RouterBOARD 953GS-5HnT

Quick Setup Guide and Warranty Information

The RB953 is equipped with three Gigabit Ethernet ports, two SFP cages and two miniPCI slots. It also has a built-in 5GHz wireless device with three-chain support (three antenna connectors).

Assembling the Hardware

First use of the board:

1. Insert the miniPCI cards
2. Install the board in a case and connect antenna cables
3. Connect other peripherals and cables
4. Plug in PoE powered Ethernet to turn on the board

The device comes with a thermal pad, which is located inside a small bag. This thermal pad will ensure heat transfer between the backside of RB953 wireless device heatsink, and the indoor or outdoor case, where it will be mounted. The thermal pad should be put on the rectangular area of the RB953 heatsink, so that it is pressing against the device case, when it is mounted.

Powering

It's possible to power the device with the following methods:

- The first Ethernet port (Ether1) accepts 8-30V DC input (at the board; higher voltage needed to compensate for power loss on long cables; at least 18V suggested) from non-standard (passive) Power over Ethernet injectors. This device does **not** work with IEEE802.3af compliant 48V power injectors.
- DC power jack which accepts 8-30V (5.5mm outside and 2mm inside diameter, female, pin positive plug)

Booting process

RouterOS is the operating system of all RouterBOARD routers. Please see detailed configuration guide here: http://wiki.mikrotik.com/wiki/Category:Manual

First, RouterBOOT loader is started. It displays some useful information on the onboard RS232C asynchronous serial port. The serial port is set by default to 115200bit/s, 8 data bits, 1 stop bit, no parity.

The RouterOS system will then load. It will be also indicated by two beeps. Winbox or a web browser should be used to connect to the default IP address of **192.168.88.1** with the username **admin** and **no password**.

In case you wish to boot the device from network, for example to use MikroTik Netinstall, hold the RESET button of the device when starting it until the LED light turns off, and it will start to look for Netinstall servers.

In case IP connection is not available, Winbox can also be used to connect to the MAC address of the device. More information here: **http://wiki.mikrotik.com/wiki/First_time_startup**

Extension Slots and Ports

- Three 10/100/1000 Gigabit Ethernet ports, supporting automatic cross/straight cable correction (Auto MDI/X), so you can use either straight or cross-over cables for connecting to other network devices. The first Ethernet port accepts 8-30V DC powering from a passive PoE injector. The other two Ethernet ports **do not** support PoE powering.
- Two miniPCIe slots for wireless or 3G card (SIM slot will be used for 3G)
- Three SMA connectors on top of the board, connected to the built-in three chain radio. Connectors are for chains 0,1,2 in that order, from left to right (chain0 is next to the USB port).
- Two SFP cages (Supports 1.25G SFP modules, supports DDMI)
- One powered USB 2.0 port, *cannot be used simultaneously with J404 miniPCIe slot for 3G modem (software selectable USB/miniPCIe)*
- One 8-30V DC power jack
- Two fan headers, for connecting an optional cooling fan, same Voltage as DC jack input

Buttons

- Bootloader backup button (Reset 1). Holding the button while booting will cause the backup bootloader to be used
- RouterOS reset hole (While booting, and holding a metal object in this hole (for example a screwdriver) will cause RouterOS software to be reset to defaults

Operating System Support

Currently tested operating system is MikroTik RouterOS (starting from v6).

Copyright and Warranty information

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Hardware. MikroTik warrants all RouterBOARD series equipment for the term of twelve (12) months from the shipping date to be free of defects in materials and workmanship under normal use and service, except in case of damage caused by mechanical, electrical or other accidental or intended damages caused by improper use or due to wind, rain, fire or other acts of nature.

To return failed units to MikroTik, you must perform the following RMA (Return Merchandise Authorization) procedure. Follow the instructions below to save time, efforts, avoid costs, and improve the speed of the RMA process.

1. If you have purchased your product from a MikroTik Reseller, please contact the Reseller company regarding all warranty and repair issues, the following instructions apply ONLY if you purchased your equipment directly from MikroTik in Latvia.
2. MikroTik does not offer repairs for products that are not covered by warranty. Exceptions can be made for: CCR1016-12G, CCR1016-12G-BU, CCR1036-12G-4S, RB1100, RB1100AH, RB1100AHx2, RB1200, RB600, RB600A and RB800 as a paid service (fees apply).
3. Out-of-warranty devices and devices not covered by warranty sent to Mikrotik will be returned to the sender at sender's cost. If the customer has not organized return of such rejected devices within 12 months from the day of arrival, MikroTik has the right to discard them.

