

RoyalTek RN1 Portable Navigation Device

Reference Manual



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RoyalTek RN1 Portable Navigation Device User's Guide Original issue: September 2008.

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NOTE : Record the device ID, serial number, purchase date, and place of purchase information in the space provided below. The serial number is indicated on the label affixed to your RoyalTek device. All correspondence concerning your unit should include the serial number, device ID, and purchase information.

Revision: 1.00

September 2008

NOTE: Information in this manual is subject to change without notice.

Warnings and Notices

For your safety, do not operate the controls of the product while driving.

GPS satellite signals cannot typically pass through solid materials (except glass). GPS location information is not typically available inside buildings, tunnels, or underground parking lots.

A minimum of 4 GPS satellite signals is needed to calculate your GPS position. Signal reception can be affected by weather events or overhead obstacles (e.g. dense foliage and tall buildings).

Other wireless devices in the vehicle may interfere with the reception of satellite signals and cause the reception to be unstable.

Adapter

Do not attempt to service the unit. There are no serviceable parts inside. Replace the unit if it is damaged or exposed to excess moisture.

Do not use the adapter if the cord becomes damaged.

Connect the adapter to the proper power source. The voltage requirements are found on the product case and/or packaging.

Battery

This unit contains a non-replaceable internal Li-polymer battery. The battery could be bursting or exploding and releasing hazardous chemicals in case of over battery specification and using in an abnormal conditions; disassemble, crush, puncture, or dispose of the battery in fire or water. Abnormal operation could be dangerous to your human body. Please be aware.

Use only the specified charger approved by the manufacturer.

Risk of explosion if battery is replaced by an incorrect type dispose of used batteries according to the instructions.

WARNING: The Lithium-Ion battery in the device must be recycled or disposed of properly.

FCC Warning

The RN1 PND has been tested and found to comply with the limits for a Class B digital device in accordance with the specifications in Part 15 of FCC rules.

Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. This device generates, uses, and can radiate radio-frequency energy. If it is not installed and used properly, it may cause interference with radio and television reception.

CE Mark

This equipment complies with the requirements for CE marking when used in a residential, commercial, vehicular or light industrial environment. R&TTE Directive. Products with the CE marking comply with Radio & Telecommunication Terminal Equipment Directive (R&TTE) (1999/5/EEC), the Electromagnetic Compatibility Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) – as amended by Directive 93/68/ECC - issued by the Commission of the European Community.

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Chapter 1 Features and Specifications

1.1 RoyalTek RN1 PND features

The RoyalTek RN1 Portable Navigation Device is a powerful multifunction GPS/multimedia navigation and entertainment device.

- Compact size and lightweight
- Integrated GPS receiver for GPS navigation
- High-resolution color LCD
- 3.5" wide touch screen with 320 x 240 x 16 bits
- Multimedia functionality with high performance processor

1.2 RN1 Specifications

Table 1: RN1 dimensions and specifications

Category	Item
Chassis	
Dimension	95.6 x 74.7 x 11.95 mm
Weight	106g
Specifications	Operating Temperature: 0 °C to +55 °C Storage Temperature : -20 °C to + 70 °C
System	
OS	Windows CE 5.0 Core Version
NAND Flash	1GB/2GB MLC (Option)
SDRAM	64MB Mobile DDR
Display	
Screen Type	TFT, Touch Panel
Screen Size	3.5"
Resolution	320 x 240 x16 bits (QVGA)
Backlight	Yes, brightness with TSP 280 nits typical
Touch Panel	Yes, (Finger Tapped)

Category	Item
Battery	
General	500mA, Li-Polymer
Recharge Time	Power On (Default setting after factory reset) About 5 hours charge from empty to full. Power OFF About 2.5 hours charge from empty to full.
Audio	
Earphone	Yes (option)
Speaker	1.0W mono speaker
Hardware Button\Slot	
Micro SD	Supports Micro SD
Battery switch	Yes (hard reset)
USB	
USB solution	USB 2.0 device with supporting mass storage(High Speed)

Chapter 2 Getting Started

This chapter describes the hardware interface of the RoyalTek RN1 and its peripherals. Instructions for setting up the device and some basic system operations are also discussed.

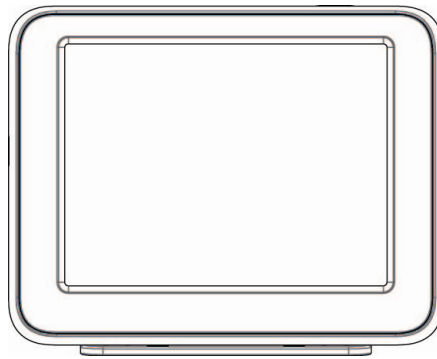
NOTE: Although the RN1 rechargeable Li-Polymer battery comes approximately 30% charged, before using, it is best to connect the AC adapter (Optional Accessory) or USB cable by PC connect and plug to power socket and fully charge the battery. The ON/OFF button will be orange when charging and green when charge done.

