



MGH17BT

INSTALLATION/OWNER'S MANUAL

AM/FM Gauge Hole Receiver



Mounting

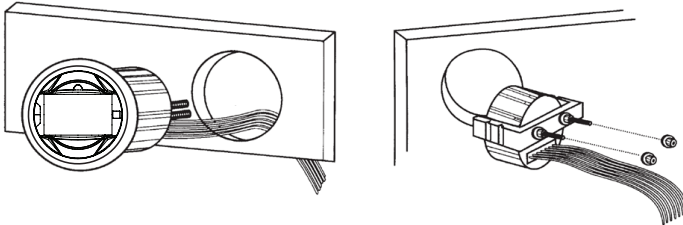
Please read entire manual before installation.

Before You Start

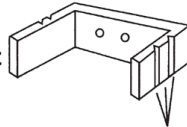
- Disconnect negative battery terminal. Consult a qualified technician for instructions.
- Avoid installing the unit where it would be subject to high temperatures, such as from direct sunlight, or where it would be subject to dust, dirt or excessive vibration.

Getting Started

- Once a suitable location has been determined, drill the hole and secure the stereo using the metal mounting bracket. If the bracket needs to be shortened, remove the appropriate number of breakaway segments using a pair of pliers.



Mounting Bracket



Break Lines

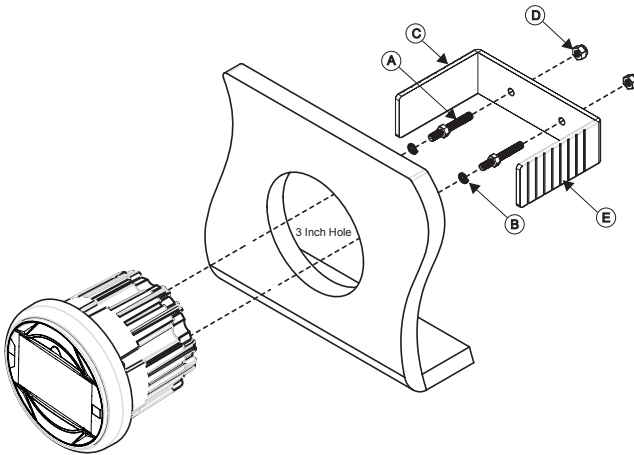
Color	Connection
Red	12V Ignition / Accessory
Black	Ground
Blue	Remote Turn-on B (+)
Grey	Right Front (+)
Grey/Black	Right Front (-)
White	Left Front (+)
White/Black	Left Front (-)
Violet	Right Rear (+)
Violet/Black	Right Rear (-)
Green	Left Rear (+)
Green/Black	Left Rear (-)
Yellow	Camera Input (RCA)

<p>USB INPUT</p> <p>BLACK USB CONNECTOR</p>	<p>REMOTE INTERFACE</p> <p>BLACK REMOTE CONTROL INTERFACE INPUT</p>
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Tip:
When a suitable ground wire is not present in the vehicle wiring harness, connect the black ground wire to the vehicle chassis.

Fuse:
When replacing the fuse, make sure new fuse is the correct type and amperage. Using an incorrect fuse could damage the radio.

Installation



Mounting the Radio

1. Choose a mounting location on the dash board or instrument panel that will allow room behind to run radio cables to the power source. Consider how you will use the AUX IN, LINE OUT and USB connectors and route the appropriate extension cables to an accessible area.
2. Cut a hole in the dash board using the template provided in the back of this manual. At least 3 3/4" depth is needed to mount the radio.

IMPORTANT! Do not mount this unit where it can be submerged in water.

