

OWNER'S MANUAL

Please read before using this equipment.

SS-485

40-Channel AM/FM/SSB CB Transceiver

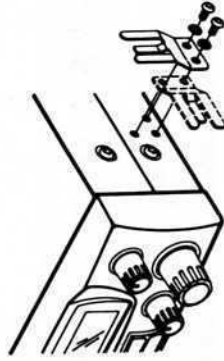
Dragon

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ATTACHING THE MICROPHONE HOLDER

You can connect the microphone holder to either side of the transceiver or to another location in your vehicle.

To attach the holder to either side of the transceiver, horizontally or vertically, secure the holder to the side using the supplied screws and lock washers.



To attach the holder to another location in the vehicle, such as the dashboard, follow these steps.

1. Using the holder as a template, mark the positions for the mounting screw holes at the desired location.
2. At each marked position, drill a hole slightly smaller than the supplied mounting screws.
- Caution:** Be careful not to drill into anything behind the mounting surface.
3. Attach the holder at the mounting location using the supplied machine screws and lock washers.

MOUNTING THE TRANSCEIVER

The most common mounting location for this CB is under a vehicle's dashboard. However, if you use the SS-485 as a base station, you can place it on a desk, shelf, or table (see "Using the Transceiver as a Base Station").

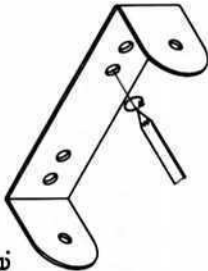
If you are mounting the CB in a vehicle, choose a location where:

- You can easily reach the CB.
- Wires and cables are clear of the vehicle's pedals or other moving parts.
- The CB is not directly in front of heating vents.
- All wires and cables can reach their connection points.

Caution: If you use the CB in a vehicle, mount it securely to avoid damage to the CB or vehicle or injury to anyone in the vehicle during sudden starts or stops.

Follow these steps to mount the CB using the supplied hardware.

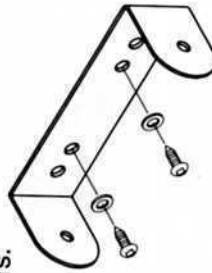
1. Using the mounting bracket as a template, mark the positions for the screw holes on the mounting surface.



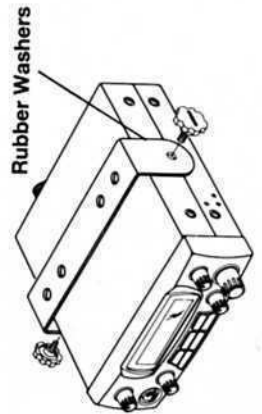
2. In each marked location, drill a hole slightly smaller than the supplied mounting screws.

Caution: Be careful not to drill into objects behind the mounting surface.

3. Using a Phillips screwdriver, attach the mounting bracket to the mounting surface with the supplied mounting screws and flat washers.



4. Attach the CB to the mounting bracket using the supplied rubber washers and mounting knobs.



CONNECTING AN ANTENNA

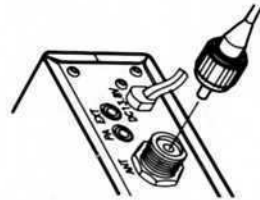
There are many different types of CB antennas for mobile CBs. Each antenna type has its own benefits, so choose the one that best meets your needs.

Note: If you are using this CB as a base station, see "Using the Transceiver as a Base Station."

When you choose an antenna, keep in mind that for the best performance you should mount the antenna:

- As high as possible on the vehicle
- As far as possible from sources of electrical noise
- Vertically

Once you choose an antenna, follow its mounting instructions. Then route the cable to the transceiver and connect the cable to the **ANT** jack on the back of the transceiver.



Cautions:

- Avoid routing the cable next to sharp edges or moving parts, which might damage the cable.
- Do not run the cable next to power cables or other radio antenna cables.
- Do not run the cable through the engine compartment or other areas that produce extreme heat.

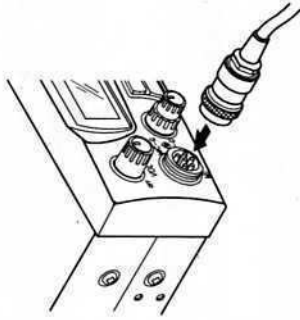
To achieve your radio's maximum range, the antenna's Standing Wave Ratio (SWR) must be adjusted. You can use an SWR meter (not supplied) to adjust the SWR for your antenna.

