO NOT use harsh solvents such as Benzine or alcohol when cleaning. This could damage the equipment surfaces. If the surface becomes dusty or dirty, wipe it clean with a soft, dry cloth.

CAUTION: DO NOT use or leave the transceiver in areas with temperatures below -10°C or above +60°C, or in areas exposed to direct sunlight, such as the dashboard.

CAUTION: DO NOT use or leave the transceiver in excessively dusty environments. This could damage the transceiver.

CAUTION: DO NOT use the non-specified microphone. Other microphones have different pin assignments and may damage the transceiver.

NEVER place the transceiver in an insecure place to avoid inadvertent use by unauthorized persons.

DO NOT push PTT unless you actually intend to transmit.

DO NOT place the transceiver where hot or cold air blows directly onto it, during mobile operation.

NOTE: During maritime mobile operation, keep the transceiver and microphone as far away as possible from the magnetic navigation compass to prevent erroneous indications.

■ FCC information

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 radiate 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 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 several of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION: Changes or modifications to this transceiver, not expressly approved by Icom Inc., could void your authority to operate this transceiver under FCC regulations.

This device complies with part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

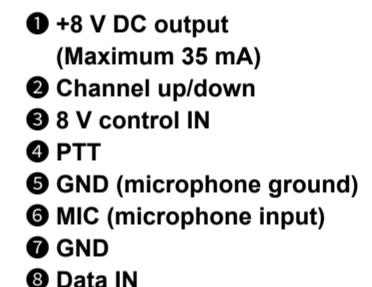
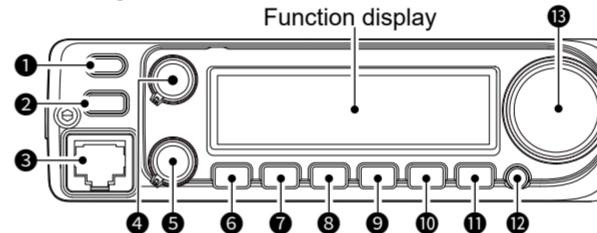
■ Canada information

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.

■ Panel description

NOTE: The Marine and WX Channel mode may not be used, depending on the transceiver version.

◊ Front panel



① S/RF INDICATOR

• Displays the relative signal strength while receiving signals.

• Displays the output power level while transmitting.

② BUSY ICON

• Displayed while receiving a signal or the squelch is open.

• Blinks when the Monitor function is ON.

③ S-METER SQUELCH ICON

Displayed when the S-meter Squelch function is ON.

④ SQUELCH ATTENUATOR ICON

Displayed when the Squelch Attenuator function is ON.

⑤ PRIORITY WATCH ICON

Displayed during a Priority Watch.

⑥ AUTO POWER OFF ICON

Displayed when the Auto Power OFF function is ON.

⑦ TONE ICONS

Displayed when the Tone function is ON.

④ Push [TONE T-SCAN] to select the tone function.

①	Subaudible tone encoder (TX only)
② and ③	CTCSS Pocket Beep function
③	CTCSS Squelch function
④ and ⑤	DTCS encoder (only TX)
⑤ and ⑥	DTCS Pocket Beep function
⑥	DTCS Squelch function
⑦ and -R	Reverse CTCSS Squelch function
⑧ and -R	Reverse DTCS Squelch function

⑧ DUPLEX ICONS

• A "+" is displayed when in the plus Duplex mode.

• A "-" is displayed when in the minus Duplex mode.

⑨ FOGHORN ICON

Displayed when the Foghorn function is ON.

⑩ LOCK ICON

Displayed when the Lock function is ON.

■ Microphone

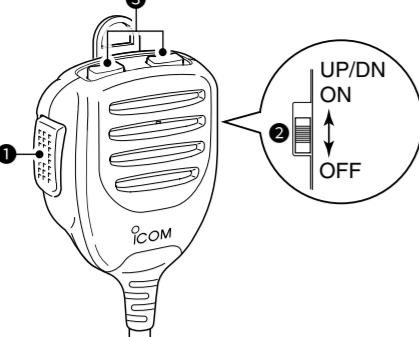
NOTE: The supplied microphone is different, depending on the transceiver version.