2.1 Hardware overview

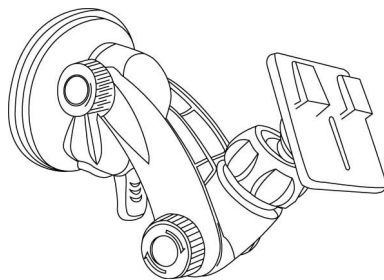
This section introduces the RN1 PND external features and hardware components.

2.1.1 Packing list

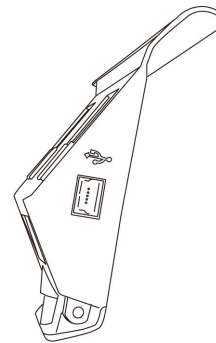
The RoyalTek RN1 box contains all of the items listed below:



RN1 Portable Navigation Device



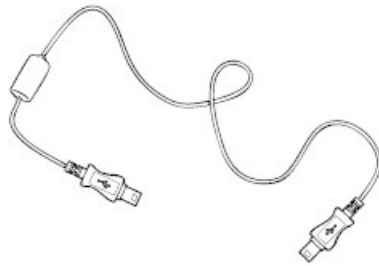
Car mount



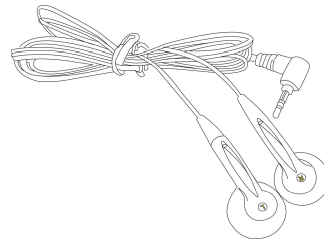
Car holder



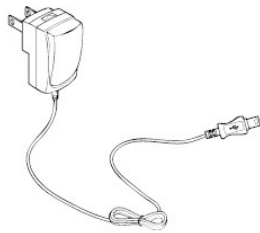
Car charger



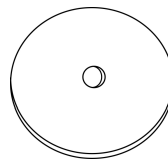
USB cable(Option Accessory)



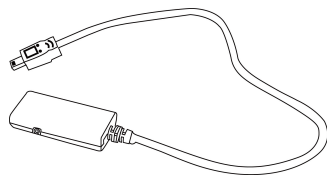
Earphone (Option Accessory)



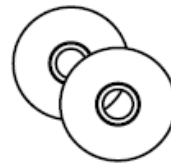
AC adaptor (Option Accessory)



Dashboard (Option Accessory)



TMC Antenna (Optional Accessory).



User's manual DVD./ CD



Portable Navigation Device Quick Start Guide.



Portable Navigation Device Warranty statement.

2.1.2 Front Panel

Figure 1: Top and Left/Rights side views

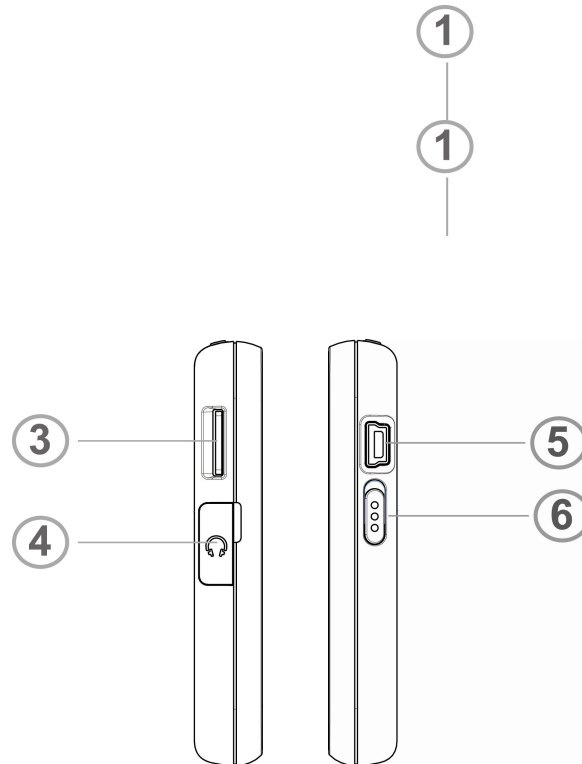


Table 2-1: Top and Left/Right side controls

NO	Function	
1	Power button	Standby mode by pressing the button for sleep/wake.
2	Power status LED	Indicated the battery charging status. <ul style="list-style-type: none"> ● Green—fully charged or high battery. ● Orange—charging Battery ● Red—low Battery
3	Micro SD	Accepts Micro SD storage cards, allows you use audio, image files stored in it for use with internal applications.
4	Earphone	Standard stereo headphone jack.
5	USB port/Docking connector	For USB port: connects the device to computer running on the Microsoft Windows platform. Also serves as the power connector for charging the device.
6	Battery Switch	To do a hard reset of the device and suspend the battery

2.1.3 Car holder

Figure 2: Car holder side views

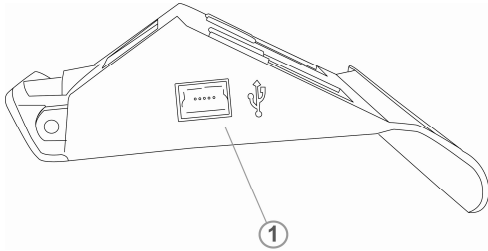


Table 2-2: Car holder

No	Function	
1	USB Port/Docking connector	For USB port : Only serves as the power connector of charging, but mass storage function. Also, it can connect to external TMC module (Option part). For Docking connector: connects to car mount kit.