Follow the instructions supplied with the SWR meter and antenna to adjust your antenna's SWR to the lowest possible value. SWR values of 2.0:1 are generally acceptable, with readings of 1.5:1 or lower being more desirable.

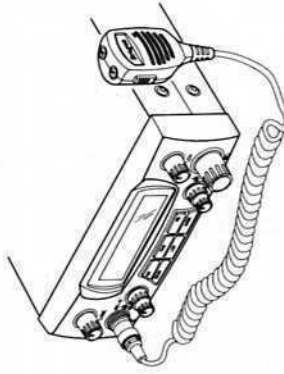
Note: Using your radio with an antenna adjusted to a high SWR value might eventually damage your radio.

CONNECTING THE MICROPHONE

1. Insert the microphone's plug into the microphone jack on the front of the transceiver.



2. Slide the microphone onto the microphone holder.



CONNECTING OPTIONAL SPEAKERS

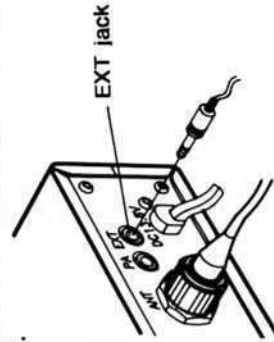
You can connect your transceiver to an external CB speaker and/or a PA (public address) speaker.

Note: When you connect an external and/or a PA speaker, the CB's internal speaker disconnects.

Using an External CB Speaker

The external speaker you use with the transceiver should have an impedance of 8 ohms and be able to handle 3 to 10 watts of power. The speaker cable must have a 1/8-inch plug.

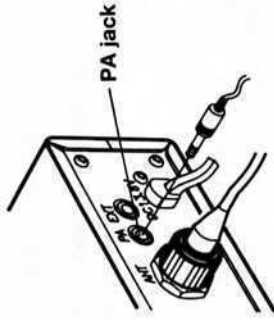
To connect the external speaker to the transceiver, insert the speaker cable's plug into the EXT jack on the back of the CB.



Connecting a PA Speaker

The PA speaker should have an impedance of 8 ohms and be able to handle at least 2.5 watts of power. The speaker cable must have a 1/8-inch plug.

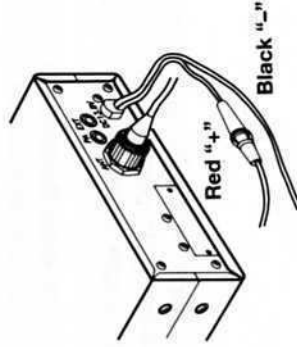
To connect the PA speaker to the transceiver, insert the speaker cable's plug into the PA jack on the back of the CB.



Note: The speaker should be at least 6 feet from the CB.

USING VEHICLE BATTERY POWER

Follow these steps to connect the transceiver to vehicle battery power



1. Connect the red wire (with the in-line fuse holder) on the back of the transceiver to a point in your vehicle's fuse block that has power only when the ignition is in the ACC (accessory) or ON position.

2. Connect the black wire to a metal part of the vehicle's frame (chassis ground).

Caution: Do not connect the black wire to a non-metallic (plastic) part, or to any part insulated from the vehicle's chassis by a non-metallic part.

USING THE TRANSCEIVER AS A BASE STATION

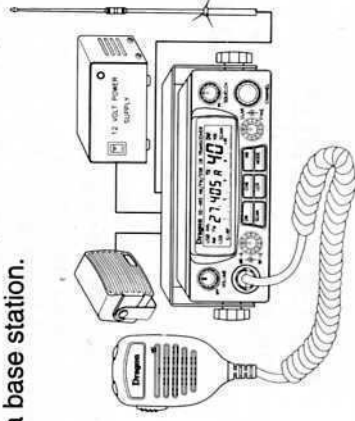
Although this transceiver is designed mainly for mobile use, you can also use it as a base station with an AC power source. For base station installation, you need these items.

- 12-volt DC power supply that can supply at least 1.5 amps

Caution: Most 12-volt DC power supplies plug into a standard AC outlet to produce DC power. Before connecting your CB to a 12-volt DC power supply, read and follow the instructions included with the power supply.

- Base station antenna
- Coaxial antenna cable and connectors
- External 8-ohm speaker

Follow these steps to install the CB as a base station.



