DMH-AP1080BT
DMH-AP980BT

RDS AV RECEIVER

English

Operation Manual

Contents

Thank you for buying our product.
Please read through these instructions so you will know how to operate your model properly. After you have finished reading the instructions, keep this document in a safe place for future reference.

English

Important

The screen shown in the examples may differ from actual screens, which may be changed without notice for performance and function improvements.

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Precaution

Important safety information

⚠ WARNING

- Do not attempt to install or service this product by yourself. Installation or servicing of this product by persons without training and experience in electronic equipment and automotive accessories may be dangerous and could expose you to the risk of electric shock, injury or other hazards.
- Do not allow this product to come into contact with liquids. Electrical shock could result. Also, damage to the product, smoke, and overheating could result from contact with liquids.
- If liquid or foreign matter should get inside this product, park your vehicle in a safe place, turn the ignition switch off (ACC OFF) immediately and consult your dealer or the nearest authorised car service station. Do not use this product in this condition because doing so may result in a fire, electric shock, or other failure.
- If you notice smoke, a strange noise or odour from this product, or any other abnormal signs on the LCD screen, turn off the power immediately and consult your dealer or the nearest authorised car service station. Using this product in this condition may result in permanent damage to the system.
- Do not disassemble or modify this product, as there are high-voltage components inside which may cause an electric shock. Be sure to consult your dealer or the nearest authorised car service station for internal inspection, adjustments or repairs.

Before using this product, be sure to read and fully understand the following safety information:

- Do not operate this product, any applications, or the rear view camera option (if purchased) if doing so will divert your attention in any way from the safe operation of your vehicle. Always observe safe driving rules and follow all existing traffic regulations. If you experience difficulty in operating this product, pull over, park your vehicle in a safe location and apply the handbrake before making the necessary adjustments.
- Never set the volume of this product so high that you cannot hear outside traffic and emergency vehicles.
- To promote safety, certain functions are disabled unless the vehicle is stopped and the handbrake is applied.
- Keep this manual handy as a reference for operating procedures and safety information.
- Do not install this product where it may (i) obstruct the driver's vision, (ii) impair the performance of any of the vehicle's operating systems or safety features, including air bags or hazard lamp buttons or (iii) impair the driver's ability to safely operate the vehicle.
- Please remember to fasten your seat belt at all times while operating your vehicle. If you are ever in an accident, your injuries can be considerably more severe if your seat belt is not properly buckled.
- Never use headphones while driving.

To ensure safe driving

⚠ WARNING

- **LIGHT GREEN LEAD AT POWER CONNECTOR IS DESIGNED TO DETECT PARKED STATUS AND MUST BE CONNECTED TO THE POWER SUPPLY SIDE OF THE HANDBRAKE SWITCH. IMPROPER CONNECTION OR USE OF THIS LEAD MAY VIOLATE APPLICABLE LAW AND MAY RESULT IN SERIOUS INJURY OR DAMAGE.**
- **To avoid the risk of damage and injury and the potential violation of applicable laws, this product is not for use with a video image that is visible to the driver.**
- In some countries the viewing of video image on a display inside a vehicle even by persons other than the driver may be illegal. Where such regulations apply, they must be obeyed.

If you attempt to watch video image while driving, the warning **"Viewing of front seat video source while driving is strictly prohibited."** will appear on the screen. To watch video image on this display, stop the vehicle in a safe place and apply the handbrake. Please keep the brake pedal pushed down before releasing the handbrake.

When using a display connected to the video output terminal

The video output terminal is for connection of a display to enable passengers in the rear seats to watch video images.

⚠ WARNING

NEVER install the rear display in a location that enables the driver to watch video images while driving.

To avoid battery exhaustion

Be sure to run the vehicle engine while using this product. Using this product without running the engine can drain the battery.

⚠ WARNING

Do not install this product in a vehicle that does not have an ACC wire or circuitry available.

Rear view camera

With an optional rear view camera, you are able to use this product as an aid to keep an eye on trailers or back into a tight parking spot.

⚠ WARNING

- SCREEN IMAGE MAY APPEAR REVERSED.
- USE INPUT ONLY FOR REVERSE OR MIRROR IMAGE REAR VIEW CAMERA. OTHER USE MAY RESULT IN INJURY OR DAMAGE.

⚠ CAUTION

The rear view mode is to use this product as an aid to keep an eye on the trailers, or while backing up. Do not use this function for entertainment purposes.

Handling the USB connector

⚠ CAUTION

- To prevent data loss and damage to the storage device, never remove it from this product while data is being transferred.
- Our display audio cannot guarantee compatibility with all USB mass storage devices and assumes no responsibility for any loss of data on media players, iPhone, Android™ smartphone, or other devices while using this product.
- It may not be recognised properly by this product if a USB device that had been incorrectly disconnected from the computer is connected.

In case of trouble

Should this product fail to operate properly, contact your dealer or nearest authorised car service station.

Visit our website

Visit us at the following site:
In Mexico

In Latin

- We offer the latest information about our display audio on our website.
- Our display audio regularly provides software updates to further improve its products. Please check the support section of the above 2D code for all available software updates.

Protecting the LCD panel and screen

- Do not expose the LCD screen to direct sunlight when this product is not used. This may result in LCD screen malfunction due to the resulting high temperatures.

- When using a mobile phone, keep the aerial of the mobile phone away from the LCD screen to prevent disruption of the video in the form of spots, coloured stripes, etc.
- To protect the LCD screen from damage, be sure to touch the touch panel keys only with your finger and do so gently.

Notes on internal memory

- The information will be erased by disconnecting the yellow lead from the battery (or removing the battery itself).
- Some of the settings and recorded contents will not be reset.

Android Auto

- Compatible Android phone and compatible active data plan required.
- Some features may not be available in all countries and may vary by car and/or device manufacturer. Internet connection may be required. Use features when safe to do so.

Google Gemini

Some connected apps require setup. Compatibility and availability vary. 18+.

Apple CarPlay

Apple CarPlay is not available in all languages and countries. Apple CarPlay operations and functions may vary depending on the iOS device or receiver.

About this manual

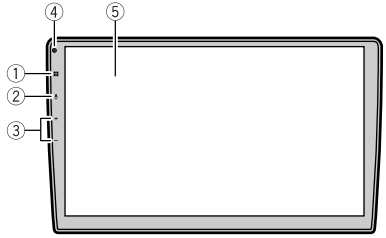
This manual uses diagrams of actual screens to describe operations. However, the screens on some units may not match those shown in this manual depending on the model used.

Meanings of symbols used in this manual

	This indicates to touch the appropriate soft key on the touch screen.
	This indicates to touch and hold the appropriate soft key on the touch screen.

Parts and controls

Main unit



①	■■ ■■	Touch to display the home menu screen. Touch and hold to power off. To power back on, touch any button. **When the home menu screen is displayed:** Touch to display the Apple CarPlay screen when Apple CarPlay is activated. Touch to display the Android Auto screen when Android Auto is activated. Touch to start the search screen when the device is not connected. Touch to go to the device select screen when the device is already connected. **TIP** If you power the unit off, you can turn off almost all functions.
②	🎤	Touch to activate the voice recognition mode.*1 Touch and hold to display the device search or select screen.*2
③	VOL (+/-)	Touch to adjust the volume.
④	RESET	Press to reset the microprocessor (page 8).
⑤	LCD screen	

*1 This function is available when Apple CarPlay or Android Auto is activated, or an iPhone is connected to this product via Bluetooth.

*2 This function is not available when Apple CarPlay or Android Auto is activated.

Basic operation

Starting up the unit

1 **Start the engine to boot up the system.**

NOTE

From the second time on, the screen shown will differ depending on the previous conditions.

2 **Select the language.**

3 **Touch [→].**

4 **Set the CAN bus interface.**

Select the corresponding CAN bus interface brand and the car category that your car belongs to.

If [None] is selected, the above setting is not performed and the screen will transition to the Initial Legal Disclaimer screen.

5 **Touch [Connect].**

Initial Legal Disclaimer screen appears.

6 **Set the Steering Wheel Control (CANBUS).**

Assign functions to each button of the Steering Wheel Control.

7 **Touch [OK].**

The message for the Bluetooth connection appears.

8 **Turn on the Bluetooth function on your device to connect your device to this product via Bluetooth.**

Follow the on-screen instructions to finish the initial setup.

TIPS

- Select [Skip] to finish the initial setup without connecting the Bluetooth device. You can make the Bluetooth connection later (page 16).
- Connecting the Bluetooth device during the initial setup process is recommended to easily start using hands-free phoning, Apple CarPlay or Android Auto wirelessly.

Resetting the microprocessor

⚠ CAUTION

- Pressing the RESET button restarts this product. In that case, some of the settings and recorded contents are reset to the factory settings.

– Do not perform this operation when a device is connected to this product.

- The microprocessor must be reset under the following conditions:
  – If this product fails to operate properly.
  – If there appears to be problems with the operation of the system.

1 **Press RESET with a pen tip or other pointed tools.**
Settings and recorded contents are reset to the factory settings.

Using the touch panel

You can operate this product by touching the keys on the screen directly with your fingers.

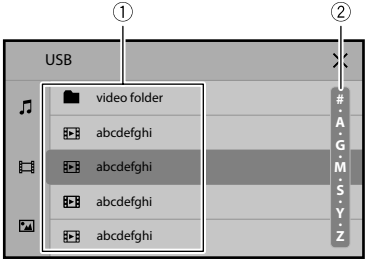
NOTE

To protect the LCD screen from damage, be sure to touch the screen only with your finger gently.

Common touch panel keys

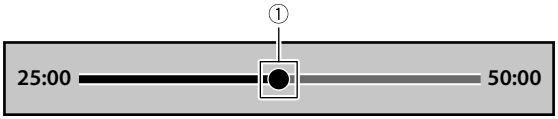
: Returns to the previous screen.
: Close the screen.

Operating list screens



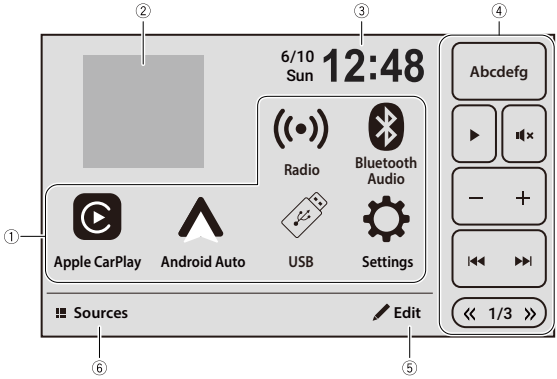
①	**Touching an item on the list allows you to narrow down the options and proceed to the next operation.**
②	**Appears when items cannot be displayed on a single page.** Drag the side bar or the initial search bar to view any hidden items.