2.2 Using the mounting bracket.

The RN1 comes with a car mount kit and a car charger to help install your device in your vehicle. The car mount kit uses a suction cup on the windshield to offer flexible mounting options for the RN1.

Warning: Some countries prohibit the mounting of any electronic device on the vehicle dashboard. Be sure to check your local laws for acceptable mounting areas before installing the car mount bracket.

This section shows how to install the car mount kit in your vehicle's windshield using the suction cup. The RN1 uses a snap on mounting cradle to use when the device attaches to the car mount. Below is the backside view of the RN1 in the cradle.

1. Clean the mounting surface with a glass cleaner and a clean cotton cloth.
2. If the ambient temperature is below +15°C (60°F), you can warm the mounting area and the suction cup (e.g. with a hair dryer) to ensure a strong suction bond.
3. Install the car mount on the selected area.
 - a. Press the suction cup of the car mount firmly against to the windshield. (See Figure 2-3-1)
 - b. Press down the lever to fix the suction cup in place.
 - c. Adjust the angles of the arm to your proper viewing position.

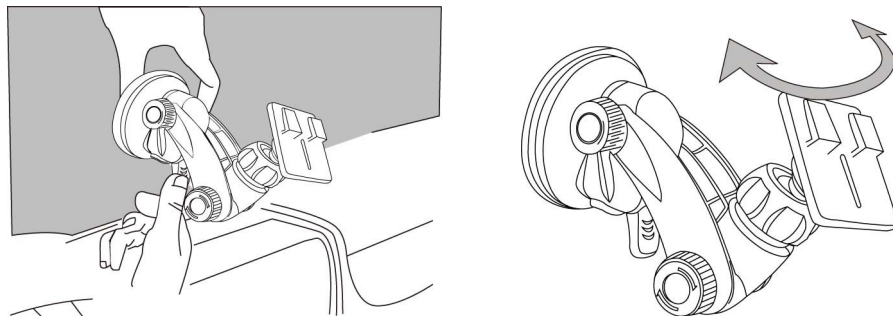


Figure 2-3-1

4. Mounting the device holder with your RN1.
 - a. Fit RN1 down in the device holder first, and then lock it using the plugs on the bottom of the device holder. (See Figure2-3-2)
 - b. Firmly dock the RN1 with device holder on the car mount which has been mounted to your windscreen.(See Figure2-3-3)

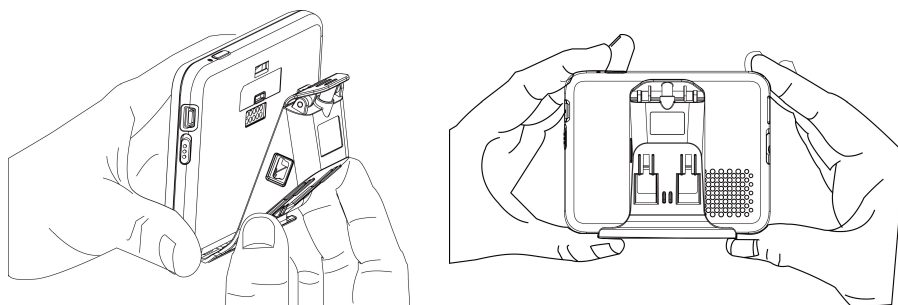


Figure 2-3-2

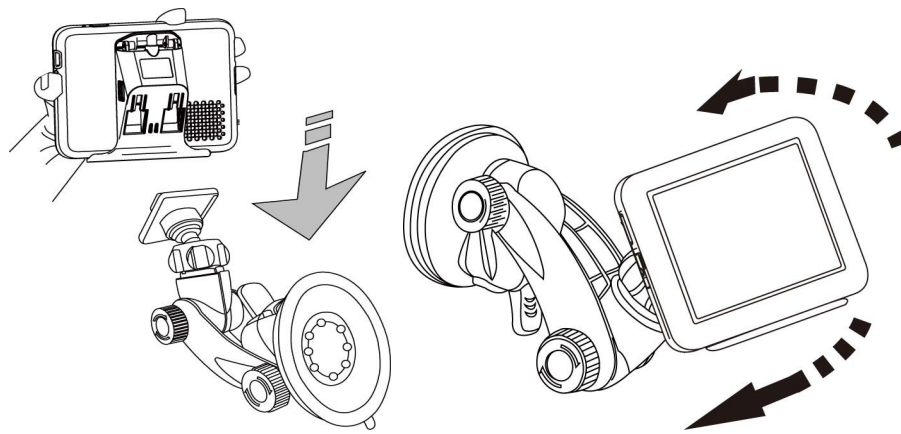


Figure 2-3-3

5. Charging your RN1 device.

- a. Plug the car charger to the 12 V outlet of your car and then connect the charger cable to the Mini USB port of the RN1 car holder ; Please make sure the battery switch status in “ON” mode. (See Figure 2-3-4)
- b. You now can let your RN1 have the continuous power by the car charger.