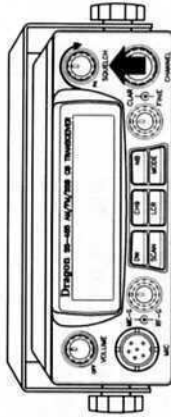
1. Mount the base station antenna as described in its owner's manual.
Warning: Use extreme caution when you install or remove a base station CB antenna. If the antenna starts to fall, let it go. It could contact overhead power lines. If the antenna touches a power line, contact with the antenna, mast, cable, or guy wires can cause electrocution and death. Call the power company to remove the antenna. DO NOT attempt to do so yourself.
2. Connect the antenna to the ANT jack on the back of the CB.
3. Connect the transceiver's black power wire to the negative (-) terminal on the DC power supply.
4. Connect the transceiver's red wire (with the in-line fuse) to the positive (+) terminal on the DC power supply.
5. Connect the DC power supply to a standard AC outlet.

OPERATION

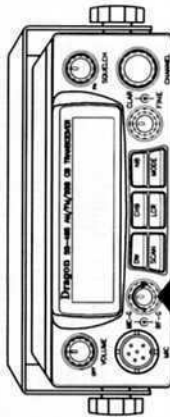
Before you use your CB, you should know how to use it effectively and courteously. "Operational Hints" contains information that will help you get more enjoyment from your CB.

RECEIVING TRANSMISSIONS AND ADJUSTING SQUELCH

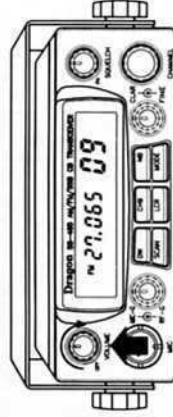
1. Turn **SQUELCH** clockwise until it clicks.



2. Turn **RF-GAIN** fully clockwise.



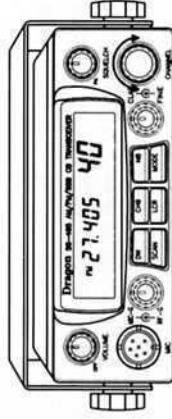
3. Turn on the transceiver by turning **VOLUME** clockwise. The display lights and the frequency and channel appear. A bar graph also appears which shows the received signal strength.



4. Press **MODE** to select the mode of operation — **AM**, **FM LSB** (Lower Side Band), or **USB** (Upper Side Band). (See "Notes on SSB Reception.")



5. Rotate **CHANNEL** to select a channel.



6. To cut out background noise between transmissions, wait until there is no signal, then slowly turn **SQUELCH** clockwise until the background noise stops.



Note: To receive very weak signals, turn **SQUELCH** counterclockwise. You hear noise between transmissions, but you also hear weak transmissions (those not strong enough to break through a higher squelch setting).

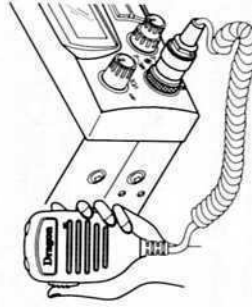
7. Adjust **VOLUME** to a comfortable listening level.
8. To turn off the CB, turn **VOLUME** counterclockwise until you hear it click.

TRANSMITTING

Note: We recommend you try receiving before you transmit.

1. Follow Steps 1-7 in "Receiving Transmissions and Adjusting Squelch."

2. To transmit, press the Talk button on the microphone. Hold the microphone 2-3 inches from your mouth and speak in a normal tone of voice. **TX** appears on the display along with a bar graph which shows the relative strength of your transmission.

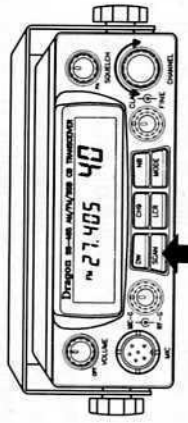


3. When you finish transmitting, release the Talk button. **TX** and the signal strength bars clear from the display.
4. To turn off the CB, turn **VOLUME** counterclockwise until you hear it click.

USING SPECIAL CONTROLS

Scanning Incoming Signals

To scan incoming signals, press **SCAN**. **SCAN** appears on the display, and the transceiver stops for 5 seconds on each channel.



To stop automatic scanning, press **SCAN** again. **SCAN** disappears from the display.