Operating the time bar



①	**You can change the playback point by dragging the key.**

Home menu screen



①	**Favourite source/application area** Touch to see the selected source/application.
②	**Album art** The artwork of the audio currently being played is displayed. **NOTE** The artwork may not be displayed depending on some audio sources.
③	**Current time** Touch to set the clock display (page 52).
④	**Shortcuts** Functions frequently used are preset (page 13).
⑤	**Edit** • Changing the home menu screen layout (page 14). • Rearranging the displayed icons in the favourite source/application area (page 14).
⑥	**Sources** Touch to display all sources/applications.

TIP

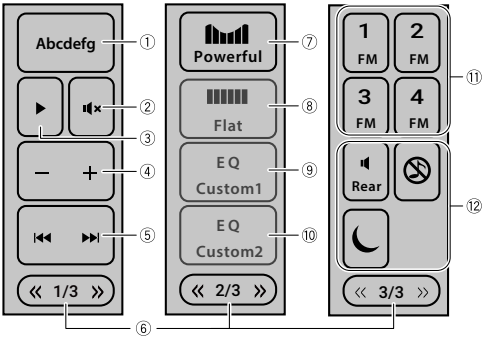
[Reconnect] is displayed on the home menu screen only when the Wi-Fi connection (Wireless Apple CarPlay or Android Auto) has failed or been disconnected automatically (page 54).

Shortcuts

Shortcuts enable you to easily operate frequently used functions on the home menu screen.

NOTES

- The position of the shortcuts on the home menu screen depends on the driving position setting (page 42).
- Some of the shortcut keys become unavailable depending on the source.



①	Touch to display the operation screen of each AV source.
②	Touch to mute. Touch again to cancel mute.
③	Touch to switch between playback and pause.
④	Touch to adjust the volume.
⑤	Touch to skip files forwards or backwards.
⑥	Touch to display the next or previous page of the shortcuts.
⑦	Touch to set the equaliser curve to “Powerful” (page 48).
⑧	Touch to set the equaliser curve to “Flat” (page 48).

⑨	Touch to set the equaliser curve to “Custom1” (page 48).
⑩	Touch to set the equaliser curve to “Custom2” (page 48).
⑪	Touch to recall the preset channel stored to a key from memory.
⑫	Touch to adjust various settings such as Rear speaker on/off, Source OFF, or Dimmer on/off. **TIP** The climate setting is available only when the input signal is received by the Vehicle Bus adapter.

Customising the home menu screen

NOTES

- This function is available only when you stop your vehicle in a safe place and apply the handbrake.
- The [Apple CarPlay] icon, the [Android Auto] icon and the [Settings] icon cannot be removed from the favourite source/application area.
- The [Android Auto] icon may not be displayed on the home menu screen depending on the Phone Connectivity Settings (page 51).

Adding the source icons to the favourite source/application area

1 **Touch [Edit].**

2 **Touch [Add].**

3 **Touch the icon you want to add to the favourite source/application area.**
When you finish adding, touch [X].

TIPS

- The clock and the artwork can also be set to be shown or hidden.
- If the area is full, remove unneeded icons, the clock, or the artwork first.

4 **Touch [Done].**

Removing the displayed icons from the favourite source/application area

1 **Touch [Edit].**

2 **Touch [Delete].**

3 **Touch the icon you want to remove from the favourite source/application area.**
When you finish removing, touch [Done].

TIP

The clock and the artwork can also be removed from the favourite source/application area.

4 **Touch [Done].**

Rearranging the icons in the favourite source/application area

1 **Touch [Edit].**

2 **Drag the icon to the desired position.**

TIP

The clock and the artwork cannot be moved.

3 **Touch [Done].**

Bluetooth®

Bluetooth connection

1. **Turn on the Bluetooth function on the device.**
2. **Display the connected Bluetooth device list screen on the device.**
3. **Touch** [⊞].
4. **Touch [Sources].**
5. **Touch** [📱].
6. **Touch [Yes] to start searching.**

   TIP

   If another device is already connected to the unit, skip this step.
7. **Touch a desired device on the screen.**

   TIPS

   - If you touch [🔍], the unit starts to search for available devices, then displays them in the device list.
   - If you touch [ⓘ], the device name and address of the Bluetooth device on this product are displayed.
   - A pop-up message may appear if another device is already connected to the unit. Touch [OK] on the message.
8. **Touch [Yes] to pair with the device.**
9. **Perform the pairing operation by operating the device.**

   After the device is successfully registered, a Bluetooth connection is established by the system. Once the connection is established, the device name is displayed on the list.

TIPS

- You can register up to five Bluetooth devices on this product.
- Once an Apple CarPlay or Android Auto compatible device is connected via Bluetooth, the device may be automatically connected with Wireless Apple CarPlay or Android Auto at the timing of Bluetooth reconnection such as by turning the ignition switch to on (ACC ON).
- Two mobile phones can be connected to this product at the same time.
- If you try to connect an unconnected mobile phone while two mobile phones are already connected, the first one of the two connected mobile phones will be disconnected and the unconnected mobile phone will be connected instead.

NOTES

- If five devices are already paired, the message confirming whether to delete the registered device is displayed. If you want to delete the device, touch [Agree]. If you want to delete other device, touch [Go To DeviceList] and delete the devices manually.
- If your device supports SSP (Secure Simple Pairing), a six-digit number appears on the display of this product. Make sure that the six-digit number matches the one that is displayed on the mobile device before touching [Yes] to pair the device.

Bluetooth Settings

1 Touch [⊞].

2 Touch [⚙] then [Bluetooth Settings].

⚠ CAUTION

Never turn this product off and disconnect the device while the Bluetooth setting operation is being processed.

Menu Item	Description
[Connection] [On] [Off]	Setting Bluetooth function activation. **TIP** Activate to connect the last connected Bluetooth device automatically.
[Auto Answer]	(page 19)
[Search]	Search for available devices.
[Bluetooth Memory Clear]	Touch [OK] to clear the Bluetooth memory.
[Bluetooth Paired Device List]	Display the paired device list. Touch [🗑] to delete registered device. Touch [ᛒ] to activate/deactivate hands-free phoning or Bluetooth audio.
[Bluetooth Device Info]	Displaying the device name of this product.
[Sound Quality Settings] [Connectivity] [Quality]	Select [Connectivity] to prioritise the Bluetooth connection. Select [Quality] to prioritise the Bluetooth sound quality.

Hands-free phoning

To use this function, you need to connect your mobile phone to this product via Bluetooth in advance (page 16).

NOTES

- You can connect one of the registered devices to this product. In cases where the registered device is equipped with a phone function, a total of two devices can be connected at the same time when

using the phone function. If two of the five registered devices are already connected, the first one of the two connected devices will be disconnected when you connect the remaining third device to use the audio function.

- The icon for the mobile phone currently being used is displayed on the phone menu screen. If you connect two mobile phones to this product at the same time, you can switch between the mobile phones using the switch devices key. The contents of the phone menu are memorised for each connected mobile phone (page 18).

⚠ CAUTION

For your safety, avoid talking on the phone as much as possible while driving.

Making a phone call

1 **Touch [≡].**

2 **Touch [Sources].**

3 **Touch [📞].**
The phone menu screen appears.

TIP
You can also start this function by touching the [↩] button.

4 **Touch one of the call icons on the phone menu screen.**

[Abcdefg]	**The following items are displayed.** • Name of the current mobile phone • Reception status of the current mobile phone • Battery status of the current mobile phone • List number of the current mobile phone **TIP** If you connect two mobile phones to this product at the same time, you can switch between the mobile phones using this key.
[📖]	**Using phone book** Select a contact from the phone book. Touch the desired name on the list then select the phone number. **TIP** The contacts on your phone will be automatically transferred to this product.
[↗]	**Using call history** Make a phone call from the received call [↙], dialled call [↗], or missed call [↙].
[⠿]	**Direct phone number input** Touch the number keys to enter the phone number then touch [📞] to make a call.

▸To end the call

1 **Touch [↩].**

Receiving a phone call

1 **Touch [ ] to answer the call.**
Touch [ ] to end the call.

TIPS

- Touch [ ] while getting a call waiting, switch to the talking person.
- Touch [ ] while getting a call waiting to reject the call.

NOTE

When two phones are connected at the same time, if an incoming call is received on the second phone while you are talking on the first phone, the dial confirmation screen for the second phone will be displayed.

Voice recognition function (for iPhone)

By connecting your iPhone to this product, you can use the voice recognition function (Siri Eyes Free Mode) on this product.

NOTE

When an iPhone is used, Siri Eyes Free Mode is available with this product.

1 **Touch [ ].**

2 **Touch [Sources].**

3 **Touch [ ].**
The phone menu screen appears.

4 **Touch [ ].**

TIPS

- You can also launch the voice recognition function by touching the [ ] button (page 7).
- If two mobile phones are automatically connected to this product with the Bluetooth device auto connect function, the voice recognition function (Siri Eyes Free Mode) will be set on the first phone.
- If you want to use the voice recognition function (Siri Eyes Free Mode) on another connected iPhone, touch [ ] with numbered to the other iPhone. The iPhone that you switch to will be set as the current device.

Phone settings

1 **Touch [ ].**

2 **Touch [ ] then [Bluetooth Settings].**

Menu Item	Description
[Auto Answer] [On] [Off]	Activate to answer an incoming call automatically.

Adjusting the other party's listening volume

This product can be adjusted to the other party's listening volume.

1 Touch [Vol] to switch between the three volume levels.

Notes for hands-free phoning

▸General notes

- Connection to all mobile phones featuring Bluetooth wireless technology is not guaranteed.
- The line-of-sight distance between this product and your mobile phone must be 10 metres or less when sending and receiving voice and data via Bluetooth technology.
- With some mobile phones, the ring sound may not be output from the speakers.
- If private mode is selected on the mobile phone, hands-free phoning may be disabled.