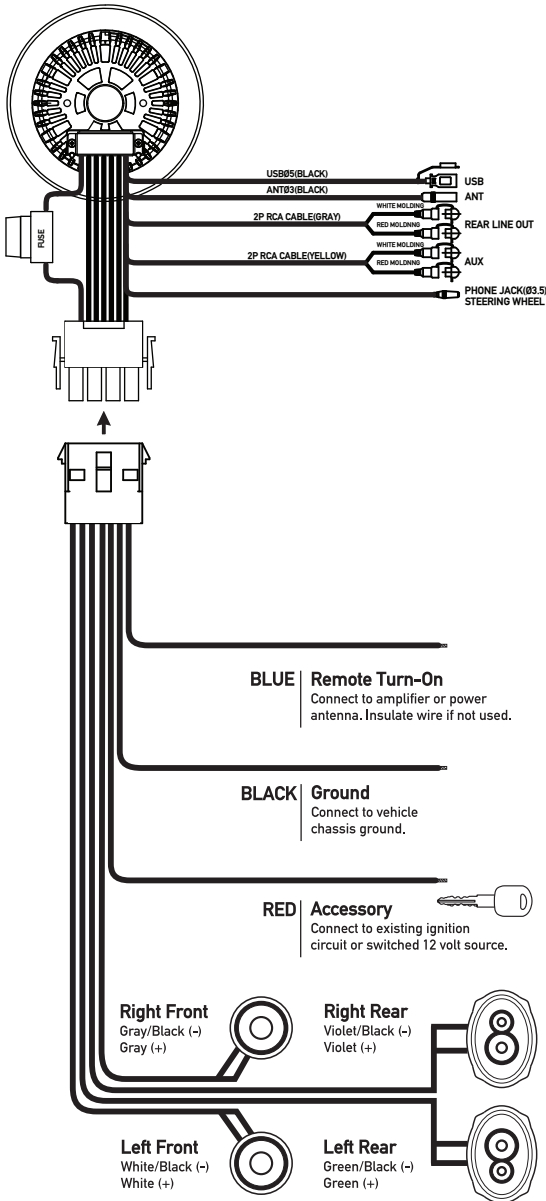
3. Slide the included spring washers (B) over the screw posts (A) and attach the screw posts to the back of the radio.
4. Place the radio in front of the dashboard opening so the wiring can be brought through the opening.
5. After completing the wiring connections, turn the radio on to confirm operation (vehicle accessory switch must be on). If the radio does not operate, recheck all wiring until the problem is corrected. Once proper operation is achieved, turn the accessory switch off and proceed with final mounting of the radio. Refer to the "Wiring Diagram" on page 5.

NOTE: Before final installation, test the wiring connections to make sure the unit is connected properly and the system works.

6. Insert the radio into the mounting hole.
7. Place the "U" bracket (C) over the screw posts and secure the radio to the dash using the included hex nuts (D). If necessary, cut the score marks (E) on either side of the mounting bracket to custom fit the bracket length for your application. See Figure A.



Wiring





Control Locations






- 1 Power
- 2 Mute
- 3 Band / Go Back / Display
- 4 Tune Down
- 5 Tune Up
- 6 Play / Pause / Presets
- 7 Select
- 8 Volume Up
- 9 Volume Down
- 10 Mode
- 11 Audio / Menu



- 1 Mode
- 2 Volume Up
- 3 Power
- 4 Select
- 5 Tune / Track Up
- 6 Volume Down
- 7 Audio / Menu
- 8 Preset 3 / Intro
- 9 Preset 2 / Random
- 10 Preset 6 / Folder Up
- 11 Display
- 12 Mute
- 13 Preset 5 / Folder Down
- 14 Preset 4 / Play / Pause
- 15 Preset 1 / Repeat
- 16 Band / Go Back
- 17 Tune / Track Down



General Operation

Power On/Off	Press  to turn the unit on. Press and hold  to turn the unit off.
Mode	Press MODE to select between AM/FM, auxiliary, USB and Bluetooth. Modes of operation are shown in the display. NOTE: USB mode will not appear unless a USB device is connected.
Auxiliary Inputs	The MGH17BT offers rear RCA auxiliary input ports for connecting an audio device, MP3 player, etc. Press MODE to select auxiliary input mode.
Volume	Adjust volume using the VOL+ or VOL- buttons.
Display	Press DISP to select between clock and different types of information, such as radio frequency or MP song information.
Reset	If abnormal operation occurs, press MENU and TUNE  for three seconds to reset the unit to default factory settings.
Setup Menu	Press and hold AUDIO/MENU for more than 3 seconds to access the setup menu. Press AUDIO/MENU momentarily to select between the menu functions and use the VOL+ or VOL- buttons to adjust or activate the desired function.