Monitoring Channel 9

For emergency call monitoring on Channel 9, just press **CH9**. 09 flashes on the display, and the transceiver stays on channel 9.

To release emergency call monitoring, press **CH9**. The previously selected channel number appears on the display.

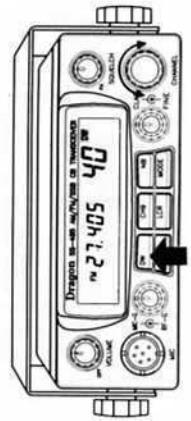


Notes on SSB Reception

- When you first listen to an SSB signal, you probably will not be able to understand it. The voice might sound distorted or low and guttural. In either case, slowly turn **CLARIFIER** and **FINE** signal into its natural voice tonal range.
- An SSB signal produces a fluttering, unintelligible sound when received in the AM mode. Set the mode switch to either **LSB** or **USB**, and adjust **CLARIFIER**.
- If the voice is still not intelligible, it might be an SSB signal operating on the other sideband — try the other SSB mode.
- You can tune AM signals when the mode switch is in the **USB** or **LSB** position. Adjust **CLARIFIER** to and **FINE** eliminate the steady tone caused by the AM carrier signal.

Alternating Between Two Channels

To alternate between two channels, select one channel and press **DW** (dual watch). **DW** appears on the display. Then rotate **CHANNEL** to select the other channel.

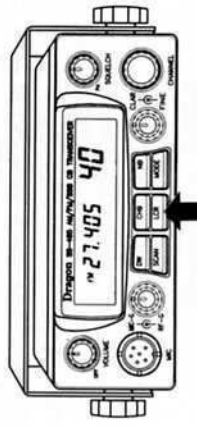


The transceiver alternates between the first selected channel (the dual watch channel) and the currently selected channel. Whenever the transceiver detects a transmission on the first channel, it switches back to that channel. After 5 seconds, the transceiver returns to the second channel (even if the transmission is not complete).

To turn off dual watch, press **DW**. **DW** disappears from the display.

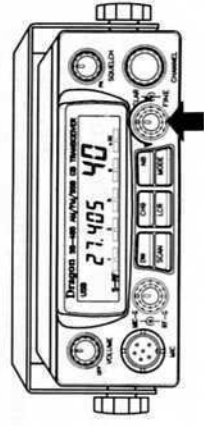
Using Last Channel Recall

Press **LCR** to return to the last channel that was used for longer than 3 seconds or was transmitted on.



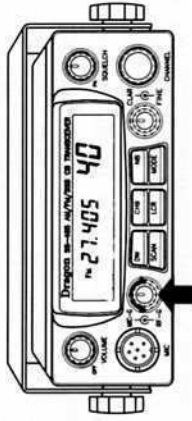
Using CLARIFIER

When you listen to an SSB signal, turn **CLARIFIER** and **FINE** in slightly off-frequency stations or to tune out adjacent channel interference.



Using RF-GAIN

When you receive an extremely strong signal, adjust **RF-GAIN** to vary the overall volume, instead of using the **VOLUME** control.



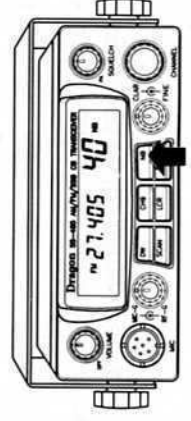
Using MIC-GAIN

Adjusts the sensitivity of the microphone amplifier circuit. When operating from a noisy vehicle, reducing the **DYNA MIC** setting will usually improve your transmitted voice clarity.

Rotating the control counter clockwise reduces the sensitivity and requires closetalking into the microphone.

Using NB

If your reception is disturbed by interference from impulse type noise (ignition noise and other electrical noise), press **NB** to reduce or eliminate the noise.

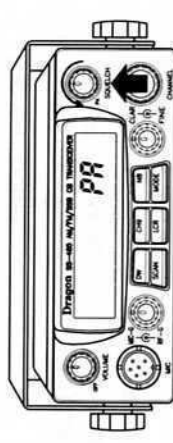


USING THE PA AMPLIFIER

Your CB has a built-in PA (public address) amplifier. With an optional PA speaker, you can turn your radio into a mobile address system.