◊ HM-133V Keypad

KEY	FUNCTION	SECONDARY FUNCTION ([FUNC]+key)
ANM MON1 [MON1 1 ANM]	Opens or closes the squelch.	In the Memory mode, turns the channel names or number display ON or OFF.
T-SCAN SCAN2 [SCAN 2 T-SCAN]	Starts or stops scanning.	Starts and stops a Tone scan.
PTT-M PTT-M3 [PRIO 3 PTT-M]	Starts or stops a Priority Watch.	Turns the One-Touch PTT function ON or OFF. ④ See the Advanced manual for details.
DTCS HIGH4 [HIGH 4 DTCS]	Selects the high output power.	Turns ON the DTCS Squelch function.
DTCS MID5 [MID 5 DTCS (DTCS)]	Selects the middle output power.	Turns ON the DTCS Pocket Beep function.
DTMF LOW6 [LOW 6 DTMF]	Selects the low output power.	Turns ON the DTMF memory encoder.
TONE DUP7 [DUP- 7 TONE]	Selects the minus Duplex mode.	Turns ON the subaudible tone encoder.
TSQL DUP8 [DUP+ 8 TSQSL (DTCS)]	Selects the plus Duplex mode.	Turns ON the CTCSS Pocket Beep function.
TSQSL SIMP		

■ Microphone

◇ HM-154



① PTT SWITCH

Hold down to transmit, release to receive.

② UP/DOWN LOCK SWITCH

Slide to lock or unlock the UP/DOWN keys.

③ UP/DOWN KEYS [UP]/[DN]

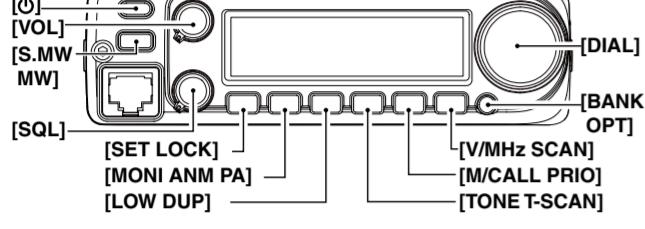
● Push to change the operating frequency, Memory channel, Set mode setting, and so on.

● Hold down either key for 1 second to start scanning.

① The scanning direction follows the direction of the key's arrow.

■ Basic operation

IMPORTANT: Transmission is inhibited in the Marine Channel mode.



◇ Turning the transceiver ON/OFF

● Hold down [Ø] for 1 second to turn the transceiver ON or OFF.

◇ VFO mode selection

The IC-V3500 has two basic operating modes, the VFO mode and the Memory mode.

● Push [V/MHz SCAN] to select the VFO mode.

① Push [M/CALL PRIO] several times to select the Memory, Call, Marine, or WX Channel mode.

◇ Setting a frequency

1. Push [V/MHz SCAN] to select the VFO mode.

2. Rotate [DIAL] to set the frequency.

• The frequency changes according to the selected tuning step.

① Push [V/MHz SCAN] several times to change the frequency step between 10 MHz and 1 MHz.

◇ Tuning step selection

The selected tuning step is applied to the scan.

Option (kHz):

5.0, 6.25, 10.0, 12.5, 15.0, 20.0, 25.0, 30.0, 50.0

NOTE: For convenience, select the tuning step that matches the frequency intervals of the repeaters in your area.

1. Push [V/MHz SCAN] to select the VFO mode.
2. Push [SET LOCK] to enter the Set mode.
3. Push [SET LOCK] or [MONI ANM PA] several times, until "TS" is displayed.

4. Rotate [DIAL] to select the tuning step.
5. Push any key other than [SET LOCK] or [MONI ANM PA] to save the entry and exit the Set mode.

◇ Call channel selection

● Push [M/CALL PRIO] several times to select the Call channel.

• A "C" is displayed instead of a Memory channel number.

① Push [M/CALL PRIO] more to select the Memory, Call, Marine, or WX Channel mode, or push [V/MHz SCAN] to select the VFO mode.

◇ Receiving

1. Hold down [Ø] for 1 second to turn ON the transceiver.

2. Rotate [VOL] to adjust the audio level.

① Push [MONI ANM PA] to open the squelch, and then rotate [VOL] to adjust the audio level.

3. Adjust the squelch level, as described below.

① First, rotate [SQL] fully counterclockwise, and then rotate [SQL] clockwise until the noise just disappears.