General Operation - Setup Menu

Menu Function	Options	Action
Auto Station Store	AUTO STORE	Press SELECT to seek and save 6 strong stations in the current band. (Tuner mode only)
Local/Distance Tuning	LOCAL OFF	Activates distance tuning (Tuner mode only).
	LOCAL ON	Activates local tuning for strong station reception only (Tuner mode only).
Tuner Frequency Spacing	FREQ USA	Programs the unit to USA tuner spacing. (200kHz for FM and 10kHz for AM). (Tuner mode only)
	FREQ EURO	Programs the unit to European tuner spacing. (50kHz for FM and 9kHz for AM). (Tuner mode only)
Selectable iPod Control	IPOD FULL	Programs the head unit to advanced control of the iPod/iPhone device.
	IPOD BASIC	Programs the head unit to manual control of the iPod/iPhone device and allows music to be controlled from the iPod/iPhone device.
Loudness	LOUD OFF	Deactivates the Loudness feature, which increases bass and treble levels at low volume.
	LOUD ON	Activates the Loudness feature.
Beep Confirmation	BEEP OFF	Disables the confirmation beep.
	BEEP ON	Enables the confirmation beep.
Programmable Turn On Volume	PRO-VOL #	Programs unit to always turn on at a specific volume (default is OFF). Any volume level 1-46 can be selected.
Power on Message	MESSAGE OFF	Disables power on message. (example: GOOD MORNING)
	MESSAGE ON	Enables power on message to be displayed.
Scrolling Option	SCROLL 15 S	Programs unit to scroll information once every 15 seconds (default).
	SCROLL ONCE	Programs unit to scroll once, then show the first 10 characters on display.
	SCROLL ON	Programs unit to scroll continuously.
	SCROLL OFF	Programs unit to show the first 10 characters on the display.
Illumination Dimmer	DIMMER HIGH	Programs unit to the brightest illumination level.
	DIMMER MED	Programs unit to the middle illumination level.
	DIMMER LOW	Programs unit to the dimmest illumination level.
Demonstration Mode	DEMO OFF	Disables the demonstration mode.
	DEMO ON	Enables the demonstration message.



General Operation

Audio	<p>Press AUDIO/MENU momentarily to select between Bass, Middle, Treble, Balance, Fader, Loudness, EQ and Source Volume Level.</p> <p>→ BASS → TREBLE → BALANCE → FADER → EQ → LOUD → SOURCE LEVEL →</p>
Bass	<p>Press AUDIO/MENU until BASS appears then press VOL+ or VOL- to adjust (-6 minimum / +6 maximum).</p>
Middle	<p>Press AUDIO/MENU until MIDDLE appears then press VOL+ or VOL- to adjust (-6 minimum / +6 maximum).</p>
Treble	<p>Press AUDIO/MENU until TREBLE appears then press VOL+ or VOL- to adjust (-6 minimum / +6 maximum).</p>
Balance	<p>Press AUDIO/MENU until BAL appears then press VOL+ or VOL- to adjust (BAL LEFT 12 - BAL RIGHT 12). BAL EVEN represents equal balance.</p>
Fader	<p>Press AUDIO/MENU until FADER appears then press VOL+ or VOL- to adjust (FADER FRONT 12 - FADER REAR 12). FADER EVEN represents equal fader.</p>
Loudness	<p>Press AUDIO/MENU until LOUD appears then press VOL+ or VOL- to turn the Loudness feature ON or OFF.</p>
EQ	<p>Press EQ, then then press VOL+ or VOL- to cycle through the following equalization curves: USER, ROCK, BEAT, CLASSIC, JAZZ, POP or FLAT. Any manual adjustment to the Bass or Treble settings are automatically saved as USER.</p>
Source Volume Level	<p>The source volume level control allows a gain adjustment for each audio source. Set the source volume level for each mode, depending on the relative volume of each audio source.</p> <p>To set the source volume level, press AUDIO/MENU until SRC LEVEL appears. After one second, the current mode will appear on the display. Press VOL+ or VOL- to adjust the audio level of the current source (-6 minimum/+6 maximum).</p> <p>Note: Only the current mode will be available for adjustment. To adjust another mode of operation, press MODE until the desired mode is selected, then set the source volume level for that mode.</p>



AM/FM Tuner Operation

Seek Tuning	Press TUNE ◀◀ or TUNE ▶▶ for more than one second to seek to the next strong station.
Manual Tuning	Press TUNE ◀◀ or TUNE ▶▶ momentarily to change radio frequency up or down one step at a time. Press and hold to advance quickly.
Band	Press BAND to select between FM1, FM2, FM3, AM1 and AM2 bands. Up to six presets can be programmed for each band, enabling up to 18 FM stations and 12 AM stations to be stored in memory.
Storing Preset Stations	Select the desired band and station. Hold the P button, press the volume up/down buttons until the desired preset number is highlighted, then press SELECT to store the preset.
Recalling Preset Stations	Press the P button to cycle through the 1-6 presets in the current band.