▸Registration and connection

- Mobile phone operations vary depending on the type of mobile phone. Refer to the instruction manual that came with your mobile phone for detailed instructions.
- When phone book transfer does not work, disconnect your phone and then perform pairing again from your phone to this product.

▸Making and receiving calls

- You may hear a noise in the following situations:
  - When you answer the phone using the button on the phone.
  - When the person on the other end of the line hangs up the phone.
- If the person on the other end of the line cannot hear the conversation due to an echo, decrease the volume level for hands-free phoning.
- With some mobile phones, even after you press the accept button on the mobile phone when a call comes in, hands-free phoning may not be performed.
- The registered name will appear if the phone number is already registered in the phone book. When multiple names are registered for the same phone number, the names are displayed in the same order as in the phone book.

▸The received call and dialled number histories

You cannot make a call to the entry of an unknown user (no phone number) in the received call history.

▸Phone book transfers

- If there are more than 1 000 phone book entries on your mobile phone, not all entries may download completely.
- Depending on the phone, this product may not display the phone book correctly.
- If the phone book in the phone contains image data, the phone book may not be transferred correctly.
- Depending on the mobile phone, phone book transfer may not be available.

Bluetooth audio

Before using the Bluetooth audio player, register and connect the device to this product (page 16).

NOTES

- Depending on the Bluetooth audio player connected to this product, the available operations with this product may be limited to the following two levels:
  – A2DP (Advanced Audio Distribution Profile): Only playing back songs on your audio player is possible.
  – A2DP and AVRCP (Audio/Video Remote Control Profile): Playing back, pausing, selecting songs, etc., are possible.
- Depending on the Bluetooth device connected to this product, the available operations with this product may be limited or differ from the descriptions in this manual.
- While you are listening to songs on your Bluetooth device, refrain from operating the phone function as much as possible. If you try operating, the signal may cause noise for song playback.
- When you are talking on the Bluetooth device connected to this product via Bluetooth, it may pause playback.

1 **Touch [⊞].**

2 **Touch [Bluetooth Audio].**
The Bluetooth audio playback screen appears.

TIP

If [Bluetooth Audio] is not available, try the following:
- Pull out the USB cable from the mobile phone.
- Confirm whether Bluetooth audio is activated.

Basic operation



▶ / ⏸	**Switches between playback and pause.**

	**Skips files forwards or backwards.**
	**Sets a repeat play range.**
	**Plays files in random order.**

Wi-Fi®

By connecting your Wi-Fi certified mobile device to this product via Wi-Fi connection, you can use Apple CarPlay or Android Auto wirelessly.

Wi-Fi connection

See the following chapters for the procedure on how to make a Wi-Fi connection for each application.

- Apple CarPlay (page 31)
- Android Auto (page 34)

Wi-Fi Settings

1 **Touch** [⊞].

2 **Touch** [⚙].

3 **Touch [Wi-Fi Settings].**

Menu Item	Description
[Wi-Fi] [On] [Off]	Switches Wi-Fi connection on or off.
[Device Information]	Displays the network name and MAC address of this product.
[Password]	Displays a Wi-Fi connection password.
[Password reset]	Touch to reset the Wi-Fi connection password.

AV source

Supported AV source

You can play or use the following sources with this product.

- Radio (page 25)

The following sources can be played back or used by connecting an auxiliary device.

- Apple CarPlay (page 31)
- Android Auto (page 34)
- Bluetooth Audio (page 21)
- USB (page 27)
- Camera View (page 37)

Selecting a source

1 **Touch [⊞].**

2 **Touch [Sources].**

3 **Touch the source icon.**

TIP

You can display the hidden source icons by swiping left on the screen.

NOTES

- When you select [Source OFF], the AV source is turned off.
- When you select [Display OFF], the display is turned off. Touch anywhere on the screen to turn it back on.
- When you select [Power OFF], almost all functions are turned off. Touch any button to power back on.

Radio

Starting procedure

1 **Touch** [⊞].

2 **Touch [Radio].**
The Radio screen appears.

Basic operation



1 XX.XX ··· 6 XX.XX	**Recalls the preset channel stored to a key from memory.**
	Stores the current broadcast frequency to a key.
FM1	**Selects the FM1, FM2, FM3, AM1 or AM2 band.**
BSM	**Performs BSM (best stations memory) function (page 26).**
◀ ▶	**Manual tuning**
⏮ ⏭	**Seek tuning** Skips to the nearest station from the current frequency. **TIP** When [RDS] is set to on, FM seek tuning step changes to 100 kHz, and when [RDS] is set to off, the step changes to 50 kHz (page 26).

Storing the strongest broadcast frequencies (BSM)

The BSM (best stations memory) function automatically stores the six strongest broadcast frequencies under the preset channel keys [1] to [6].

NOTES

- Storing broadcast frequencies with BSM may replace those you have already saved.
- Previously stored broadcast frequencies may remain stored if the number of frequencies stored has not reached the limit.

1 **Touch [BSM] to begin search.**

While the message is displayed, the six strongest broadcast frequencies will be stored under the preset channel keys in the order of their signal strength.

Radio settings

1 **Touch [⊞].**

2 **Touch [⚙] then [System Settings].**

3 **Touch [Radio settings].**

Menu Item	Description
[Local] [On] [Off]	Local seek tuning allows you to only tune into radio stations with sufficiently strong signals.
[RDS] [On] [Off]	Set on to enable the RDS function.
[AF] [On] [Off]	Allow the unit to retune to a different frequency providing the same station.
[TA Interrupt] [On] [Off]	Receives the traffic announcement, interrupting the other sources.
[NEWS Interrupt] [On] [Off]	Interrupt the currently selected source with news programmes.
[AM Step] [9kHz] [10kHz]	You can switch the seek/manual tuning step for the AM band.

USB

Plugging/unplugging a USB storage device

You can play compressed audio, compressed video, or still image files stored in an external storage device.

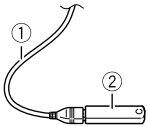
Plugging a USB storage device

1 **Pull out the plug from the USB port of the USB cable.**

2 **Plug a USB storage device into the USB cable.**

NOTES

- This product may not achieve optimum performance with some USB storage devices.
- Connection via a USB hub is not possible.
- A USB cable is required for connection.



①	**USB cable**
②	**USB storage device**

Unplugging a USB storage device

1 **Pull out the USB storage device from the USB cable.**

NOTES

- Check that no data is being accessed before pulling out the USB storage device.
- Turn off (ACC OFF) the ignition switch before unplugging the USB storage device.

Starting procedure

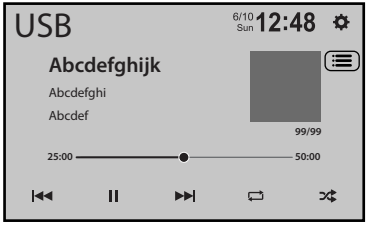
1 **Plug the USB storage device into the USB cable.**

TIP

You can also start this source by touching [USB] on the source screen.

Basic operation

Audio source

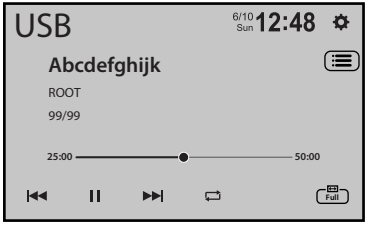


▶ ⏸	**Switches between playback and pause.**
⏮ ⏭	**Skips files forwards or backwards.**
	Performs fast forwards or fast reverse.
🔁 🔁 1 🔁	**Sets a repeat play range for all files/the current folder/the current file.**
🔀	**Switches between random and normal file playback order.**
☰	**Selects a file from the list.** Touch a file on the list to playback. **TIPS** • Touching a folder on the list shows its contents. You can play a file on the list by touching it. • You can switch the following media file types. – ♫: Compressed audio files – 🎞: Compressed video files – 🖼: Image files

Video source

⚠ CAUTION

For safety reasons, video images cannot be viewed while your vehicle is in motion. To view video images, stop in a safe place and apply the handbrake.

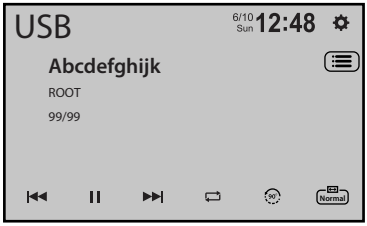


▶ ⏸	**Switches between playback and pause.**
⏮ ⏭	**Skips files forwards or backwards.**
	Performs fast forwards or fast reverse.
🔁 🔂	**Sets a repeat play range for all files/the current folder/the current file.**
	Sets the screen mode for the video image (page 53).
☰	**Selects a file from the list.** Touch a file on the list to playback. **TIPS** • Touching a folder on the list shows its contents. You can play a file on the list by touching it. • You can switch the following media file types. – ♫: Compressed audio files – 🎞: Compressed video files – 🖼: Image files

TIP

You can hide the touch panel keys by touching the screen. To display the keys again, touch anywhere on the screen.

Still image source



	Switches between playback and pause.
	Skips files forwards or backwards.
	Rotates the displayed picture 90° anticlockwise.
	Sets a repeat play range for all files/the current folder/the current file.
	Sets the screen mode for the still image (page 53).
	Selects a file from the list. Touch a file on the list to playback. **TIPS** • Touching a folder on the list shows its contents. You can play a file on the list by touching it. • You can switch the following media file types. – : Compressed audio files – : Compressed video files – : Image files

TIP

You can hide the touch panel keys by touching the screen. To display the keys again, touch anywhere on the screen.

Apple CarPlay

You can operate iPhone applications with finger gestures such as tapping, dragging, scrolling, or flicking on the screen of this product.

Compatible iPhone models

For details about compatibility of iPhone models, refer to the following website.
https://www.apple.com/ios/carplay

NOTE

The compatible finger gestures vary depending on the application for the iPhone.

⚠ WARNING

Certain uses of the iPhone may not be legal while driving in your jurisdiction, so you must be aware of and obey any such restrictions. If in doubt as to a particular function, only perform it while the vehicle is parked. No feature should be used unless it is safe to do so under the driving conditions you are experiencing.