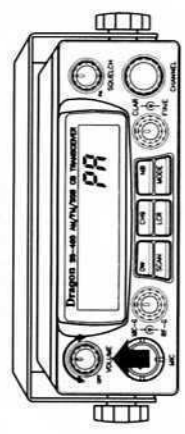
Follow these steps to use the PA amplifier after you connect an external PA speaker (see "Connecting a PA Speaker").

1. Rotate **SQUELCH** counterclockwise to **PA**. **PA** appears on the display.



2. To transmit, press the Talk button on the microphone. Hold the microphone 2-3 inches from your mouth and speak in a normal tone of voice.

3. Turn **VOLUME** for the desired volume level. If you hear a high-pitched squeal, adjust **VOLUME** until the squeal stops.



OPERATIONAL HINTS

Like most activities, CB radio has its customs and courtesies. The following tips will help you get the most enjoyment from your CB.

COMMON USES FOR A CB

Personal Uses

- Keep in touch with home while driving to work, to the store, or to a social activity. Let your family know you are tied up in traffic or that you will stop by the store on the way home.
- If you are a two-car (or more) family, CB radios are great for communicating with family members while they are in their cars.
- Contact friends or neighbors — find out "what's happening" or plan a get-together.
- Ever have car trouble or run out of gas on the highway? What an assurance it is to be able to radio for assistance!
- Camping, fishing, and other sports are more fun with a CB radio. Locate a buddy or find out "what's cooking" back at camp.

Business Uses

- For security officers, a CB is more than a convenience — it is a must for both safety and efficiency.
- Truck drivers and delivery personnel can learn road and traffic conditions and get assistance in locating destinations. A CB radio is also good company on those "long hauls."
- On construction crews, a CB radio quickly pays for itself when you are calling for additional materials or coordinating the activities of different work crews.

MAXIMUM RANGE

The maximum range and quality of CB radio transmissions vary depending on the following conditions:

- The type and quality of antenna used
- The height of the antenna's mounting location — the higher the antenna, the better the signal's range
- The surrounding terrain — mountains and tall buildings limit the range
- Weather conditions
- The number of nearby radios operating on the same channel

- Standing wave ratio (SWR) between the antenna and the CB. You can check the SWR between the CB and a mobile or base station antenna using an SWR tester. Follow the instructions supplied with the SWR tester and the mobile or base station antenna to change the SWR, if necessary.

Note: Your CB radio's transmission range is generally line-of-sight.

TRANSMISSION COURTESY

Please follow these guidelines of radio courtesy when using your CB.

- Wait for a pause in someone else's transmission before you ask for a break.
- If you do not receive an answer to your call after a second attempt, sign off and wait several minutes before trying again.
- Do not hold down the Talk button when you are not talking. (This is called dead keying.)
- Assist callers with directions, information about road conditions, and any other reasonable requests.

TROUBLESHOOTING

If at any time you suspect that your CB is not working as it should, refer to the following chart to see if you can eliminate the problem.

Symptom	Solution
Trouble with reception	Too much squelch? Adjust as needed.
	Radio not on operating channel? Switch to active channel.
	Microphone connected? Secure connections.
	Antenna connected? Secure connections.
	Mode switch setting? Select appropriate position (AM, FM LSB, USB).
Trouble with transmission	Transmission cable connected to antenna? Secure antenna connector.
	Antenna fully extended? Extend to full length.
	All connections free of corrosion? Clean and tighten.
	Talk button fully pressed in? Press completely.
	Microphone connector loose? Firmly press in jack.
Radio does not work at all	Power connected? Secure connections.
	Microphone connected? Secure connections.
	Fuse needs replacing? Replace with identical fuse.

REDUCING NOISE

Because your CB is exceptionally quiet, any noise you hear is probably from an external source in your vehicle such as the alternator, another radio or spark plugs.

You can determine the noise's source by turning off the engine and operating the CB with your vehicle's ignition set to ACC. If the noise is reduced, the problem is in your vehicle's ignition or electrical system.

Here are a few hints to help you reduce or eliminate such noise:

- Make all CB power and antenna wires as short as possible.
- Route the power wires away from the antenna wires.
- Be sure that the chassis ground connection is secure.
- Replace old ignition wires with new, high-voltage, noise suppression wires.
- Install noise suppressors on your spark plugs, or install new spark plugs that have built-in noise suppressors.
- If problems persist, check your alternator/generator and regulator gauges. You can reduce the noise from these sources by using bypass capacitors at the various output voltage points.