USB Operation

Connecting a USB Device (sold separately)	To play MP3 files from most USB mass storage devices, line up the USB connector and insert the USB device into the MGH17BT's USB port.
Playing Music	When a USB device is first connected, "USB READ" will appear in the display and playback will begin momentarily. Depending on the number of files and folders, it may take several seconds for the device to begin playing. If no valid MP3 files are detected, "NO FILE" will be displayed and the last mode will be resumed.
Track Select	Press TRACK ►► to skip to the beginning of the next track. Press TRACK ◄◄ to return to the beginning of the current track. Pressing TRACK ◄◄ again skips to the beginning of the previous track.
Fast Forward and Reverse	Press and hold TRACK ►► or TRACK ◄◄ to fast forward or reverse a track.
Pause	Press ►/ to temporarily stop USB playback. Press ►/ again to resume playback.
File Search	Press SELECT to enter the file/folder search mode. A list of all the folders from the USB device will be displayed.
Step 1	Note: Any files located in the root directory will be located in the folder named "ROOT". Press SELECT to view the files on the root folder.
Step 2	Use the VOL+ or VOL- buttons to cycle through all the folders on the device and press SELECT to choose the desired folder. The list of files in the selected folder will be displayed. Use the VOL+ or VOL- buttons to cycle through the list of files. Note: Pressing GO BACK when viewing the contents of a folder will return to the list of folders on the USB device. Press GO BACK again to exit the search menu.
Step 3	Once the desired song is displayed, press SELECT to begin playback of the desired song. Note: Due to differences in USB device transfer speeds, it is recommended to limit each folder to less than 30 songs.

USB Operation

Displaying Information

When a file is accessed, the clock and elapsed time will be displayed. Press **DISP** momentarily to select between song title, artist, file name, folder name, track number and clock/elapsed time.

"NO TITLE" will be displayed if no song title information is available.

"NO ARTIST" will be displayed if no artist information is available.

Song Title Icon

This icon will illuminate when the song title is displayed.

Artist Icon

This icon will illuminate when the artist name is displayed.


Folder Icon

This icon will illuminate when the folder name is displayed.

File Icon

This icon will illuminate when the file name is displayed.

Folder Access

Press  to select the previous folder.

Press  to select the next folder.

Note: Folder access is only available on devices with more than one folder.

Repeat

Press **RPT** to enter the Repeat menu, then use the **VOL+** or **VOL-** buttons to select one of the following options:

- ALL - Plays all tracks on the device.
- TRACK - Continuously repeats selected track.
- FOLDER - Continuously repeats all files in selected folder.

Random

Press **RDM** to enter the Random menu, then use the **VOL+** or **VOL-** buttons to select one of the following options:

- OFF - Cancels the **RDM** function.
- ALL - Plays all tracks in random order.
- FOLDER - Plays all tracks in folder in random order.

Note: Random mode is retained in memory when selecting between other modes and when the unit is turned on/off.

Intro

Press **INT** to enter the Intro menu, then use the **VOL+** or **VOL-** buttons to select one of the following options:

- OFF - Cancels the **INT** function.
- ALL - Plays first 10 seconds of each track.
- FOLDER - Plays first 10 seconds of each track in folder.



USB Operation

Character Support

- Maximum character display information
- Track name – 32 character maximum
 - Directory name – 32 character maximum
 - *Song title – 32 character maximum
 - *Artist name – 32 character maximum

*Song title and artist ne will only be displayed if included with the MP3 file.

Media Compatibility

The following types of files are compatible:

- MP3 data

The following types of files are not compatible:

- WMA data
- MP3 PRO format
- MP3 playlists
- WAV format

Playback Order

MP3 playback sequence is based on order the files are copied to the USB device and begins in the root folder. Any empty folders or folders that do not include MP3 files are skipped. Depending on your software, the playback order may vary.

Playback Capacity

- Maximum number of files: 50,000
- Maximum number of folders: 255 plus the root directory
- Maximum number of files in each folder and root: 50,000

Note: If the number of files/folders exceeds the maximum outlined above, the additional files/folders will be ignored.

Note: Devices that exceed the maximum number of files or folders may not function properly.

USB Device Compatibility

Due to the differences of USB devices, some devices may not be compatible. USB devices must be 'mass storage class' and formatted to the FAT or FAT32 file system in order to ensure compatibility.