Using Apple CarPlay

Important

Apple CarPlay may not be available in your country or region.
For details about Apple CarPlay, visit the following site:
https://www.apple.com/ios/carplay

- The content and functionality of the supported applications are the responsibility of the App providers.
- In Apple CarPlay, usage is limited while driving, with availability of functions and content determined by the App providers.
- Apple CarPlay allows access to applications other than those listed that are subject to limitations while driving.
- OUR DISPLAY AUDIO IS NOT RESPONSIBLE AND DISCLAIMS LIABILITY FOR THIRD PARTY APPS AND CONTENT, INCLUDING WITHOUT LIMITATION ANY INACCURACIES OR INCOMPLETE INFORMATION.
- Before using Apple CarPlay, make sure the GPS aerial and speed cable are properly connected and installed, and the unit angle is properly set. For details, refer to the Quick start guide.

Setting the driving position

To achieve optimum usability of Apple CarPlay, set the driving position setting correctly according to the vehicle. The setting will be applied the next time an Apple CarPlay compatible device is connected to this product.

1 Touch [⊞].

2 Touch [⚙].

3 **Touch [System Settings].**

4 **Touch [Driving Position].**

[**Left**]
Select for a left-hand drive vehicle.
[**Right**]
Select for a right-hand drive vehicle.

Starting procedure

Wired connection

1 **Connect an Apple CarPlay compatible device to this product via USB.**
The application screen appears.

TIP

You can start this source by touching [≡] then touching [Apple CarPlay] if a screen other than Apple CarPlay appears after the USB connection.

Wireless connection

Before using Apple CarPlay wirelessly, perform the following:
- Attach the GPS aerial to this product.
- Turn on Apple CarPlay in the setting menu of your iPhone.

1 **Turn on the Wi-Fi function and the Bluetooth function on the device.**

2 **Display the Bluetooth setting menu on the device.**

3 **Touch [≡].**

4 **Touch [Sources].**

5 **Touch [▯].**

6 **Touch [Yes] to start searching.**

TIP

Touch [🔍] if another device is already connected to the unit.

7 **Touch a desired device on the screen.**

TIP

A pop-up message may appear if another device is already connected to the unit. Touch [OK] on the message.

8 **Touch [Yes] to pair with the device.**

9 **Perform the pairing operation by operating the device.**

10 **Touch [Yes] to activate the Apple CarPlay function.**
Follow the on-screen instructions on the device to start the application.

TIPS

- When the USB connection with the other device has been made, the message that shows that the new device is available will appear. If you want to switch from the current device to the new one for use in the application, touch the pop-up message.
- You can use the Siri function by touching the button once Apple CarPlay is activated.

NOTES

- For details on USB connection, refer to the Quick start guide.
- If five devices are already paired, the message confirming whether to delete the registered device is displayed. If you want to delete the device, touch [Agree]. If you want to delete other device, touch [Go To DeviceList] and delete the devices manually.
- If an Apple CarPlay compatible device has been connected and another screen is displayed, touch [Apple CarPlay] on the home menu screen to display the application screen.
- Hands-free phoning via Bluetooth wireless technology is not available while Apple CarPlay is on. If Apple CarPlay is turned on during a call on a mobile phone other than an Apple CarPlay compatible device, the Bluetooth connection will be terminated after the call ends.
- The Bluetooth connection will be terminated automatically if Apple CarPlay is turned on.

Android Auto™

You can operate Android applications with finger gestures such as tapping, dragging, scrolling, or flicking on the screen of this product.

Compatible Android devices

For details about compatibility of Android models, refer to the following website.
https://support.google.com/androidauto
Compatible Android phone and compatible active data plan required.

NOTE

The compatible finger gestures vary depending on the application for the Android smartphone.

⚠ WARNING

Certain uses of the Android smartphone may not be legal while driving in your jurisdiction, so you must be aware of and obey any such restrictions. If in doubt as to a particular function, only perform it while the vehicle is parked. No feature should be used unless it is safe to do so under the driving conditions you are experiencing.

Using Android Auto

Important

Android Auto may not be available in your country or region.
For details about Android Auto, please refer to the Google support site:
https://support.google.com/androidauto

- The content and functionality of the supported applications are the responsibility of the App providers.
- In Android Auto, usage is limited while driving, with availability of functions and content determined by the App providers.
- Android Auto allows access to applications other than those listed that are subject to limitations while driving.
- OUR DISPLAY AUDIO IS NOT RESPONSIBLE AND DISCLAIMS LIABILITY FOR THIRD PARTY APPS AND CONTENT, INCLUDING WITHOUT LIMITATION ANY INACCURACIES OR INCOMPLETE INFORMATION.
- Before using Android Auto, make sure the GPS aerial and speed cable are properly connected and installed, and the unit angle is properly set. For details, refer to the Quick start guide.

Setting the driving position

To achieve optimum usability of Android Auto, set the driving position setting correctly according to the vehicle. The setting will be applied the next time an Android Auto compatible device is connected to this product.

1 Touch [⊞].

2 Touch [⚙].

3 **Touch [System Settings].**

4 **Touch [Driving Position].**

[**Left**]
Select for a left-hand drive vehicle.
[**Right**]
Select for a right-hand drive vehicle.

Starting procedure

Wired connection

1 **Connect an Android Auto compatible device to this product via USB.**
The application screen appears.

TIP

You can start this source by touching [≡] then touching [Android Auto] if a screen other than Android Auto appears after the USB connection.

Wireless connection

1 **Turn on the Wi-Fi function and the Bluetooth function on the device.**

2 **Display the connected Bluetooth devices list screen on the device.**

3 **Touch [≡].**

4 **Touch [Sources].**

5 **Touch [▯].**

6 **Touch [Yes] to start searching.**

TIP

Touch [🔍] if another device is already connected to the unit.

7 **Touch a desired device on the screen.**

TIP

A pop-up message may appear if another device is already connected to the unit. Touch [OK] on the message.

8 **Touch [Yes] to pair with the device.**

9 **Perform the pairing operation by operating the device.**

10 Touch [Start] to start Android Auto.

The unit configures the connection then starts the application.

TIP

You can use the voice control with Google Gemini or Google Assistant by touching the [🎤] button once Android Auto is activated.

NOTES

- For details on USB connection, refer to the Quick start guide.
- If five devices are already paired, the message confirming whether to delete the registered device is displayed. If you want to delete the device, touch [Agree]. If you want to delete other device, touch [Go To DeviceList] and delete the devices manually.
- If Android Auto is turned on during a call on a mobile phone other than the Android Auto compatible device, the Bluetooth connection will switch to the Android Auto compatible device after the call.
- The Bluetooth connection for the phone function with a device other than the device used for Android Auto will be terminated automatically if Android Auto is turned on.
- The Bluetooth audio connection with the device used for Android Auto will be terminated automatically if Android Auto is turned on.

Camera View

You can display the video image output by the device connected to video or camera input. For details, refer to the Quick start guide.

Starting procedure

1. **Touch [⊞].**
2. **Touch [Sources] then swipe left on the screen.**
3. **Touch [Camera View] for connected camera view.**
   The video image is displayed on the screen.

Displaying the parking assist information and camera view

When the parking assist signal can be received from the Vehicle Bus adapter, the video image of camera and the parking assist sensor information can be displayed.

NOTE

This function is only available for vehicles equipped with a parking sensor system and [parking assist] in [Alert settings] is turned on.

1. **Touch [⊞].**
2. **Touch [Sources] then swipe left on the screen.**
3. **Touch [Camera View] for connected camera view.**
   The video image is displayed on the screen.
4. **Touch [] to switch the parking assist sensor screen.**
5. **Touch [On] under "Camera Composition".**
   The split screen setting into parking assist sensor and camera image, is turned on.
6. **Touch [] to return to the camera image.**

Vehicle equipment information

Using the Vehicle Bus adapter

By connecting the optional Vehicle Bus adapter, you can display the operation status such as gauges, vehicle information, climate control and parking assist.

Important

- For information on installing the Vehicle Bus adapter, see the operating manual of the Vehicle Bus adapter.
- After installing the Vehicle Bus adapter, be sure to check operations.
- For details about vehicle models that are compatible with Vehicle Bus adapters, refer to the information on our website.
- Functions and displays vary depending on the vehicle model. For details of the functions available according to the model, refer to the information on our website.

Limitation

The data is transmitted to this product from your vehicle system via the connected Vehicle Bus adapter. Therefore, the actual data contents displayed on your product may differ from the contents on the screen described in this manual.

Starting procedure

1. **Connect the Vehicle Bus adapter cable (sold separately) to the Vehicle Bus conversion input on the rear panel.**
2. **Touch** [⊞].
3. **Touch [Sources] then swipe left on the screen.**
4. **Touch [Car Features].**
   The menu screen appears.

NOTE

This function is available only when the input signal is received by the Vehicle Bus adapter.

Using the functions on [Car Features]

You can check and use the following screens after selecting [Car Features] in the starting procedure. Touch one of the icons on the left side of the screen to change a feature.

NOTE

These functions are available only when the input signal is received by the Vehicle Bus adapter.

	**Displays the Parking Assist screen.**
	**Displays tyre pressures and the battery voltage. If door (including the bonnet and boot) sensor information can be received, their open/close statuses are displayed.**
	**Displays the driving data.**
	**Displays the fuel consumption information.**
	**Displays the vehicle maintenance information.**
	**Displays the Gauges screen.**
	**Displays the Climate screen.**
	**Displays the light setting screen.**
[Settings]	**Displays the setting items for the Vehicle Bus adapter.**
[Alert settings]	**Enable or disable various alert signals from the Vehicle Bus adapter.**
[Unit settings]	**Select the units for displaying the values.**
[Steering Wheel Control (CAN bus)]	**Displays the steering wheel setting screen. Select a function that you want to assign and then press the key that you want to target on the steering wheel for 1 second.**

NOTE

[Alert settings] is available only when the parking assist or vehicle information signal is received by the Vehicle Bus adapter.

Displaying obstacle detection information

⚠ CAUTION

This function is intended solely to assist the driver's vision. It does not detect all dangers and obstacles and is not a substitute for your attentiveness, judgement and care while parking your vehicle.

NOTES

- This function is only available for vehicles equipped with a parking sensor system.
- The Parking Assist screen is not displayed until this product boots up completely.

1 **Touch [▮▮].**

2 **Touch [Sources] then swipe left on the screen.**

3 **Touch [Car Features].**

4 **Touch** .
The Parking Assist screen appears.

Displaying the parking assist information and camera view

1 **Touch**  **to switch to the parking assist sensor screen.**

2 **Touch [On] under "Camera Composition".**
The screen is split into the parking assist sensor view and the camera image view.

