

RAL-1648iP1

User's Manual

Rev. 1.0

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RATOC Systems, Inc.



Introduction

Thank you for choosing RAL-1648iP1. It brings out High Quality digital Audio stream from iPod/iPad and converts it to S/PDIF stream for DAC. Just hook up your iPod or iPad to RAL-1648iP1 with Apple Dock Connector to USB cable and playback music on your iPod. We hope you enjoy music from iPod/iPhone/iPad with your audio systems.

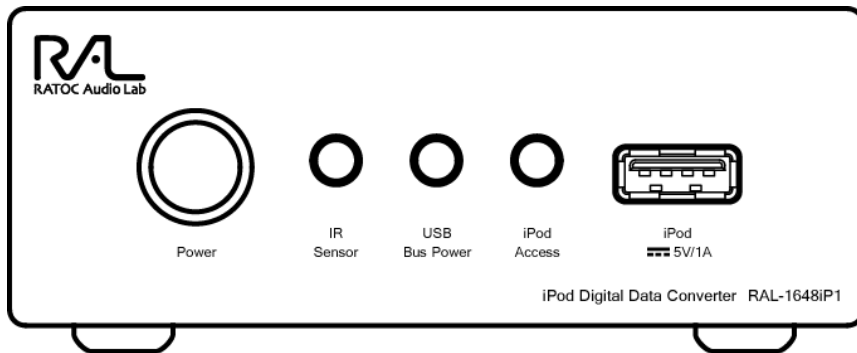
Features:

- Compatible with iPod touch(1st – 4th generations)
 - iPod nano(3rd – 6th generations)
 - iPod Classic
 - iPhone3, iPhone3GS, iPhone4, iPhone4S
 - iPad(don't support charging), iPad2, iPad3
- S/PDIF output.
 - L-PCM 16bit/32kHz, 44.1kHz, 48kHz
- Compatible with Apple Remote.
- Apple Dock Connector to USB cable enables to control iPod/iPhone/iPad on your palm.
It's awkward to use iPod/iPhone on the Dock like competitor's products.
- 32bit Multi Thread processor and two independent X-Tal oscillator modules (24.576MHz and 22.5792MHz) are included. The silicon and oscillators brings Low jitter accurate Audio Master Clock and S/PDIF output stream.

"Made for iPod" and "Made for iPhone" signify that the electronic accessories are designed specifically for connection to iPod and iPhone, fulfill Apple's designated performance requirements and are certified by the developer.

- Apple cannot guarantee functionality or accept any responsibility concerning the conformation of safety standards for this product.
- The use of this product with iPod or iPhone may affect the wireless functionality of those devices.

Front panel



1. Power

Power ON – OFF push button switch for the internal circuit.

2. IR Sensor

IR receiver for remote control. RAL-1648iP1 remote control receiver is compatible with Apple Remote and supports same functions as Apple Universal Dock.

3. USB Bus Power LED

Lights on to indicate USB Bus Power(DC+5V 1A) is ready at iPod port when AC adapter or DC+5V power source is connected and Power switch is ON state.

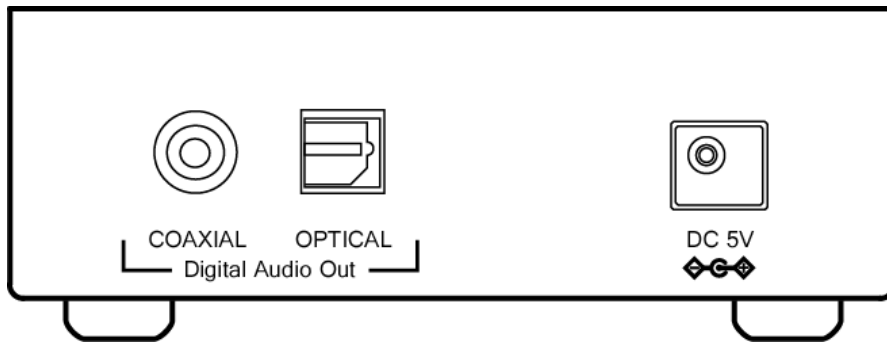
4. iPod Access LED

Lights on when iPod is hooked up to the port with Apple Dock Connector to USB cable and configured successfully by RAL-1648iP1.

5. iPod (USB-A) connector

Connect iPod/iPhone/iPad with Apple Dock Connector to USB Cable. Never hook up other USB devices except iPod/iPhone/iPad listed in this User's Manual.