MAINTENANCE

Your Dragon SS-485 40-Channel CB Transceiver is an example of superior design and craftsmanship. The following suggestions will help you care for your CB so you can enjoy it for years.



Keep the CB dry. If it gets wet, wipe it dry immediately. Liquids can contain minerals that can corrode electronic circuits.



Handle the CB gently and carefully. Dropping it can damage circuit boards and cases and can cause the CB to work improperly.



Use and store the CB in normal temperature environments. Temperature extremes can shorten the life of electronic devices, damage batteries, and distort or melt plastic parts.



Keep the CB away from dust and dirt, which can cause premature wear of parts.

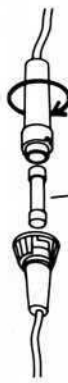


Wipe the CB with a damp cloth occasionally to keep it looking new. Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the CB.

REPLACING THE FUSE

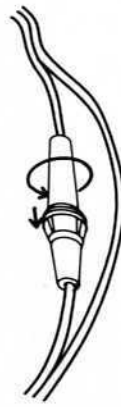
The SS-485's 3-amp in-line fuse helps protect your CB from power surges and short circuits. When replacement is required, use a 3-amp, fast-acting glass fuse

Follow these steps to replace the fuse.



Fuse 250V 3A

1. Make sure the power source and CB are both off.
2. Hold the fuse holder by both ends, push the ends together, twist one end counterclockwise, and pull them apart.
3. Remove the old fuse and inspect its condition. If it is blown and requires replacement, insert a new one of the same type and rating. If it is not blown, reinsert it.
4. Push the fuse holder ends together and twist one end clockwise.



SPECIFICATIONS

RECEIVER

Max Sensitivity FM/AM 0.5 μ V, SSB 0.25 μ V
Sensitivity for 10dB S/N FM/AM 0.5 μ V, SSB 0.25 μ V
AGC Figure of Merit 100mV
for 10dB change in Audio Output AM 90 dB, SSB 90 dB
Overload AGC Characteristics
from 100mV to 1000mV AM +3 dB, SSB \pm 3 dB
Overload Audio Fidelity at 6 dB Down 450 Hz - 2100 Hz
Adjacent Channel Selectivity FM/AM 60 dB
Image Rejection (5.6 MHz) Typically better than 90 dB
IF Rejection 70 dB or better
Maximum Audio Output Power 2.5 Watts
Squelch Range Adjustable from 0.5 μ V to 1 mV
Battery Drain at no signal 500 mA
Battery Drain at Max. Output Power 1.5 A
Receiver Clarifier Range \pm 1 kHz Variable

TRANSMITTER

Max. Output Power FM/AM 4 Watts, SSB 12 Watts PEP
Spurious Emission -65 dB or better
Battery Drain at no modulation FM/AM less than 1.0 A
SSB less than 1.0 A
At Max. Output Power FM/AM less than 1.5 A
SSB less than 3.0 A
Modulation Frequency Response
(1 kHz, 0 dB reference) Lower, at 450 Hz, AM -6 dB
SSB -6 dB
Upper, at 2.5 kHz, AM -6 dB
SSB -6 dB

Microphone Sensitivity FM 4mV for 1.5K DEV
AM 4mV for 50% mod
SSB 4mV for 4 Watts PEP
Microphone Amplifier Circuit AM 50 dB
(between 98% and 80% modulation)
SSB 50 dB
(between 12 W PEP and 10 W PEP)

PUBLIC ADDRESS AMPLIFIER

Maximum Output Power 2.5 Watts

GENERAL

Channels 40 channels for FM/AM, 40 channels SSB
Frequency Range 26.965 MHz to 27.405 MHz
Frequency Control Digital phase-locked loop synthesizer
Operating Temperature Range -4° F to 122° F
Power Requirements 13.8 V DC
12-16 Volts DC, negative or positive ground
Antenna 50 ohm (coaxial connector)
Microphone Electric condenser type
Speaker 8 ohm, 3 Watts
Dimensions (HWD) $2\frac{3}{64} \times 6\frac{1}{16} \times 7\frac{41}{64}$ inches
(52 x 154 x 194 mm)
Weight 2.65 lbs. (1.2 Kg)
Accessories Microphone Hanger and Mounting Bracket

Specifications are typical, individual units might vary. Specifications are subject to change and improvement without notice.