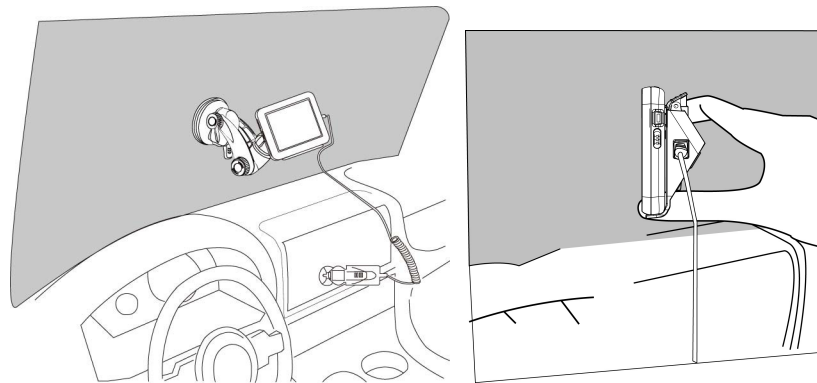


Figure 2-3-4

NOTE: Your car may be required to switch the vehicle ignition into the accessories position to power the cigarette lighter. Your RN1 will not charge with the ignition off.

6. Starting your RN1

- a. Push the battery switch ON.(Default status OFF)
- b. Press the power button to turn on your RN1, then the main menu screen appears.
- c. Tap Navigation, you will see the map screen displayed.
- d. Please read the User’s Guide of Navigation software for the detail setting information.

Please be noted, the first time turning on your RN1 may take some time to obtain a valid GPS fix.

2.3 Additional Application with the Optional SKU

1. TMC Accessory (only available in certain areas)

You may use external TMC accessory to perform TMC function when you are in a TMC Traffic signal available areas. Please visit: www.tmcforum.com for the TMC Coverage information.

Please connect the TMC accessory to the USB port of RN1 car holder for the TMC application and be placing the TMC accessory in a place which will not interfere to the driving safe. (See Figure 2-4-1)

Please refer to the User's Guide of Navigation software for the detail TMC operating information.

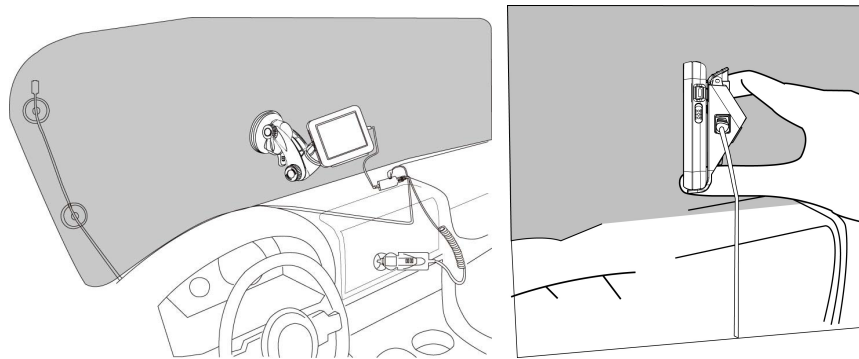


Figure 2-4-1

Disclaimer

Please be noted that RoyalTek Company Ltd. and the licensed Navigation Software are not responsible for any damage caused by an accident due to unreliable TMC radio transmissions by national, regional, or local broadcasters caused by TMC service restrictions, or by natural and man-made conditions that prevent real-time information from being delivered to the device. The both companies are not responsible for the quality or accuracy of the events broadcast.

Resetting the RN1 Device

You should less than seldom need to reset your RN1 under normal circumstances. However, in the event that a problem cannot be corrected, you may reset the RN1 device by the following way :

Hard reset :

- To do a "Hard reset" Disconnect all cables, including the AC adapter, from your device.