USB Operation

Additional MP3 Information	Only MP3 files with filename extension (.mp3) can be played. Do not attempt to play non-MP3 files with the MP3 extension.
Sampling Frequency Rates MP3	8kHz ~ 48kHz
Transfer Bit rates MP3	32kbps ~ 320kbps constant Variable bit rates Note: Some files may not play or be displayed correctly, depending on sampling rates and bit rates.
MP3 Tag Display	ID3 tags Version 1.0 to 2.4 Note: If an invalid ID3 tag version is detected, "NO SUPPORT" will scroll on the display.



Bluetooth Operation

Pairing a Device

Preparation	Before you can use a Bluetooth device, it must be paired and connected. Make sure that Bluetooth is activated on your device before you begin the pairing process.
Pairing a New Device	<p>The MGH17BT broadcasts the pairing signal constantly when no devices are currently connected. Complete the pairing sequence from your Bluetooth device. Refer to the owner's manual for your device for more details.</p> <p>The device name is "MGH17BT". The Bluetooth passcode is "1234".</p> <p>Note: The MGH17BT can be in any mode of operation when pairing is performed.</p>
Pairing Additional Devices	If a device is currently connected, press and hold BAND to disconnect the current device before a new device can be paired. Then begin the pairing sequence from the new Bluetooth device.
Connecting a Paired Device	<p>Most Bluetooth devices support the auto-connect feature, and will connect automatically if the device is in range when the MGH17BT is powered-on. If your device was previously paired but does not connect, use these instructions below.</p> <ul style="list-style-type: none">• If your most recently connected Bluetooth device becomes disconnected or does not reconnect, press BAND from Bluetooth mode to reconnect your mobile device.• To connect a previously paired device that was not recently connected:<ol style="list-style-type: none">1) If applicable, press and hold BAND to disconnect any connected mobile devices.2) From Bluetooth mode, press SELECT. "Paired Devices" will appear on the LCD.3) Press the volume up/down buttons to cycle through the list of devices.4) Press SELECT or BAND to connect to the desired device. It must be in range to connect. <p>Note: If the Auto Connect setup menu setting is set to OFF, you must press BAND to connect you device after pairing, and each time the MGH17BT is powered-on.</p>
Disconnecting a Device	Press and hold BAND for 3 seconds to disconnect a connected device. The device will remain paired and appear in the PAIRED DEVICES menu but will not be connected.
Streaming Audio	<p>The head unit supports A2DP wireless streaming audio from a Bluetooth mobile device directly to your head unit. The following functions can be used to control the music:</p> <ul style="list-style-type: none">• Press ▶▶ to skip to the next available audio track.• Press ◀◀ to skip to the previous audio track.• Press ▶/ to toggle between play and pause during playback.



Bluetooth Operation

Streaming Audio Operation

The MGH17BT supports A2DP (advanced audio distribution profile) wireless streaming audio from your Bluetooth mobile device directly to your head unit. You can also control your music from the front panel of the head unit using AVRCP (audio video remote control profile).

- To stream music to your head unit, your mobile device must support the A2DP and AVRCP Bluetooth profiles. Check the owner's manual of your mobile device for details.
- Streaming audio must be enabled from your mobile device. This option will vary depending on the device. Some devices allow streaming audio to be disabled.

After pairing, connecting and enabling streaming audio from a compatible mobile device, begin playing music using the music player on your mobile device. Once the music is playing, the following functions can be used to control the music:

- The ►► button will skip to the next available audio track.
- The ◀◀ button will skip to the previous audio track.
- The ►/|| button will toggle between play and pause during playback.

Note: Some Bluetooth devices may not fully support these commands.

Bluetooth Reset

Resetting the Bluetooth module will remove the list of paired phones and delete the list of recent calls from memory.

To reset Bluetooth, perform the following steps:

- 1) Press **MODE** until the head unit is in Bluetooth mode.
- 2) Press and hold **MENU** for 3 seconds to reset Bluetooth settings back to factory default.

Compatibility Note:

Due to the differences in Bluetooth technology, some mobile devices may be incompatible, function improperly or may not support all features when used with the MGH17BT.

Bluetooth Setup Menu Options

Function	Options	Action
Bluetooth	BL'TOOTH (ON/OFF)	Enables/disables Bluetooth functionality.
Auto Connect	AUTO CON (ON/OFF)	Set to On to allow a Bluetooth device to connect automatically or Off to require manual connection.