3 **Touch**  **to display the camera image.**

Settings

You can adjust various settings in the main menu.

Displaying the setting screen

1 **Touch** .

2 **Touch** .

3 **Touch one of the following categories, then select the options.**

System Settings (page 41)
Display Settings (page 45)
Audio & EQ Settings (page 46)
Wi-Fi Settings (page 23)
Bluetooth Settings (page 17)
Camera settings (page 48)
Phone Connectivity Settings (page 51)

System Settings

Menu Item	Description
[Choose Language]	Select the system language. **NOTES** • If the embedded language and the selected language setting are not the same, the text information may not display properly. • Some characters may not be displayed properly.
[Date & Time]	Setting or adjusting the following time and clock display. • Date display format: day-month-year, month-day-year or year-month-day • Time display format: [12hour] or [24hour] • UTC (Universal Time Coordinated) time zone difference: UTC-12.00h to UTC+14.00h • Day-light saving time: [On] or [Off]
[Beep Tone] [On] [Off]	Set off to disable the beep sound when the button is touched or the screen is touched.

Menu Item	Description
[Steering Wheel Control] [With Adapter] [W/o Adapter]	Select [With Adapter] or [W/o Adapter] according to your wired remote control. **When [W/o Adapter] is selected;** Functions can be assigned to steering wheel switches when [Japanese car] or [Korean car] is selected. In the function list, select the function that you want to assign to a steering wheel switch and then press one of the steering wheel switches for 2 seconds. Repeat this procedure to assign functions to other switches. **NOTES** • This setting is available only when you stop your vehicle in a safe place and apply the handbrake. • Depending on your vehicle, this function may not work properly. In this case, contact your dealer or an authorised car service station. • Please use a correct wiring harness for each vehicle model when [With Adapter] mode is engaged, otherwise select [W/o Adapter].
[Demo Mode] [On] [Off]	Setting the demo mode.
[Driving Position] [Right] [Left]	Setting the driving position. • Apple CarPlay (page 31) • Android Auto (page 34) **NOTE** The position of the shortcuts on the home menu screen depends on the driving position setting (page 13).
[Radio settings]	(page 26)
[ACC ON settings] [Previous Source] [Power Off]	Setting the condition of the power off mode on the next startup. • [Previous Source]: The last used source screen will be shown after turning on the ignition switch (ACC ON). • [Power Off]: The power off mode will be kept after turning on the ignition switch (ACC ON).
[Dimmer Settings]	**NOTE** This setting is available only when you stop your vehicle in a safe place and apply the handbrake.
[Dimmer Trigger]	Setting the dimmer brightness. • [Auto]: Switches the dimmer to on or off automatically according to your vehicle's headlight turning on or off. • [Manual]: Switches the dimmer to on or off manually.

Menu Item	Description
[Day/Night]	Setting the dimmer duration by day or night. You can use this function when [Dimmer Trigger] is set to [Manual].
[Picture Adjustment]	You can adjust the picture for each source, rear view camera. To adjust following menu, touch [◀], [▶], [▲], [▼] to adjust. **⚠ CAUTION** For safety reasons, you cannot use some of these functions while your vehicle is in motion. To enable these functions, you must stop in a safe place and apply the handbrake. **NOTES** • The adjustment settings of [Dimmer] for when your vehicle's headlights are off (daytime) and on (nighttime) are stored separately. • The value of [Dimmer] is switched automatically depending on the setting of [Dimmer Settings]. • The picture adjustment may not be available with some rear view cameras. • The setting contents can be memorised separately.
[Brightness] [-10] to [+10]	Adjust the black intensity.
[Contrast] [-10] to [+10]	Adjust the contrast.
[Colour] [-10] to [+10]	Adjust the colour saturation.
[Hue] [-10] to [+10]	Adjust the tone of colour (which colour is emphasised, red or green).
[Dimmer] [0] to [+8]	Adjust the brightness of the display.
[Temperature] [-3] to [+3]	Adjust the colour temperature, resulting in a better white balance.

Menu Item	Description
[Factory Reset]	Touch [OK] to restore the settings to the default settings. **⚠ CAUTION** Do not turn off the engine while restoring the settings. **NOTES** • This setting is available only when you stop your vehicle in a safe place and apply the handbrake. • The source is turned off and the Bluetooth connection is disconnected before the process starts. • Before starting the restore process, disconnect any device that is connected to the USB port. Otherwise, some settings may not be restored correctly.
[Connection Status]	Check that the leads are properly connected between this product and vehicle.
[GPS Antenna]	Displays the connection status of the GPS aerial ([OK] or [NOK]) and the reception sensitivity. **NOTE** If reception is poor, change the installation position of the GPS aerial.
[Positioning Status]	Displays the positioning status (3D positioning, 2D positioning, or no positioning), the number of satellites used for positioning (orange), and the number of satellites that have received signals (yellow). If signals from more than six satellites are received, the current location can be measured.
[Installation]	Indicates whether the inertial navigation is successfully learned. If the learning is successful, [OK] will appear. If the learning is not successful or due to failure after the learning is successful, [NOK] will appear. **NOTE** If this product is not firmly fixed into place or the speed pulse wire is not connected or properly connected, [NOK] is displayed due to the learning failure.
[Speed Pulse]	The speed pulse value detected by this product is shown. **NOTE** Check that the speed pulse wire is properly connected if [0] is still displayed while driving.
[Back Signal]	When the gear stick is shifted to “R” (reverse position), the signal switches to [High] or [Low]. The signal displayed varies depending on the vehicle.
[System Information]	Displaying the firmware version.

Menu Item	Description
[Firmware Update]	Updating the firmware version. **⚠ CAUTION** • The USB storage device for updating must contain only the correct update file. • Never turn this product off, disconnect the USB storage device while the firmware is being updated. • You can only update the firmware when the vehicle is stopped and the handbrake is engaged. **1 Download the firmware update files into your computer.** **2 Connect a blank (formatted) USB storage device to your computer then locate the correct update file and copy it onto the USB storage device.** **3 Connect the USB storage device to this product (page 27).** **4 Display the [System Settings] screen (page 41).** **5 Touch [Firmware Update].** New firmware version information is displayed. **6 Touch [Update].** Follow the on-screen instructions to finish updating the firmware. **NOTES** • This product will restart automatically after the firmware update is completed if the update is successful. • If an error message appears on the screen, touch the display and perform the above steps again.
[CAN bus interface] [Hiworld] [Raise] [SimpleSoft] [None]	Setting CAN bus interface activation and selecting the corresponding CAN bus interface brand and the car category that your car belongs to.
[CAN bus update]	Using the update file, update the CAN bus interface.
[Licence]	Displaying the open-source licence.

Display Settings

Menu Item	Description
[Illumination]	Select an illumination colour from the preset list.
[Background]	Touch the wallpaper from the preset items in this product or original pictures via the external device and touch [Apply].

Menu Item	Description
Preset Display	Select the desired preset background display. You can set your favourite screen from the connected USB device by touching and sliding the bottom of screen to the right.
[🖼]	Select the background display image of the connected USB storage device. **1 Connect the USB storage device to this product (page 27).** **2 Touch [🖼].** **3 Select the desired image.**
[🖼] (custom)	Displays the background display image imported from the USB storage device.
[Off] (off)	Hides the background display.
[Splash screen] [Import] [Restore]	Select [Import] to change the image on the opening screen to the one imported from the connected USB device. Select [Restore] to restore the default image. **NOTES** • The image files that can be imported are as follows: – Format: BMP and JPEG – Data size: 6 MB or less (for both BMP and JPEG) – Image size (W×H): 1 024 × 600 pixels • Make sure that the image file is located within the root (top) folder of the USB device. • If multiple image files are stored on the USB device, the desired image file may not be imported from the USB device. Store only one desired image file on the USB device.

Audio & EQ Settings

Menu Item	Description
[Fader/Balance]	Touch [▲] or [▼] to adjust the front/rear speaker balance. Set [Front] and [Rear] to [0] when using a dual speaker system. Touch [◀] or [▶] to adjust the left/right speaker balance. **TIP** You can also set the value by dragging the point on the displayed table.
[Loudness] [Off] [Low] [Mid] [High]	Compensates for deficiencies in the low-frequency and high-frequency ranges at low volume.

Menu Item	Description
[Source Level Adjuster] [-4] to [+4]	Adjust the volume level of each source to prevent radical changes in volume when switching between sources other than FM. Touch [▲] or [▼] to adjust the source volume after comparing the FM tuner volume level with the level of the source. • If you directly touch the area where the cursor can be moved, the SLA (source level adjustment) setting will be changed to the value of the touched point. • Settings are based on the FM tuner volume level, which remains unchanged. • This function is not available when the FM tuner is selected as the AV source.
[Speaker Level] **Listening Position*1** [Off] [Front Left] [Front Right] [Front] [All] **Speaker output level*2** [Front Left] [Front Right] [Rear Left] [Rear Right] **Range that can be set** [-24] to [10]	Adjust the speaker output level of the listening position. **1 Touch [〈] or [〉] to select the listening position then select the output speaker.** **2 Touch [〈] or [〉] to adjust the selected speaker output level.**
[Listening Position]*1 [Off] [Front-L] [Front-R] [Front] [All]	Select a listening position that you want to make as the centre of sound effects.
[Time Alignment] [TA On] [TA Off] **Listening Position*1** [Off] [Front Left] [Front Right] [Front] [All] **Distance*2*3** [Front Left] [Front Right] [Rear Left] [Rear Right] **Range that can be set** [0] to [490]	Select or customise the time alignment settings to reflect the distance between the listener's position and each speaker. You need to measure the distance between the head of the listener and each speaker unit. **1 Touch [〈] or [〉] to select the listening position then select the alignment speaker.** **2 Touch [〈] or [〉] to input the distance between the selected speaker and listening position.** **TIP** If you touch [TA On], the time alignment is turned off mandatorily. **NOTE** This function is available only when the listening position setting is set to [Front Left] or [Front Right].