By sliding the hard reset switch on the primary ON/OFF switch on the right side of the device from OFF to ON position then tap the power button.(see Figure 2-4-2)

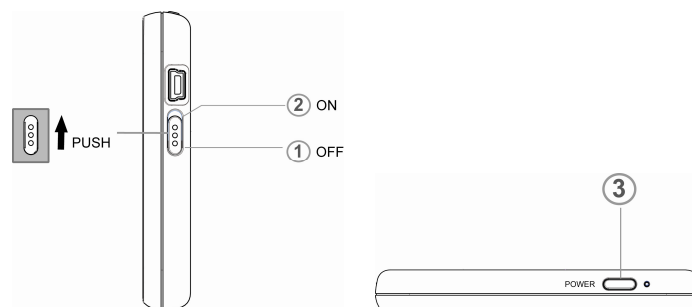


Figure 2-4-2

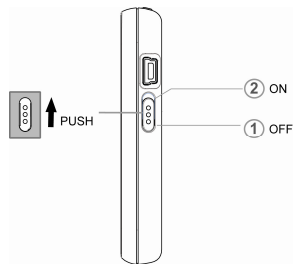
Chapter 3 Using the RN1

3.1 RN1 Operating Basics

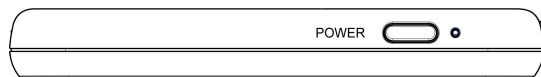
After fully charging the RN1, it is ready to be used. You can now turn it on and proceed to system settings configuration.

3.2 To turn on the device:

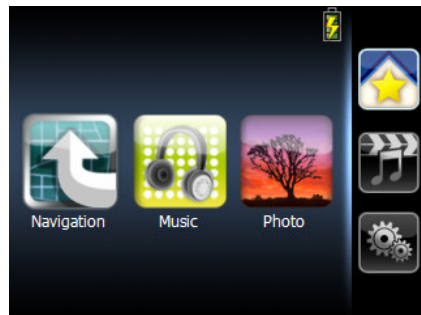
1. Sliding the battery switch to “ON”. (Default status OFF)



2. Turn on your device by pressing the power button on the top right panel of the device.



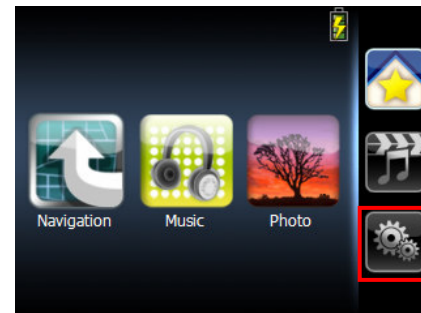
After turn on the device, main page will display. This is also referred to the Favorite page.



3.3 To configure system settings:

If you intend to start using your RN1 at once, we recommend that you configure the language and time zone settings first. The rest of the user preferences can be set up later.

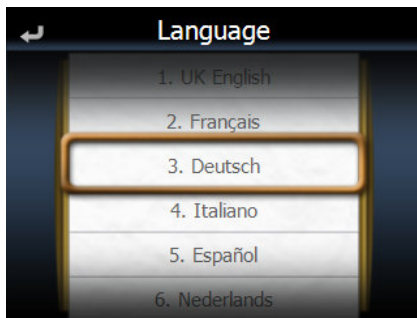
1. Tap “System” in the right category bar



2. Tap "Language" on the System page.






3. It will display current language in central area.
4. To drag wheel scroll language tags.



5. To set the system time zone, tap "Time Zone" in System Menu.



6. Tap the  icon to set up the function of daylight saving s time.
a.  represent enable the function of daylight savings time.
b.  represent disable the function of daylight savings time.
7. Drag the Map to adjust the time zone.



3.4 Additional System settings

Other system settings can be used to view and adjust your device current preferences. Navigate from the System Menu.



3.5 Reset

- **GPS Reset** : When user wonder if GPS receiver perform properly or not .(ex : Change the region)
- **Factory Reset** : The factory reset function not only resets the operating system settings to default factory values, but also reset the GPS settings.
- **Calibration** : When the touch screen does not respond well, calibrate the screen of your device.

1 Tap the “Reset” icon in the System Menu.



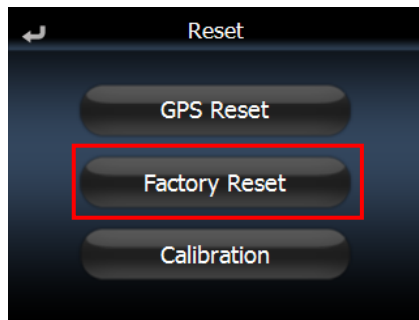
2 Tap the “GPS Reset” icon in the Reset Menu.



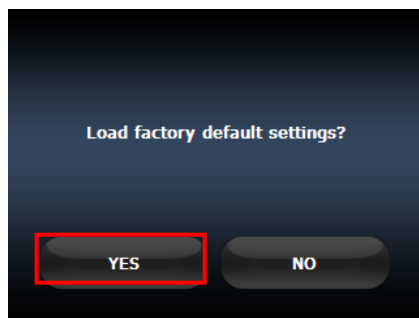
3 Tap the “YES” to reset the GPS.