RMA Instructions are located on our webpage here: **http://rma.mikrotik.com**

Federal Communication Commission Interference Statement (FCC ID: TV7RB953GS5HNTM)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. This device and its antenna must not be co-located or operation in conjunction with any other antenna or transmitter.

IMPORTANT: Exposure to Radio Frequency Radiation.

3.3 m minimum distance has to be maintained between the antenna and general public. Under such configuration, the FCC radiation exposure limits set forth for an population/uncontrolled environment can be satisfied.

List of additional approved antennas:

- 8.5 dBi Omni MTI Wireless MT-482016NA
- 24 dBi Panel Pacific Wireless PA58-24
- 32 dBi Dish Pacific Wireless HDDA5W-32-DP

Antenna Installation. WARNING: It is installer's responsibility to ensure that when using the authorized antennas in the United States (or where FCC rules apply); only those antennas certified with the product are used. The use of any antenna other than those certified with the product is expressly forbidden in accordance to FCC rules CFR47 part 15.204. The installer should configure the output power level of antennas, according to country regulations and per antenna type. Professional installation is required of equipment with connectors to ensure compliance with health and safety issues.

OEM statement. This module is intended for OEM installations only. As such the OEM integrator is responsible for ensuring that the end-user has no manual instructions to remove install or modify the module. This module is limited to installations in mobile or fixed applications. OEM integrators may utilize antennas of like an equal or lesser gain as appearing in the list in this document (reference 47 CFR, paragraph 15.204(c)(4) for further information on this topic. The MikroTik OEM RF Module complies with Part 15 of the FCC rules and regulations.

OEM Modules have been certified by the FCC for use with other products without any further certification (as per FCC section 2.1091). Separate approvalis required for other operating configurations including portable configurations with respect to 47CFR paragraph 2.1093 and different antenna configurations. The OEM is required to comply with all 47CFR labeling instructions and requirements for the finished products.

Changes or modifications not expressly approved by MikroTik could void the OEM authority to install or operate the equipment. OEMs must test their final product to comply with unintentional radiators (FCC section 15.107 and 15.109) before declaring compliance of their final product to Part 15 of the FCC Rules.

WARNING: the OEM must ensure that the FCC labeling requirements are met. This includes a clearly visible label on the outside of the OEM enclosure specifying the appropriate MikroTik OEM RF Module FCC identifier for this product as well as any other required FCC notices as presented below.

Contains FCC ID: TV7RB953GS5HNTM

This enclosed device complies with 47CFR paragraph 15 E of the FCC rules and regulations. 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.

Labeling and text information should be of a size of type large enough to be readily legible, consistent with the dimensions of the equipment and the label.

Industry Canada

IC: 7442A-RB953GS5HNT

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

LE-LAN device restriction:

The device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;

Users should also be advised that high-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices.

les dispositifs fonctionnant dans la bande de 5 150 à 5 250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux

Les utilisateurs devraient aussi être avisés, d'une part, que les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) des bandes de 5 250 à 5 350 MHz et de 5 650 à 5 850 MHz et, d'autre part, que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs de RL-EL

CE declaration of conformity

Full Declaration of Conformity (DoC) may be obtained by visiting our product page on https://mikrotik.com