4. Set the operating frequency.

5. When receiving a signal, the squelch opens, and audio can be heard.

① "BUSY" is displayed, and the S/RF indicator shows the relative strength of the received signal.

◇ Transmitting

CAUTION: DO NOT transmit without an antenna.

NOTE: To prevent interference, listen to the channel before transmitting by opening the squelch. To open the squelch, rotate [DIAL] counterclockwise or push [SQL ▼] on the microphone.

1. Set the operating frequency.
 - Adjust the output power if desired. See the Selecting output power section of this sheet.
2. Hold down [PTT] to transmit.
 - "TX" is displayed while transmitting.
 - ① The S/RF indicator shows the output power level.
 - ② The One-Touch PTT function can be used.
3. Speak into the microphone at your normal voice level.
 - ① **DO NOT** hold the microphone too close to your mouth, or speak too loudly. This may distort the signal.
4. Release [PTT] to receive.

NOTE: When the TX Inhibit is set to "Inhibit," you cannot transmit. (Set in the CS-V3500 PROGRAMMING SOFTWARE.)

IMPORTANT for 65 W transmission:

The IC-V3500 has a built-in current detector circuit that protects the power amplifier from excessive current flow. When excessive current flow is detected, the circuit automatically reduces the transmit output power to approximately 25 Watts.

The IC-V3500 has a thermal detector circuit too, which protects the power amplifier from excessive heat. The circuit automatically reduces the transmit output power to approximately 10 to 20 Watts as the temperature increases.

◇ Lock function

Activate to prevent accidental channel changes and unnecessary function access.

● Hold down [SET LOCK] for 1 second to turn the Lock function ON or OFF.

① When the function is ON, "LOCK" is displayed.

① [PTT], [MONI ANM PA], [VOL], and [SQL] can be used, even when the function is ON.

① 1750 Hz tone, DTMF, Tones or DTMF Memory contents can be transmitted from the HM-133V.

◇ S-meter Squelch

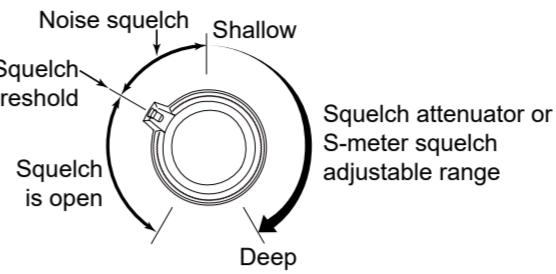
◇ Monitor function

This function is used to listen to weak signals, or to manually open the squelch. You can use it without disturbing the squelch setting, even when the Mute functions such as the Tone squelch are in use.

● Push [MONI ANM PA] to turn the Monitor function ON or OFF.

① When the function is ON, "BUSY" blinks.

◇ Squelch attenuator



The transceiver has an RF attenuator related to the squelch level setting. Approximately 20 dB of attenuation is obtained at the maximum setting.

Turn ON the Squelch Attenuator function:

1. Hold down [Ø] for 1 second to turn OFF the transceiver.
2. While holding down [SET LOCK], hold down [Ø] for 1 second to turn ON the transceiver and enter the Initial Set mode.
3. Push [SET LOCK] or [MONI ANM PA] several times to select the "SQL" item.
4. Rotate [DIAL] to select "AT" (Attenuator).
5. Push [Ø] to save and exit the Initial Set mode.
6. Rotate [SQL] clockwise past the 12 o'clock position to turn ON the Squelch Attenuator function.
 - ① The attenuation level can be adjusted approximately 20 dB between the 12 o'clock and fully clockwise positions.
 - ② When setting the squelch from the microphone, a level greater than '17' activates the attenuator.

NOTE: When using the Monitor function

The Squelch Attenuator function works even when the Monitor function is ON. It is recommended to set [SQL] between 10 and 12 o'clock (7 to 17 level when set using the HM-133V).

◇ S-meter Squelch

The S-meter Squelch function disables the audio output from the speaker or headphones when the received signal is weaker than the specified S-meter squelch level.

