



## Description

### AVN system

The AVN system simplifies system manipulation and by unifying the vehicle information and user information displays, improves information search and operation experience.

The system is basically composed of a keyboard for the operation of combined function, LCD monitor, a head unit with Bluetooth handsfree calling, voice recognition and navigation, music amplifier and the media unit that connects with other external devices.

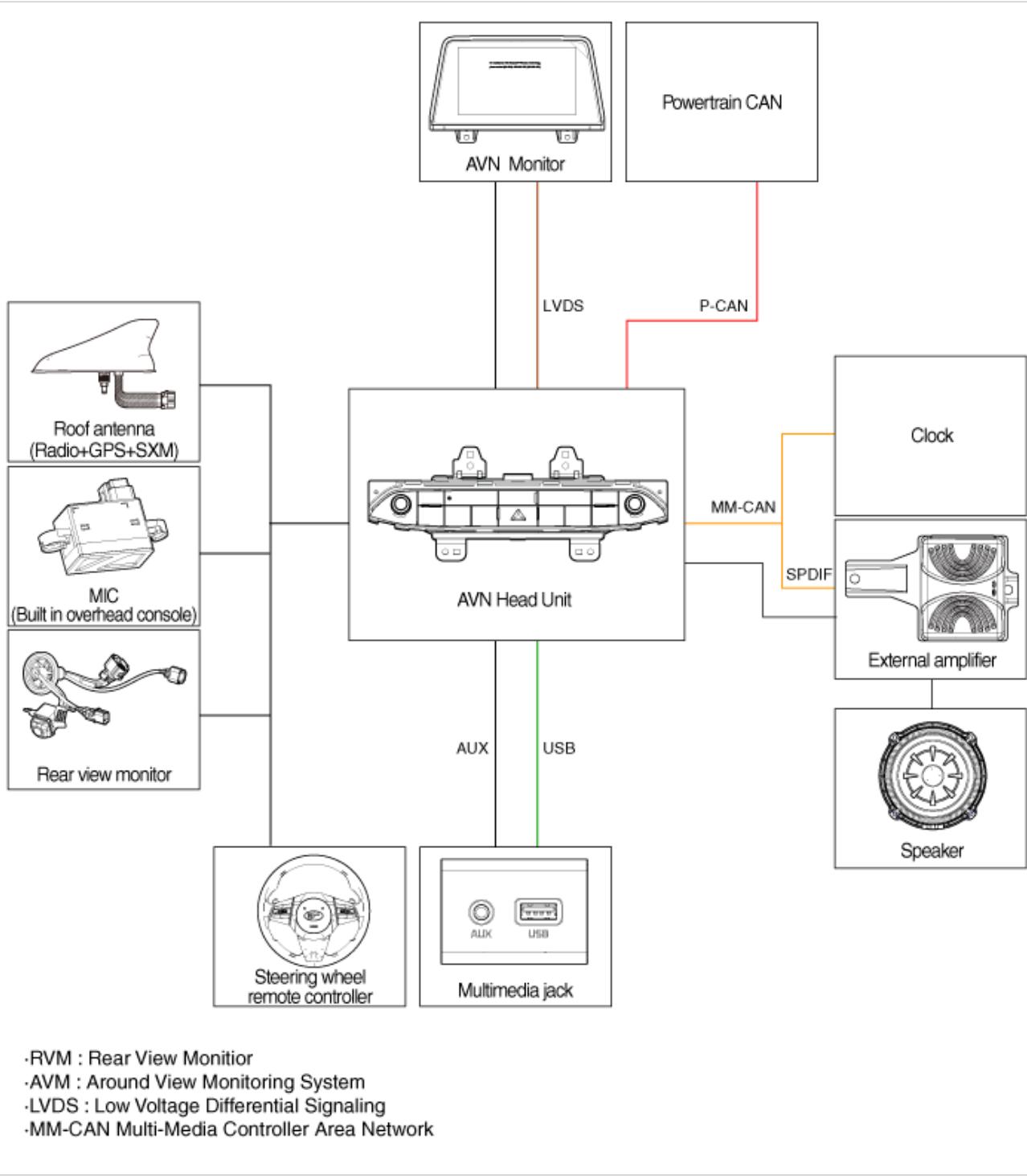
1. Simplification of user interface : the multimedia and car information are displayed on the monitor.