Menu Item	Description
[EQ] [Super Bass] [Powerful] [Natural] [Vocal] [Flat] [Custom1] [Custom2]	Select or customise the equaliser curve. Select a curve that you want to use as the basis of customising then touch the frequency that you want to adjust. **TIPS** • If you make adjustments when the [Super Bass], [Powerful], [Natural], [Vocal] or [Flat] curve is selected, the equaliser curve settings will be changed to [Custom1] mandatorily. • If you make adjustments when the [Custom2] curve is selected for example, the [Custom2] curve will be updated. • [Custom1] and [Custom2] curves can be created common to all sources.
[Crossover]	Select a speaker unit (filter) to adjust the HPF or LPF cutoff frequency and the slope for each speaker unit. • [LPF]/[HPF]: Switches the [LPF]/[HPF] setting to [On] or [Off].
[Bass Boost] [0] to [6]	Adjust the bass boost level.
[Mute Level]	If an interruption caused by an audio signal occurs while Apple CarPlay or Android Auto is being used, select mute or attenuate the volume of the AV source and iPhone/ Android smartphone application.
[ATT]	The volume becomes 10 dB lower than the current volume.
[Mute]	The volume becomes 0.
[Off]	The volume does not change.

*1 If you change the listening position setting, the set values for all speakers will change in conjunction with this setting.
*2 To use this function, you need to select [TA On] for [Time Alignment] and measure the vehicle's acoustic characteristics in advance.
*3 This function is available only when the listening position setting is set to [Front Left] or [Front Right].

Camera settings

A separately sold rear view camera is required for utilising the rear view camera function. (For details, consult your dealer.)

▸Rear view camera

This product features a function that automatically switches to the full-screen image of the rear view camera installed on your vehicle when the gear stick is in the REVERSE (R) position.
Camera View mode also allows you to check what is behind you while driving.

▸Camera for Camera View mode

Camera View can be displayed at all times. Note that with this setting, the camera image is not resized to fit, and that a portion of what is seen by the camera is not viewable. To display the camera image, touch [Camera View] on the source screen (page 37).

NOTES

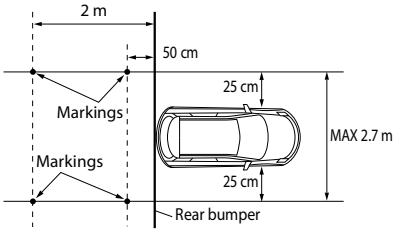
- To set the rear view camera as the camera for Camera View mode, select [On] for [Rear Viewing Camera Input] (page 49).
- is displayed on the camera image when the parking assist signal is received by the Vehicle Bus adapter and [Parking assist] under [Alert settings] in [Settings] of the Vehicle Bus adapter is turned on. (Refer to "Using the functions on [Car Features]" on page 38.) Touch the key to switch to the parking assist screen. In addition, if you touch [On] under "Camera Composition" on the parking assist screen, and then touch , the camera view is displayed. When you shift into reverse gear, a split screen with the parking assist sensor view and the camera view will be displayed.

⚠ CAUTION

We recommend the use of a camera which outputs mirror reversed images, otherwise the screen image may appear reversed.

- Immediately verify whether the display changes to the rear view camera image when the gear stick is moved to REVERSE (R) from another position.

Menu Item	Description
[Rear Viewing Camera Input] [On] [Off]	Setting rear view camera activation and which input video to be displayed.
[Rear Viewing Camera view] [Normal] [Reverse]	Select the way the screen image of a camera appears.
[Parking Assist Guide] [On] [Off]	You can set whether to display the parking assist guidelines on the rear view camera images when backing up your vehicle.

Menu Item	Description
[Parking Assist Guide Adjust]	**1 Adjusting the guidelines by dragging or touching ▲/▼/◀/▶ on the screen.** **2 Touch [OK] to finish the settings.** **TIP** Touch [Reset] to reset the settings. **⚠ CAUTION** • When adjusting the guidelines, be sure to park the vehicle in a safe place and apply the handbrake. • Before getting out of the vehicle to place the markings, be sure to turn the ignition switch off (ACC OFF). • The range projected by the rear view camera is limited. Also, the vehicle width and distance guidelines displayed on the rear view camera image may differ from the actual vehicle width and distance. (The guidelines are straight lines.) • The image quality may deteriorate depending on the usage environment, such as at night or in dark surroundings. **NOTES** • This setting is available only when you stop your vehicle in a safe place and apply the handbrake. • Using packing tape or similar tape place markings as shown below before setting up the guidelines so that the guidelines can be overlaid to the markings. • Install the rear view camera as near the centre of the vehicle as possible, and do not install it too low. Otherwise, the guideline comes on the edge of the screen, preventing the guideline from being adjusted. 
[Picture Adjustment]	(page 43)

Phone Connectivity Settings

Menu Item	Description
[Android Auto] [On] [Off]	Setting Android Auto activation. **NOTE** The [Android Auto] icon may not be displayed on the home menu screen depending on the Phone Connectivity Settings.

Other functions

Setting the clock display

You can set the time format, time zone, daylight saving and the date format.
However, the time and date are automatically adjusted by the GPS aerial and cannot be adjusted by the user.

1 **Touch the current time on the screen.**

2 **Set the following items in the settings.**

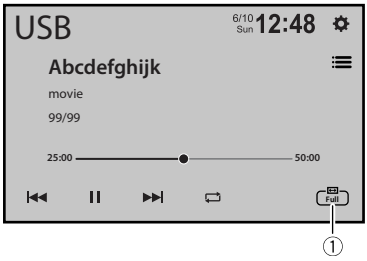
- The date display format:
  [d/m/y] (day-month-year), [m/d/y] (month-day-year) or [y/m/d] (year-month-day)
- The time display format:
  [12hour] or [24hour]
- The UTC (Universal Time Coordinated) time zone difference:
  UTC-12.00h to UTC+14.00h
- Day-light saving time:
  [On] or [Off]

You can also configure these items in [Date & Time] (page 41).

Changing the widescreen mode

You can set the screen mode for the AV screen and image files.

1 Touch the screen display mode key.



①	**Screen display mode key**

2 Touch the desired mode.

[Full]	Displays images across the entire screen. **NOTE** Some images may not be displayed across the entire screen.
[Zoom]	Displays images by enlarging them vertically.
[Normal]	Displays images without changing the ratio.
[Trimming]	An image is displayed across the entire screen with the horizontal-to-vertical ratio left as-is. If the screen ratio differs from the image, the image may be displayed partly cut off either at the top/bottom or sides. **NOTE** [Trimming] is for image files only.

TIPS

- Different settings can be stored for each video source.
- When a video is viewed in the widescreen mode with a setting that does not match its original aspect ratio, it may appear different.
- The video image will appear coarser when viewed in [Zoom] mode.

NOTES

- Image files can be set to either [Normal] or [Trimming] in the widescreen mode.
- Depending on the software version of this unit, this function may vary.

About the reconnection function

You can reconnect the iPhone or Android smartphone by touching [Reconnect] on the home menu screen.

TIPS

- [Reconnect] is displayed on the home menu screen only when the Wi-Fi connection (Wireless Apple CarPlay or Android Auto) has failed or been disconnected automatically.
- If you touch [Reconnect], the message confirming whether to restart this product appears on the display. Touch [Yes] to restart this product.

Restoring this product to the default settings

You can restore settings or recorded content to the default settings from [Factory Reset] in the [System Settings] menu (page 44).

Appendix

Troubleshooting

If you have problems operating this product, refer to this section. The most common problems are listed below, along with likely causes and solutions. If a solution to your problem cannot be found here, contact your dealer or the nearest authorised car service station.

Common problems

A black screen is displayed, and operation is not possible using the touch panel keys.

→ Power off mode is on.
– Touch any button on this product to release the mode.

Bluetooth operation does not work.

→ The power failed for the Bluetooth module of this product.
– Turn the ignition switch to OFF and then to ON. If the error message is still displayed after performing the above action, please contact your dealer or an authorised car service station.

Problems with the AV screen

The screen is covered by a caution message and the video cannot be shown.

→ The handbrake lead is not connected or the handbrake is not applied.
– Connect the handbrake lead correctly and apply the handbrake.
→ The speed sensor detects that the vehicle is moving.
– Park your vehicle in a safe place and apply the handbrake.

The audio or video skips.

→ This product is not firmly secured.
– Secure this product firmly.

No sounds are produced. The volume level will not rise.

→ Cables are not connected correctly.
– Connect the cables correctly.

iPhone cannot be operated.

→ The iPhone is frozen.
– Reconnect the iPhone with the USB interface cable for iPhone.
– Update the iPhone software version.
→ An error has occurred.
– Reconnect the iPhone with the USB interface cable for iPhone.
– Park your vehicle in a safe place, and then turn off the ignition switch (ACC OFF). Subsequently, turn the ignition switch to on (ACC ON) again.
– Update the iPhone software version.
→ Cables are not connected correctly.
– Connect the cables correctly.

Sound from the iPhone cannot be heard.

→ The audio output direction may switch automatically when the Bluetooth and USB connections are used at the same time.
– Use the iPhone to change the audio output direction.

Problems with the phone screen

Dialling is impossible because the touch panel keys for dialling are inactive.

→ Your phone is out of range for service.
– Retry after re-entering the range for service.

→ The connection between the mobile phone and this product cannot be established.
– Perform the connection process.

Problems with Application screen

A black screen is displayed.
→ While operating an application, the application was ended on the Android smartphone side.
– Touch ⠿ to display the home menu screen.
→ The Android smartphone OS may be awaiting screen operation.
– Stop the vehicle in a safe place and check the screen on the Android smartphone.

The screen is displayed, but operation does not work at all.
→ An error has occurred.
– Park your vehicle in a safe place, and then turn off the ignition switch (ACC OFF). Subsequently, turn the ignition switch to on (ACC ON) again.

The Android smartphone was not charged.
→ Charging stopped because the temperature of the Android smartphone rose due to prolonged use of the Android smartphone during charging.
– Disconnect the Android smartphone from the cable and wait until the Android smartphone cools down.
→ More battery power was consumed than was gained from charging.
– This problem may be resolved by stopping any unnecessary services on the Android smartphone.

Error messages

When problems occur with this product, an error message appears on the display. Refer to the table below to identify the problem, then take the suggested corrective action. If the error persists, record the error message and contact your dealer or your nearest authorised car service station.

USB storage device

Unsupport USB device
→ The connected USB device is not supported by this product.
– Check the supported USB formats (page 66).

Unsupport USB hub device
→ The connected USB hub is not supported by this product.
– Directly connect the USB storage device to this product.