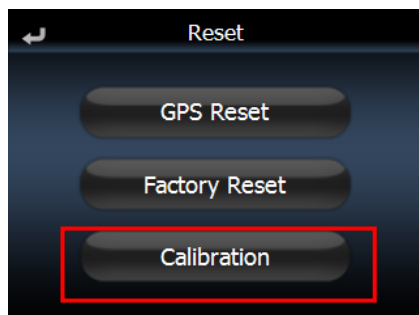
- 4 Tap the “Factory Reset” icon in the Reset Menu.



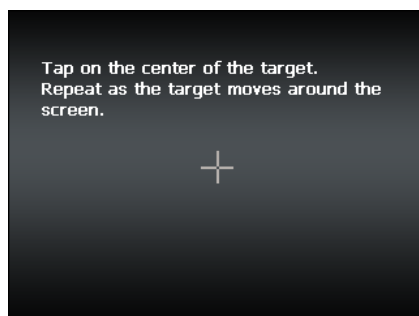
- 5 Tap the “YES” to do the Factory Reset.



- 6 Tap the “Calibration” icon in the Reset Menu.



- 7 Tap on the center of the target. Repeat as the target moves around the screen.



3.6 System Information

1. Tap the Sys Info. icon in the System Menu.



2. You can view the OS version, GPS firmware version and other system information..

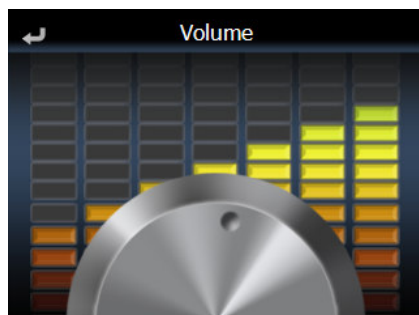


3.7 Volume

1. Tap the Volume icon in the System Menu.



3. To adjust the volume by drag the wheel.
4. Drag to left will become silent else will become noisy.

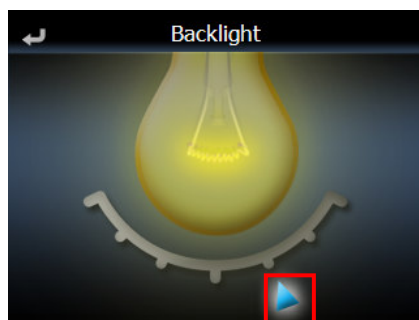


3.8 Backlight

1. Tap the Backlight icon in the System Menu.



2. Adjust the Backlight brightness by drag triangle icon.
3. Drag to left will become dark, drag to right will become light.



3.9 To set the favorite application category:

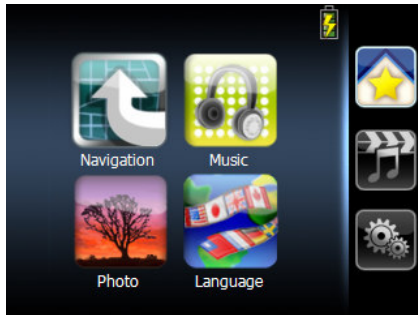
Otherwise, provide more organized and friendly application management interface for user organize their own favorite application category by drag-and-drop, the maximum number of favorite application shortcut is 6.

Add icon to the favorite page

1. Drag the icon to the category bar of favorite.



2. That will show the icon in favorite page.



Delete icon to the favorite page

1. Drag the icon from Favorite page to category bar and drop it. Confirm dialog will pop up, just tap "YES" to delete.



Chapter 4 Entertainment

4.1. RN1 Multimedia Player

The RN1 is a fully capable multimedia player that can enhance your portable entertainment. In addition to its navigating function, the RN1 is also a mobile entertainment tool to let you enjoy digital music, view photos. These functions make the RN1 a true multimedia device.

To enable access of multimedia files from your device's mass storage folder and transfer these files, do either of the following:

- Using the USB cable to connect the device to your computer, and then use File Explorer to copy digital music and image files into the device's MyflashDisk folder.
- Using a compatible card reader, directly copy digital music and image files to the Micro SD card.

It is recommended to organize files into subfolders. These folders will make files easier to find and play.

4.2. Music player

Enjoy your favorite music on the road. The program features:

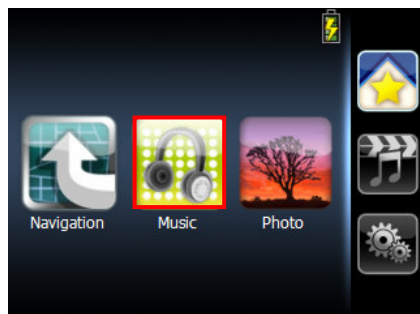
- Support for MP3 files
- Auto-scanning of supported files in the device's Micro SD card
- Separate volume control enabling you to adjust the playback sound level while retaining the volume level set for system sounds

Each sub directory containing compatible music files is treated as an individual playlist. For a more organized file search, it is advisable to named sub directories based on genre or listening preferences.

4.2.1. Using the Music player.

4.2.2. To enter into the different media players.

1. Tap "Music" icon in the Main Menu.



NOTE: You can also enter the music player by right category bar.