2. Networked electronic parts : Efficient information transmission through CAN communications.

3. Up-to-date technologies integrated :

- Voice recognition : This function recognizes the user's voice commands to manipulate the system. The user can issue voice commands to operate AV system, Bluetooth phone and navigation.
- Bluetooth hands-free calling : This is compliant with the international wireless communication standards and uses bluetooth technology adopted in most currently launched mobile phones. Once connected, the driver is automatically connected every time he/she gets in the car.
- USB connectivity : External music player devices such as USB memory stick or MP3 can be connected and played by the car speakers.

### System Block Diagram



- RVM : Rear View Monitor
- AVM : Around View Monitoring System
- LVDS : Low Voltage Differential Signaling
- MM-CAN Multi-Media Controller Area Network

- B-CAN : Body Controller Area Network
- MM-CAN : Multi-Media Controller Area Network

## Limitations Of The Navigation system

### GPS Signal Reception State

As the GPS satellite frequency is received/transmitted in straight lines, reception may not work if an object is placed on or near the GPS antenna or when travelling in the following environment:

- Tunnels
- Basement parking structures
- Underneath an overpass
- Roads within forested areas
- Areas near high rise buildings
- Roads within canyons

## Vehicle Position Display

1. If multipass errors occur due to reflections from buildings or related causes, the current position mark on the navigation may differ from the actual position of the vehicle.
2. The position of the vehicle on the navigation may be different from the actual position if the vehicle is in the following location or driving condition. In this case, drive for a short period of time to automatically correct vehicle location according to map matching or GPS information. (It may take several minutes in certain cases.)
  - When driving on a sharp Y-shaped road, the current position may be displayed in the opposite direction.
  - If the vehicle is loaded onto a car transport vehicle, the current position mark may be stalled on the last position prior to loading.
  - When driving on a spiral-shaped road.
  - When driving in mountainous regions with sharp turns or sudden brakes.
  - When entering a road after exiting from an underground parking structure, building parking structure, or turntable with multiple rotations.
  - When the tires have recently been replaced (Especially upon use of spare or studless tires)
  - If the battery terminal is removed.
  - When driving in city streets, the current position may be displayed on the opposite side or on an off-road position.
  - When changing the zoom level from the maximum zoom in level to a different zoom level, the current position mark may be displayed on a different road.
  - When driving in heavy traffic with frequent stops or intersections.
  - When driving under slippery conditions, such as heavy sand, snow, etc.
  - When driving with tire chains installed.
  - When using a tire with an incorrect size specification.
  - When the tire pressures of all 4 tires are different from each other.
  - When the replacement tire is a worn or used tire (especially studless tire that has passed 2nd season, etc.).
  - When driving near high-rise buildings
  - If a roof carrier has been installed
  - When driving in high speeds or after having calculated a long distance route.

## Route Guidance

Suitable route guidance may not occur due to search conditions or driving position.

- Guidance to go straight may be given while driving on a straight road.
- Guidance may not be given after turning at an intersection.
- Proper guidance may not be given at certain intersections.
- A route guidance signaling entrance into a no entry zone may occur (No entry zone, road under construction, etc.).
- Guidance may be given to a location near the actual destination if roads to the actual destination do not exist or are too narrow.
- Wrong voice guidance may be given if the vehicle deviates from the designated route (e.g. If it turned at an intersection wherein the navigation guided to go straight.).
- The route guidance may not be provided in case of missing or incorrect map data.

## Route Re-calculation

The following phenomena may occur after conducting route recalculation.

- Guidance may be given to a different position from the current position if the vehicle was turning at an intersection.
- Route recalculation may take longer when driving under high speeds.
- A route guidance signaling for a U-Turn in a No U-Turn zone may occur.
- In some cases, a route guidance may signal the driver to enter a no entry zone (No entry zone, road under construction, etc.).
- Guidance may be given to a location near the actual destination if roads to the actual destination do not exist or are too narrow.
- Wrong voice guidance may be given if the vehicle deviates from the designated route (e.g. If it turns at an intersection wherein the navigation guided to go straight.).