This content cannot be played.
→ There is no playable file in the USB storage device.
– Check that the files in the USB storage device are compatible with this product.
→ This type of file is not supported on this product.
– Select a file that can be played.
→ Security for the connected USB storage device is enabled.
– Follow the USB storage device instructions to disable security.
→ This product cannot recognise the connected USB storage device.
– Disconnect the device and replace it with another USB storage device.

Audio Format not supported

→ This type of file is not supported on this product.
– Select a file that can be played.

No Data

→ There is no playable file in the USB storage device.
– Check that the files in the USB storage device are compatible with this product.

→ Security for the connected USB storage device is enabled.
– Follow the USB storage device instructions to disable security.

Apple CarPlay

Connection failed.

→ Communication failed and the system is trying to connect.

→ Wait for a while. Then, perform the actions below if the error message is still displayed.
– Restart the iPhone.
– Disconnect the cable from the iPhone, and then connect the iPhone again after a few seconds.
– Turn the ignition switch to OFF and then to ON.

Please attach the GPS antenna in order to use Apple CarPlay over Wireless.

→ This unit cannot properly detect the GPS signal from the GPS aerial.
– Check the GPS aerial installation and connection. For details about the connection and installation, refer to the Quick start guide.

Android Auto

• Connect a USB cable to get started.
• Your phone does not support wireless, check your phone.

→ The connected device is not compatible with Android Auto.
– Check if the device is compatible with Android Auto (page 34).

→ Android Auto app is not installed on the device.
– Install the Android Auto app on the device.

Connection failed. Please check your phone to confirm connection.

→ Wi-Fi connection failed and Android Auto app did not start.
– Check if the Wi-Fi function on the device is turned on.

Android Auto has disconnected.

→ Wi-Fi function on the device or the unit is turned off.
– Turn on the Wi-Fi function on the device and the unit when you use Android Auto (page 23).

To use Android Auto, please stop your car and follow the instructions on your phone

→ The default settings are displayed on the screen of the Android Auto compatible device or images are not output from the Android Auto compatible device.
– Park your vehicle in a safe place, and follow the instructions displayed on the screen. If the error message is still displayed after performing on-screen instructions, please reconnect the device.

Camera View

No Video Signal

→ There is no video signal input.
- Confirm whether the connection with the unit is established and there is an output from the external device.

Bluetooth

Handsfree device is not connected

→ The phone's Bluetooth HFP is not connected and cannot make calls.
- Make a Bluetooth connection (page 16).

Phone book access is not authorized

→ The Bluetooth PBAP of the mobile phone is not connected and the phone book cannot be downloaded.
- Make a PBAP connection. You need to operate your phone and allow the unit to access the contact information on your phone. When the related information pops up on your phone, follow the pop-up message.

Others

Overcurrent caution on USB.

→ Overcurrent is detected.
- Check the USB connection. Perform one of the following operations to fix the situation.
- Turn off the ignition switch (ACC OFF) and then turn the ignition switch to on (ACC ON) again.
- Power the unit off and then power it on again.
- Disconnect the (+) battery cable and then connect it again.

Overload Caution on AMP.

→ An amplifier overload is detected.
- Check the amp connection. Perform one of the following operations to fix the situation.
- Turn off the ignition switch (ACC OFF). After 9 seconds or more, turn the ignition switch to on (ACC ON) again.
- Disconnect the (+) battery cable and then connect it again.

Detailed information for playable media

Compatibility

Common notes about the USB storage device

- Do not leave the USB storage device in any location with high temperatures.
- Depending on the kind of the USB storage device you use, this product may not recognise the storage device or files may not be played back properly.
- The text information of some audio and video files may not be correctly displayed.
- File extensions must be used properly.
- There may be a slight delay when starting playback of files on a USB storage device with complex folder hierarchies.
- Operations may vary depending on the kind of USB storage device.
- It may not be possible to play some music files from USB because of file characteristics, file format, recorded application, playback environment, storage conditions and so on.

USB storage device compatibility

- For details about USB storage device compatibility with this product, refer to Specifications (page 65).
- Protocol: bulk
- You cannot connect a USB storage device to this product via a USB hub.

- Partitioned USB storage device is not compatible with this product.
- Firmly secure the USB storage device when driving. Do not let the USB storage device fall onto the floor, where it may become jammed under the brake or accelerator.
- There may be a slight delay when starting playback of audio files encoded with image data.
- Some USB storage devices connected to this product may generate noise on the radio.
- Do not connect anything other than the USB storage device.

Handling guidelines and supplemental information

- Copyright protected files cannot be played back.

Media compatibility chart

General

- Maximum playback time of audio file stored on a USB storage device: 7.5 h (450 minutes)

USB storage device

CODEC FORMAT	MP3, WMA, WAV, AAC, FLAC, AVI, MPEG-PS, MP4, 3GP, MKV, MOV, ASF, FLV, M4V, MPEG-TS

MP3 compatibility

- Ver. 2.x of ID3 tag is prioritised when both Ver. 1.x and Ver. 2.x exist.
- This product is not compatible with the following: MP3i (MP3 interactive), mp3 PRO, m3u playlist

SAMPLING FREQUENCY	8 kHz to 48 kHz
TRANSMISSION RATE	CBR (8 kbps to 320 kbps)/VBR
ID3 TAG	ver.1.0/1.1/2.2/ 2.3/2.4

WMA compatibility

- This product is not compatible with the following: Windows Media Audio 9.2 Professional, Lossless, Voice

SAMPLING FREQUENCY	8 kHz to 48 kHz
TRANSMISSION RATE	CBR (8 kbps to 320 kbps)/VBR

WAV compatibility

- The sampling frequency shown in the display may be rounded.

SAMPLING FREQUENCY	16 kHz to 192 kHz
QUANTIZATION BIT RATE	8 bit, 16 bit

AAC compatibility

- This product plays back AAC files encoded by iTunes.

SAMPLING FREQUENCY	8 kHz to 96 kHz
TRANSMISSION RATE	CBR (16 kbps to 320 kbps)

FLAC compatibility

SAMPLING FREQUENCY	8 kHz to 192 kHz
QUANTIZATION BIT RATE	8 bit, 16 bit, 24 bit

Video files compatibility

- Files may not be played back properly depending on the environment in which the file was created or on the contents of the file.
- This product is not compatible with packet write data transfer.
- This product can recognise up to 255 characters, beginning with the first character, including extension for the file and folder name. Depending on the display area, this product may try to display them with a reduced font size. However, the maximum number of the

characters that you can display varies according to the width of each character, and of the display area.
- Folder selection sequence or other operations may be altered, depending on the encoding or writing software.
- Regardless of the length of blank section between the songs of original recording, compressed audio files play with a short pause between songs.
- Files may not be able to be played back depending on the bit rate.
- The maximum resolution depends on the compatible video codec.

H.264 video decoding format

Base Line Profile, Main Profile, High Profile

Maximum resolution	1 920 × 1 080
Maximum frame rate	30 fps

H.263 video decoding format

Base Line Profile 0/3

Maximum resolution	1 920 × 1 080
Maximum frame rate	30 fps

VC-1 video decoding format

Simple Profile, Main Profile, Advanced Profile

Maximum resolution	1 920 × 1 080
Maximum frame rate	30 fps

MPEG-4 video decoding format

Simple Profile, Advanced Simple Profile

Maximum resolution	1 920 × 1 080
Maximum frame rate	30 fps

MPEG-1, 2 video decoding format

Main Profile

Maximum resolution	1 920 × 1 080
Maximum frame rate	30 fps

Example of a hierarchy

NOTE

This product assigns folder numbers. The user cannot assign folder numbers.

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- AAC is short for Advanced Audio Coding and refers to an audio compression technology standard used with MPEG-2 and MPEG-4. Several applications can be used to encode AAC files, but file formats and extensions differ depending on the application which is used to encode. This unit plays back AAC files encoded by iTunes.

- Google, Android, Android Auto, Gemini and other marks are trademarks of Google LLC.

- Our display audio accepts no responsibility for data lost from an iPhone, even if that data is lost while using this product. Please back up your iPhone data regularly.

- Do not leave the iPhone in direct sunlight for extended amounts of time. Extended exposure to direct sunlight can result in iPhone malfunction due to the resulting high temperature.

- Do not leave the iPhone in any location with high temperatures.

- Firmly secure the iPhone when driving. Do not let the iPhone fall onto the floor, where it may become jammed under the brake or accelerator.

- For details, refer to the iPhone manuals.

- Please note that the use of this accessory with an Apple product may affect wireless performance.

- Apple CarPlay, iPhone, iTunes, QuickTime, and Siri are trademarks of Apple Inc., registered in the U.S. and other countries and regions.

- Works with Siri through the microphone.

- Use of the Apple CarPlay logo means that a vehicle user interface meets Apple performance standards. Apple is not responsible for the operation of this vehicle or its compliance with safety and regulatory standards. Please note that the use of this product with iPhone may affect wireless performance.

- Compatible iPhone models
  – iPhone 17 Pro Max
  – iPhone 17 Pro
  – iPhone 17

– iPhone Air
– iPhone 16e
– iPhone 16 Pro Max
– iPhone 16 Pro
– iPhone 16 Plus
– iPhone 16
– iPhone 15 Pro Max
– iPhone 15 Pro
– iPhone 15 Plus
– iPhone 15
– iPhone 14 Pro Max
– iPhone 14 Pro
– iPhone 14 Plus
– iPhone 14
– iPhone SE (3rd generation)
– iPhone 13 Pro Max
– iPhone 13 Pro
– iPhone 13
– iPhone 13 mini
– iPhone 12 Pro Max
– iPhone 12 Pro
– iPhone 12
– iPhone 12 mini
– iPhone SE (2nd generation)
– iPhone 11 Pro Max
– iPhone 11 Pro
– iPhone 11
– iPhone XS Max
– iPhone XS
– iPhone XR
– iPhone X

- Depending on the iPhone models, it may not be compatible with some AV sources. For details about iPhone compatibility with this product, refer to the information on our website.

- LTE is a trademark of ETSI.