Turn ON the S-meter Squelch function:

1. Hold down [Ø] for 1 second to turn OFF the transceiver.
2. While holding down [SET LOCK], hold down [Ø] for 1 second to turn ON the transceiver and enter the Initial Set mode.
3. Push [SET LOCK] or [MONI ANM PA] several times to select the "SQL" item.
4. Rotate [DIAL] to select "SS" (S-meter squelch).
5. Push [Ø] to exit the Initial Set mode.
6. Rotate [SQL] clockwise past the 12 o'clock position to turn ON the S-meter Squelch function.

◇ Selecting output power

Set the output power level to suit your operating requirements. Lower output power during short-distance communications may reduce the possibility of interference to other stations and reduce the current consumption.

● Push [LOW DUP].

• The output power level is changed and the selected level is displayed.

① If no output power icon is displayed, the level is set to "High."

② The level can be changed even while transmitting.

■ Scan

◇ Preparation

Set the scan resume option, enter the scan edges, enter 2 or more Memory channels, set the Skip channels.

◇ Operation

1. Select the mode or bank.

For Full/Programmed scan:

Push [V/MHz SCAN] to select the VFO mode.

For Memory scan:

Push [MCALL PRIO] to select the Memory mode.

For Bank scan:

Push [BANK], and then rotate [DIAL] to select the bank.

2. Set the squelch to the point where the noise disappears.

3. Hold down [V/MHz SCAN] for 1 second to start scanning.

Information

• Rotate [DIAL] to change the scanning direction.

• The scan type blinks in the Memory channel readout.

• Push [SET LOCK] to switch between a full scan and a Programmed scan (P1, P2, and P3).

• Push [V/MHz SCAN] to cancel the scan.

• You can also use the full scan in the Marine Channel mode.

■ Memory channel

The IC-V3500 has a total of 207 Memory channels for saving often used operating frequencies, repeater settings, and so on. Memories include 6 scan edges and 1 Call channel.

◇ Programming the Memory channel

1. Push [V/MHz SCAN] to select the VFO mode.

2. Set the desired frequency.

• If desired, set other data (Example: frequency offset, duplex direction, tone squelch, and so on).

3. Push [S.MW MW], and then rotate [DIAL] to select the Memory channel.

• "MW" and the Memory channel number blink.

4. Hold down [S.MW MW] for 1 second to write.

• 3 beeps sound.

• The Memory channel number automatically increases when holding down [S.MW MW] after writing.

◇ Selecting the Memory channel

1. Push [MCALL PRIO] several times to select the Memory mode.

• "MW" is displayed.

2. Rotate [DIAL] to select a desired Memory channel.

① Only programmed Memory channels can be selected.

■ Repeater operation

1. Hold down [LOW DUP] for 1 second once or twice to select the minus or plus Duplex mode.
2. If accessing the repeater requires a subaudible tone, push [TONE T-SCAN] several times, until "J" is displayed.

■ Resetting

◇ Partial reset

If you want to reset the VFO frequency, VFO settings and Set mode items to their default values, without clearing the memory contents, you can do a partial reset.

1. Hold down [Ø] for 1 second to turn OFF the transceiver.
2. While holding down [V/MHz SCAN], hold down [Ø] for 1 second to turn ON the transceiver.

• The partial reset is completed.

■ Specification

① All stated specifications are subject to change without notice or obligation.

General

Frequency coverage * Guaranteed: 144 ~ 148 MHz range only.

Type of emission FM

Number of Memory channels 207 (including 6 scan edges and 1 Call channel)

Scan types USA, EXP, KOR, TPE: Full, Program, Priority, Memory channel, Bank, Skip, Tone scans SAU: Memory channel

Frequency resolution (Except for the SAU version) 5, 6.25, 10, 12.5, 15, 20, 25, 30, 50 kHz

Operating temperature range -10°C to +60°C (+14°F to +140°F)

Frequency stability ±3 ppm

Power supply requirement 13.8 V DC ±15%

Antenna connector SO-239 (50 Ω)

Dimensions (projections not included) 140.0 (W) × 40.0 (H) × 118.0 (D) mm

Weight (approximate) 5.5 (W) × 1.6 (H) × 4.6 (D) in 1.1 kg, 2.4 lb

Transmitter

Modulation system Variable reactance frequency modulation

Output power See the table on the right.

Maximum frequency deviation ±5.0 kHz (Wide)* / ±2.5 kHz (Narrow)

* Except for the SAU version