Rear panel



1. Digital Audio Stream Output

COAXIAL(RCA jack)

S/PDIF output. 75-Ohm 0.5V-0Vp-p

OPTICAL

S/PDIF output TOSLINK

2. DC+5V power jack

Must connect DC+5V (+0.25V, -0.25V, 2.0A minimum) Power supply unit to this jack.

Connections and Operating instructions

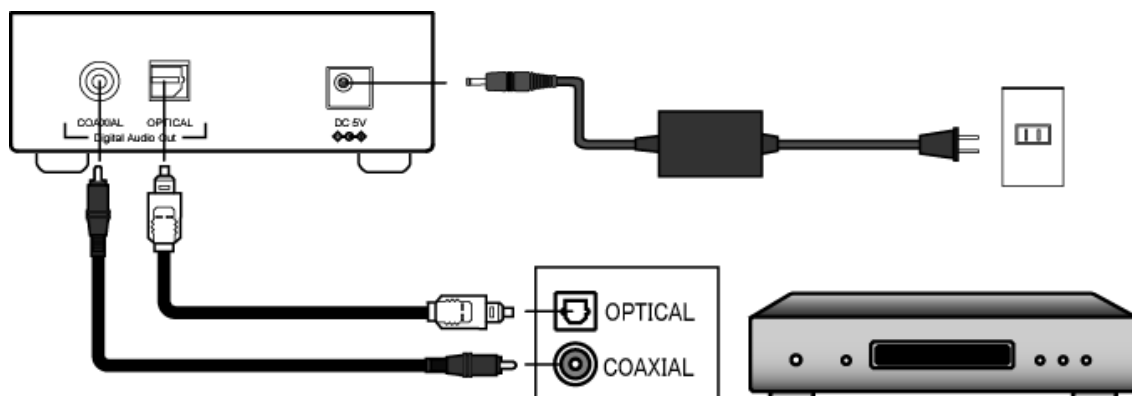
1. Set up connection and turn on RAL-1648iP1, DAC and Audio system.

Connect Digital Audio Output (COAX or TOSLINK) to DAC or Digital Input of Audio amplifier.

Note 1) Digital Audio stream (S/PDIF signal) is available at both COAX and OPTICAL port at the same time but you don't need to hook up both output to DAC.

Note 2) Must use 75-Ohm impedance COAX cable for COAX output.

Hook up DC Power unit (AC adapter) and connect it to AC wall outlet.



2. Hook up iPod/iPhone/iPad and start playback music.

Check USB Bus Power LED is light on. Hook up iPod/iPhone/iPad to RAL-1648iP1 with Apple Dock Connector to USB cable. Battery level status is shown up at iPod screen and starts charging automatically.

Note 1) iPad(first model) does not start charging. It requires 2A minimum and RAL-1648iP1 send back charging capability status to iPad to disable charging. iPod application works fine on iPad(first model) except charging battery.

Note 2) iPod connector at RAL-1648iP1 Front panel does not support any USB device except iPod/iPhone/iPad listed in this User's Manual.



Select Digital Audio input source of DAC or Audio amplifier to assign RAL-1648iP1 as a current input device.

Launch and start iPod application on iPod/iPhone/iPad screen and select music.

You will listen music stored in iPod/iPhone/iPad.

Remote Control (optional)

You can use Apple Remote (sold separately) as a remote controller.

Note) Volume up and down buttons do not function same as Apple Universal Dock.

Technical specifications

1. Digital Audio stream from iPod/iPad:
L-PCM 16bit/44.1kHz or 48kHz.
2. Digital Audio output stream:
S/PDIF compatible.
Optical TOSLINK
COAX level:0.5V to 0V square wave. Impedance: 75-Ohm.
3. Power consumption:
full operating state: 1.3A (includes 1A iPod charging current).
idling state: 0.3A (removed iPod and waiting a connection.)
4. Power requirement:
DC +5V, 2.0A minimum.
Note) Apple MFi Logo program requires 1A minimum to charge iPod. RAL-1648iP1 can supply 1.0A to iPod, iPad2 and iPhone. RAL-1648iP1 does not support charging iPad(first model) because it requires 2A minimum.
5. Size: 108(W) x 45(H) x 140(D) mm. 4,2"(W) x 1.8"(H) x 5.5"(D)
Excludes Power supply(AC adapter).
6. Weight: 410 gram, 14.5 oz. Excludes Power supply(AC adapter).
7. Regulations : FCC Class B, RoHs. Apple MFi logo program.

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