Using app-based connected content

Important

Requirements to access app-based connected content services using this product:

- Latest version of the compatible connected content application(s) for the Android smartphone, available from the service provider, downloaded to your Android smartphone.
- A current account with the content service provider.
- Android smartphone Data Plan.
  Note: if the Data Plan for your Android smartphone does not provide for unlimited data usage, additional charges from your carrier may apply for accessing app-based connected content via 3G, EDGE and/or LTE™ (4G) networks.
- Connection to the Internet via 3G, EDGE, LTE (4G) or Wi-Fi network.
- Optional adapter cable connecting your iPhone to this product.

Limitations:

- Access to app-based connected content will depend on the availability of cellular and/or Wi-Fi network coverage for the purpose of allowing your Android smartphone to connect to the Internet.
- Service availability may be geographically limited to the region. Consult the connected content service provider for additional information.
- Ability of this product to access connected content is subject to change without notice and could be affected by any of the following: compatibility issues with future firmware versions of Android smartphone; compatibility issues with future versions of the connected content application(s) for the Android smartphone; changes to or

discontinuation of the connected Content application(s) or service by its provider.
- Our display audio is not liable for any issues that may arise from incorrect or flawed app based content.
- The content and functionality of the supported applications are the responsibility of the App providers.
- In Apple CarPlay and Android Auto, functionality through the product is limited while driving, with available functions determined by the App providers.
- Availability of Apple CarPlay and Android Auto functionalities is determined by the App provider, and not determined by our display audio.
- Apple CarPlay and Android Auto allow access to applications other than those listed (subject to limitations while driving), but the extent to which content can be used is determined by the App providers.

Notice regarding video viewing

Remember that use of this system for commercial or public viewing purposes may constitute an infringement on the author's rights as protected by the Copyright Law.

Using the LCD screen correctly

Handling the LCD screen

- When the LCD screen is subjected to direct sunlight for a long period of time, it will become very hot, resulting in possible damage to the LCD screen. When not using this product, avoid exposing it to direct sunlight as much as possible.
- The LCD screen should be used within the temperature ranges shown in Specifications on page 65.
- Do not use the LCD screen at temperatures higher or lower than the operating temperature range, because the LCD screen may not operate normally and could be damaged.
- The LCD screen is exposed in order to increase its visibility within the vehicle. Please do not press strongly on it as this may damage it.
- Do not push the LCD screen with excessive force as this may scratch it.
- Never touch the LCD screen with anything besides your finger when operating the touch panel functions. The LCD screen can scratch easily.

Liquid crystal display (LCD) screen

- If the LCD screen is near the vent of an air conditioner, make sure that air from the air conditioner is not blowing on it. Heat from the heater may break the LCD screen, and cool air from the cooler may cause moisture to form inside this product, resulting in possible damage.
- Small black dots or white dots (bright dots) may appear on the LCD screen. These are due to the characteristics of the LCD screen and do not indicate a malfunction.
- The LCD screen will be difficult to see if it is exposed to direct sunlight.
- When using a mobile phone, keep the aerial of the mobile phone away from the LCD screen to prevent disruption of the video in the form of disturbances such as spots or coloured stripes.

Maintaining the LCD screen

- When removing dust from or cleaning the LCD screen, first turn this product off and then wipe the screen with a soft dry cloth.
- When wiping the LCD screen, take care not to scratch the surface. Do not use harsh or abrasive chemical cleaners.

LED (light-emitting diode) backlight

A light emitting diode is used inside the display to illuminate the LCD screen.

- At low temperatures, using the LED backlight may increase image lag and degrade the image quality because of the characteristics of the LCD screen. Image quality will improve with an increase in temperature.
- The product lifetime of the LED backlight is more than 10 000 hours. However, it may decrease if used in high temperatures.
- If the LED backlight reaches the end of its product lifetime, the screen will become dimmer and the image will no longer be visible. In that case, please consult your dealer or the nearest authorised car service station.

Specifications

General

Rated power source:
14.4 V DC (10.5 V to 16.0 V allowable)
Earthing system:
Negative type
Maximum current consumption:
10.0 A
Dimensions (W × H × D):
<DMH-AP1080BT>
Chassis:
188 mm × 108 mm × 37 mm
Nose:
252 mm × 147 mm × 12 mm
<DMH-AP980BT>
Chassis:
188 mm × 108 mm × 37 mm
Nose:
229 mm × 131 mm × 13 mm
Weight:
<DMH-AP1080BT>
1.1 kg
<DMH-AP980BT>
0.9 kg

Display

Screen size/aspect ratio:
<DMH-AP1080BT>
10.1 inch wide/16:9 (effective display area: 222.72 mm × 125.28 mm)
<DMH-AP980BT>
9 inch wide/16:9 (effective display area: 196.608 mm × 114.15 mm)
Pixels:
1 024 (Width) × 600 (Height) × 3 (RGB)
Display method:
TFT Active matrix driving
Colour system:
PAL/NTSC/PAL-M/PAL-N/SECAM compatible
Temperature range:
-10 ˚C to +60 ˚C

Audio

Maximum power output:
50 W × 4
Continuous power output:
22 W × 4 (50 Hz to 15 kHz, 5 % THD, 4 Ω LOAD, Both Channels Driven)

Load impedance:
4 Ω
Equaliser (13-Band Graphic Equaliser):
Frequency:
50 Hz/80 Hz/125 Hz/200 Hz/315 Hz/500 Hz/800 Hz/1.25 kHz/2 kHz/3.15 kHz/5 kHz/8 kHz/12.5 kHz
Gain: ±12 dB (2 dB/step)
HPF: ON/OFF
Frequency:
25 Hz/31.5 Hz/40 Hz/50 Hz/63 Hz/80 Hz/100 Hz/125 Hz/160 Hz/200 Hz/250 Hz
Slope:
-6 dB/oct, -12 dB/oct, -18 dB/oct, -24 dB/oct
Time alignment:
0 to 490 cm (1.4 cm/step)
Speaker level:
+10 dB to -24 dB (1 dB/step)

USB

USB standard spec:
USB 1.1, USB 2.0 full speed, USB 2.0 high speed
Max current supply: 1.5 A
USB Class:
MSC (Mass Storage Class)
File system: FAT16, FAT32, NTFS
<USB audio>
MP3 decoding format:
MPEG-1 & 2 & 2.5 Audio Layer 3
WMA decoding format:
Ver. 7, 8, 9, 9.1, 9.2 (2 ch audio)
(Windows Media Player)
AAC decoding format:
MPEG-4 AAC (iTunes encoded only) (Ver. 12.5 and earlier)
FLAC decoding format (MSC Mode only):
Ver. 1.3.0
Sampling frequency:
8 kHz to 192 kHz
WAV signal format (MSC Mode only):
Linear PCM
Sampling frequency:
16 kHz to 192 kHz
<USB image>
JPEG decoding format (MSC Mode only):
.jpeg, .jpg
Pixel Sampling: 4:2:2, 4:2:0
Decode Size:
MAX: 5 000 (H) × 5 000 (W)
(Maximum file size: 6 MB)

(Minimum file size: 10 kB)
PNG decoding format (MSC Mode only):
.png
Decode Size:
MAX: 576 (H) × 720 (W)
BMP decoding format (MSC Mode only):
.bmp
Decode Size:
MAX: 936 (H) × 1 920 (W)
<USB video>

◯ : Supported — : Not supported

Playable video format (container)		AVI	MP4	QuickTime (MOV)	WMV	MKV	FLV	MPEG1-PS MPEG2-PS	TS Stream
EXTENSION		.avi	mp4/.m4v	.mov	.wmv	.mkv	.flv	.mpg/ .mpeg	.ts/.m2ts/ .mts
Video codec	H.264	◯	◯	◯	—	◯	◯	◯	◯
	H.263	◯	◯	◯	—	—	◯	—	—
	WMV9 (VC-1)	◯	—	—	◯	◯	—	—	◯
	MPEG-4	◯	◯	◯	—	◯	—	—	◯
	MPEG-2	◯	◯	◯	—	◯	—	◯	◯
	MPEG-1	◯	—	—	—	◯	—	◯	◯
Audio codec	WMA	◯	—	—	◯	◯	—	—	—
	MP3	◯	◯	◯	—	◯	◯	◯	◯
	AAC	◯	◯	◯	—	◯	◯	◯	◯
	FLAC	◯	—	—	◯	◯	—	—	—
	LPCM	◯	◯	◯	—	◯	◯	◯	◯

Bluetooth

Version:
Bluetooth 5.4 certified
Output power:
+4 dBm Max. (Power class 2)
Frequency band(s):
2 402.0 MHz to 2 480.0 MHz
Bluetooth profiles:
HFP (Hands Free Profile) 1.8
PBAP (Phone Book Access Profile) 1.2.3
A2DP (Advanced Audio Distribution Profile) 1.3.2
AVRCP (Audio/Video Remote Control Profile) 1.6.3
AVCTP (Audio/Video Control Transport Protocol) 1.4
AVDTP (Audio/Video Distribution Transport Protocol) 1.3
GAVDP (Generic Audio/Video Distribution Profile) 1.3

IOP (Interoperability Test Specification)
RFCOMM (RFCOMM with TS 07.10) 1.1

FM tuner

Frequency range:
76.0 MHz to 108 MHz
Usable sensitivity:
12 dBf (1.1 µV/75 Ω, mono, S/N: 30 dB)
Signal-to-noise ratio:
50 dB (IEC-A network)

AM tuner

Frequency range:
530 kHz to 1 640 kHz (10 kHz), 531 kHz to 1 602 kHz (9 kHz)
Usable sensitivity:
28 µV (S/N: 20 dB)
Signal-to-noise ratio:
45 dB (IEC-A network)

Wi-Fi

Version:
IEEE 802.11 a/n/ac (5 GHz)
Frequency channel:
149 ch (5 GHz)
Security:
WPA2 (Personal), WPA3 (Personal)
Output power:
+13.0 dBm Max (5 GHz)

GPS

GNSS receiver
System:
GPS L1C/Ac, SBAS L1C/A, GLONASS L1OF, Galileo E1B/C
SPS (Standard Positioning Service)
Reception system:
64 channel Multi-channel reception system
Reception frequency:
1 575.42 MHz/1 602 MHz
Sensitivity:
-140 dBm (typ)
Frequency:
Approx. once per second
GPS aerial
Aerial:
Micro strip flat aerial/right-handed helical polarisation
Aerial cable:
3 m

Dimensions (W × H × D):
38.3 mm × 35 mm × 13.5 mm
Weight:
65.0 g

NOTE

Specifications and design are subject to possible modifications without notice due to improvements.