The MP3 player window below controls playback.

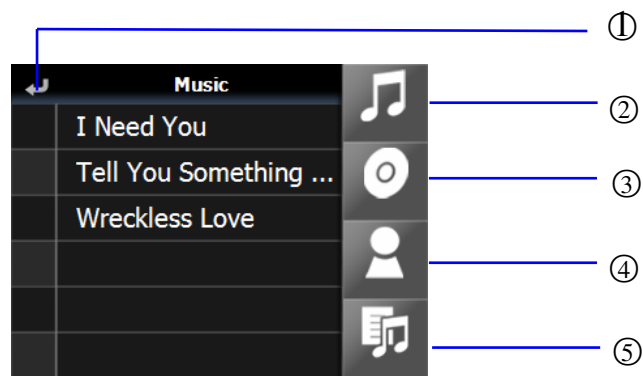







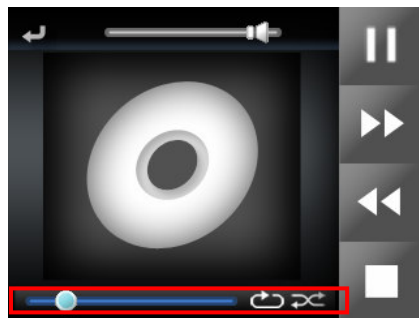
Table 4-3-2-1: MP3 player functions

NO	Function		
1		Return	Return to list page
2		Songs	List all song by alphabet
3		Album	List all albums by alphabet.
4		Artist	List all Artists by alphabet
5		Search	Current play list

2. Tap the song on the music list.



3. Tap bottom information bar will switch to song's progress.



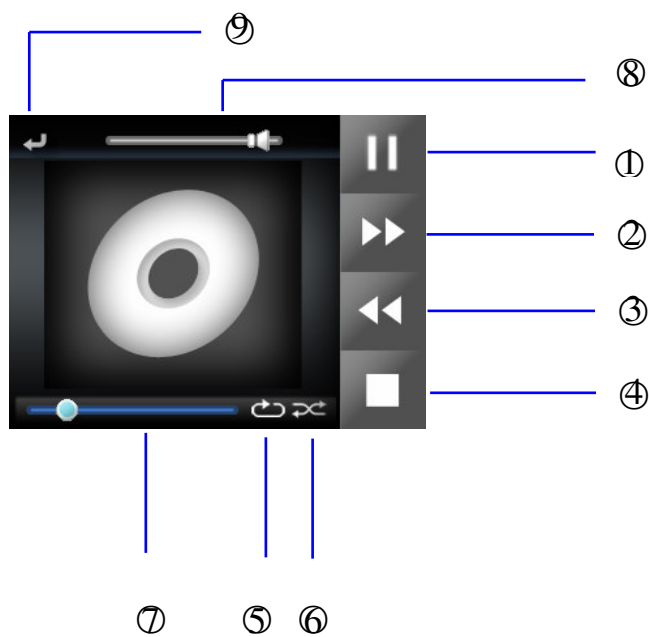











Table 4-3-2-2: Play sound functions

NO	Function		
1		Play/Pause	Play/Pause song
2		Forward	Forward to next song.
3		Previous	Reword to previous song
4		Stop	Stop music play.
5		Repeat	Repeat play songs.
6		Random	Random play songs.
7		Sound bar	To adjust the sound.
8		Bottom info. bar	No even: This place will scroll song's name and total play time. Tap: Tap this bar. Will switch to song's progress.
9		Return	Return to list page.

4.3. Photo Viewer

The RN1 has a great photo viewing option that makes it easy to share and view digital photos anywhere on the go. The program features:

- Support for JPEG files (Support Max. 500 photos)
- Auto-scanning of supported files in the device's Micro SD card & Flash disk
- Three viewing modes: Thumbnail, Full Screen, and Slide Show
- Album support based on sub-directory contents

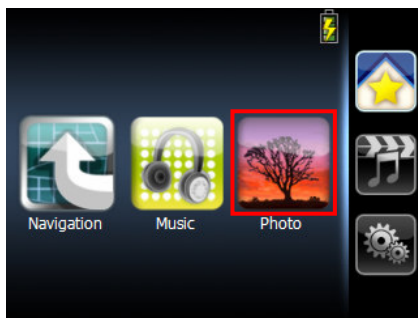
Each subdirectory can hold multiple images and be used as an individual album. For a more organized file search, it is advisable to sort image files into sub directories based on meaningful name or date. An example could be “summer vacation pictures” or “New baby” or “2005 Best.”

4.3.1. Viewing files in Slide Show mode

You have the option to view images in a slide show much like viewing a Power- Point presentation in your computer. Images are adjusted to fit the entire display area and are shown in a 5-second interval.