Weather Band Operation

- | | |
|----------------------|---|
| Manual Tuning | Press TUNE ►► or TUNE ◀◀ momentarily to seek the next weather band station. |
| Band | Press BAND to select weather band (WB). |

Troubleshooting

Problem	Cause	Action
Unit will not turn on (no power)	Yellow wire not connected or incorrect voltage Red wire not connected or incorrect voltage	Check connections for proper voltage (11~16VDC)
	Black wire not connected	Check connection to ground
	Fuse blown	Replace fuse
Unit has power (but no sound)	Speaker wires not connected	Check connections at speakers
	One or more speaker wires touching each other or touching chassis ground	Insulate all bare speaker wires from each other and chassis ground
Unit blows fuses	Yellow or red wire touching chassis ground	Check for pinched wire
	Speaker wires touching chassis ground	Check for pinched wire
	Incorrect fuse rating	Use fuse with correct rating
NO FILE appears on display	Selected file is not available in direct or alphanumeric search modes	Repeat search using valid parameters
NO SUPPORT appears on display	An invalid ID3 tag version is present	Version 1.0 to 2.4 ID3 tags are supported.
	An ID3 tag character is not supported	Only ASCII characters are supported.



Limited One Year Warranty

This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

Dual Electronics Corp. warrants this product to the original purchaser to be free from defects in material and workmanship for a period of one year from the date of the original purchase.

Dual Electronics Corp. agrees, at our option, during the warranty period, to repair any defect in material or workmanship or to furnish an equal new, renewed or comparable product (whichever is deemed necessary) in exchange without charges, subject to verification of the defect or malfunction and proof of the date of purchase. Subsequent replacement products are warranted for the balance of the original warranty period.

Who is covered? This warranty is extended to the original retail purchaser for products purchased from an authorized Dual dealer and used in the U.S.A.

What is covered? This warranty covers all defects in material and workmanship in this product. The following are not covered: software, installation/removal costs, damage resulting from accident, misuse, abuse, neglect, product modification, improper installation, incorrect line voltage, unauthorized repair or failure to follow instructions supplied with the product, or damage occurring during return shipment of the product. Specific license conditions and copyright notices for the software can be found via www.dualav.com.

What to do?

1. Before you call for service, check the troubleshooting guide in your owner's manual. A slight adjustment of any custom controls may save you a service call.
2. If you require service during the warranty period, you must carefully pack the product (preferably in the original package) and ship it by prepaid transportation with a copy of the original receipt from the retailer to an authorized service center.
3. Please describe your problem in writing and include your name, a return UPS shipping address (P.O. Box not acceptable), and a daytime phone number with your shipment.
4. For more information and for the location of the nearest authorized service center please contact us by one of the following methods:
 - Call us toll-free at 1-866-382-5476
 - E-mail us at cs@dualav.com

Exclusion of Certain Damages: This warranty is exclusive and in lieu of any and all other warranties, expressed or implied, including without limitation the implied warranties of merchantability and fitness for a particular purpose and any obligation, liability, right, claim or remedy in contract or tort, whether or not arising from the company's negligence, actual or imputed. No person or representative is authorized to assume for the company any other liability in connection with the sale of this product. In no event shall the company be liable for indirect, incidental or consequential damages.



Specifications

FM Tuner	Tuning range: 87.5MHz-107.9MHz Usable sensitivity: 8.5dBf 50dB quieting sensitivity: 10dBf Stereo separation @ 1kHz: 40dB Frequency response: 30Hz-13kHz
AM Tuner	Tuning range: 530kHz-1710kHz Usable sensitivity: 22uV Frequency response: 30Hz-2.2kHz
General	Speaker output impedance: 4~8 ohms Line output voltage: 2 Volts RMS
Bluetooth® Profiles	A2DP (advanced audio distribution profile) AVRCP (audio video remote control profile)

Design and specifications subject to change without notice.



CEA-2006 Power Standard Specifications (reference: 14.4VDC +/- 0.2V, 20Hz~20kHz)

Power Output: 18 Watts RMS x 4 channels at 4 ohms and $\leq 1\%$ THD+N
 Signal to Noise Ratio: 80dBA (reference: 1 watt into 4 ohms)

FCC Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: 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 one or more 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.



Dual Electronics Corp.
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9AM-5PM EST, Monday-Friday

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NSA0317-V01