4.3.2. Using the Photo Album

1. Tap “Photo” icon in the Main Menu.



2. Will list all thumbnails in SD card and store in PND mass storage & SD folder.
3. Drag all screen area will cause photo move to next or previous page



4. Tap specific thumbnail will enlarge thumbnail.



5. Tap the screen will cause control bar display

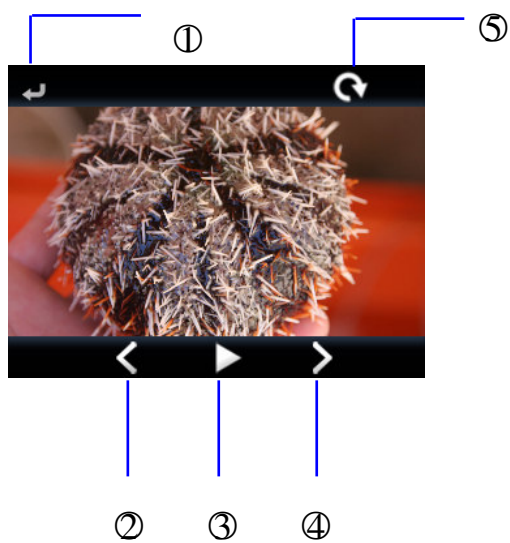







Table 4-3-4-1: Photo Album Viewer

NO	Function		
1		Return	Return to thumbnail page
2		Previous page	Display previous photo.
3		Auto Play mode	Auto play all photos.
4		Next page	Display next photo.
5		Rotate	Rotate photo

Chapter 5 Troubleshooting and Maintenance

5.1. General troubleshooting

5.1.1. If your device does not respond, do a “hard reset.”

- To do a “hard reset,” Disconnect all cables, including the AC adapter, from your device.
By sliding the hard reset switch on the primary ON/OFF switch on the right side of the device from OFF to ON position then tap the power button.

5.1.2. Users can also perform a “system reset.”

- To do a “system reset,” in the Main menu, tap System, then tap System Info. This will allow you to do a factory reset (restore to default settings), reset the GPS and recalibrate the touch screen interface.

5.1.3. Screen responds slowly

- Make sure you have enough battery power.

5.1.4. Inaccurate response to taps.

- • Recalibrate the touch screen.

5.1.5. Connection Problems with PC.

- Make sure that the cable is securely plugged into the USB port on your computer and on the device. Connect the USB cable directly to your computer—do not run the cable through a USB hub.
- Reset your device before connecting the cable. Always disconnect your device before you restart your computer.

5.1.6. No GPS connection

- Make sure that the GPS antenna has a clear view of the sky.
- Note that the GPS reception can be affected by:
 - Bad weather
 - Dense overhead obstacles (e.g. trees and tall buildings)
 - Other wireless devices in the car

5.1.7. No sound coming from the device.

- Make sure mute is not selected for Volume in system settings. The built-in speaker turns off when the headphone jack is being used.

5.1.8. Can't I see my photos.

- Make sure you are using supported image formats JPG.

5.1.9. Takes longer than normal time to get a GPS fix.

- If the previous GPS fix position was more than 500 km or 12 hours apart from your current position and time, it

will also take significantly longer than the standard TTFF time to get a GPS fix. This is due to the nature of the GPS algorithm and rotational velocity between the satellites and planet Earth, and deemed normal.

- Perform a GPS reset in the main/system/system info menu to get a faster GPS fix.

5.1.10. Factory reset does mean a GPS reset.

- Yes. The Factory Reset function resets the OS settings to their default factory values and it will reset the GPS settings.

5.2. Maintenance

- Avoid exposing your device to direct sunlight or strong ultraviolet light for extended periods of time.
- - Do not drop your device or subject it to severe shock.
- Do not subject your device to sudden and severe temperature changes. This could cause moisture condensation inside the unit, which could damage your device. In the event of moisture condensation, allow the device to dry out completely before use.
- The screen surface can be easily scratched. Sharp objects may scratch the screen. You may use non-adhesive generic screen protectors designed specifically for use on portable devices with LCD panels to help protect the screen from minor scratches.
- Never clean your device with it powered on.
- Never use organic solvents such as benzene or paint thinner to clean your device. Use of these solvents can cause deformation or discoloration.
- Use a soft, clean, lint-free cloth to clean the display screen. Moistened LCD screen wipes could also be used as required.
- Never attempt to disassemble, repair or make any modifications to your device. Disassembly, modification or any attempt at repair could cause damage to your device and even bodily injury or property damage and will void any warranty.

5.2.1. Storage precautions

- Do not store your device anywhere it may be exposed to water or in conditions of high humidity.
- When the device is not in use for an extended period of time, bring it indoors and store it in cool dry area.

5.2.2. Accessories and repair precautions

- Only authorized accessories should be use with the device. The use of incompatible accessories could result in bodily injury and/or damage to the device.
- The use of unauthorized accessories will also void your warranty.
- Never attempt to disassemble, repair or make any modification to your device.

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