[EN] English	Hereby, MIKROTĪKLS SIA declares that this RouterBOARD is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EC.
[BG] Bulgarian	С настоящето, MIKROTĪKLS SIA декларира, че RouterBOARD е в съответствие със съществените изисквания и другиприложими разпоредби на Директива 2014/53/ЕС.
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[DE] German	Hiermit erklärt MIKROTĪKLS SIA dass sich das Gerät RouterBOARD in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 2014/53/EG befindet.
[EE] Estonian	Käesolevaga kinnitab MIKROTĪKLS SIA seadme RouterBOARD vastavust direktiivi 2014/53/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
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[ES] Spanish	Por la presente, MIKROTĪKLS SIA declara que este RouterBOARD cumple con los requisitos esenciales y otras exigencias relevantes de la Directiva 2014/53/EC.
[IT] Italian	Con la presente MIKROTĪKLS SIA dichiara che questo RouterBOARD è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 2014/53/CE.
[LV] Latvian	Ar šo MIKROTĪKLS SIA deklarē, ka RouterBOARD atbilst Direktīvas 2014/53/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
[LT] Lithuanian	Šiuo MIKROTĪKLS SIA deklaruoja, kad šis RouterBOARD atitinka esminius reikalavimus ir kitas 2014/53/EB Direktyvos nuostatas
[HU] Hungarian	A MIKROTĪKLS SIA ezzennel kijelenti, hogy a RouterBOARD típusú beren-dezés teljesíti az alapvető követelményeket és más 2014/53/EK irányelvben meghatározott vonatkozó rendelkezéseket.
[NL] Dutch	Hierbij verklaart MIKROTĪKLS SIA dat het toestel I RouterBOARD in overeenstemming is met de essentiële eisen en de andere relevante bepalin-gen van richtlijn 2014/53/EG.
[PL] Polish	Niniejszym MIKROTĪKLS SIA deklaruje że RouterBOARD jest zgodny z zasadniczymi wymaganiami i innymi właściwymi postanowieniami Dyrektywy 2014/53/EC.
[PT] Portuguese	Eu, MIKROTĪKLS SIA declaro que o RouterBOARD cumpre os requisitos essenciais e outras provisões relevantes da Directiva 2014/53/EC.
[RO] Romanian	Prin prezenta, MIKROTĪKLS SIA declară că aparatul RouterBOARD este în conformitate cu cerinţele esenţiale şi cu alte prevederi pertinente ale Directivei 2014/53/CE.
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[SI] Slovenian	MIKROTĪKLS SIA izjavlja, da je ta RouterBOARD v skladu z bistvenimi zahtevami in drugimi relevantnimi določili direktive 2014/53/ES.
[FI] Finish	MIKROTĪKLS SIA vakuuttaa täten että RouterBOARD tyyppinen laite on direktiivin 2014/53/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
[SE] Swedish	Härmed intygar MIKROTĪKLS SIA att denna RouterBOARD är i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 2014/53/EG.
[NO] Norwegian	MIKROTĪKLS SIA Erklærer herved at RouterBOARD er i samsvar med de grunnleggende krav og øvrige relevante krav i direktiv 2014/53/EF.

EN. Instruction manual: Connect the power adapter to turn on the device. Open 192.168.88.2/192.168.88.3 in your web browser, to configure it. More information on http://mt.lv/help **BG. Инструкция**: Свържете адаптера на захранване, за да включите устройството. Отворете 192.168.88.2/192.168.88.3 в уеб браузър, за да настроите продукта. Повече информация в http://mt.lv/help **CZ. Návod k použití**: Připojte napájecí adaptér k zapnutí přístroje. Otevřete 192.168.88.2/192.168.88.3 ve webovém prohlížeči pro konfiguraci produktu. Více informací najdete v http://mt.lv/help **DK. Instruktionsbog**: Tilslut strømadapteren for at tænde for enheden. Åbn 192.168.88.2/192.168.88.3 i en webbrowser til at konfigurere produktet. Mere information i http://mt.lv/help **FR. Mode d'emploi**: Connectez l'adaptateur d'alimentation pour allumer l'appareil. Ouvrez 192.168.88.2/192.168.88.3 dans un navigateur Web pour configurer le produit. Plus d'informations dans http://mt.lv/help **DE. Bedienungsanleitung**: Verbinden Sie das Netzteil, um das Gerät einzuschalten. Öffnen Sie 192.168.88.2/192.168.88.3 in einem Web-Browser, um das Produkt zu konfigurieren. Weitere Informationen im http://mt.lv/help **EE. Kasutusjuhend**: Ühendage toiteadapter seadme sisselülitamiseks. Avatud 192.168.88.2/192.168.88.3 in veebilehitseja seadistada toodet. Rohkem teavet http://mt.lv/help **ES. Manual de instrucciones**: Conecte el adaptador de alimentación para encender la unidad. Abra 192.168.88.2/192.168.88.3 en un navegador web para configurar el producto. Más información en http://mt.lv/help **IT. Manuale di istruzioni**: Collegare l'adattatore di alimentazione per accendere l'unità. Aprire 192.168.88.2/192.168.88.3 in un browser Web per configurare il prodotto. Maggiori informazioni in http://mt.lv/help **LV. Lietošanas instrukcija**: Pievienojiet Strāvas adapteri, lai ieslēgtu ierīci. Atvērt 192.168.88.2/192.168.88.3 ar interneta pārlūku, lai konfigurētu produktu. Plašāka informācija http://mt.lv/help **LT. Naudojimosi instrukcija**: Prijunkite maitinimo adapterį įjunkite įrenginį. Į interneto naršyklę 192.168.88.2/192.168.88.3 Atidarykite galite konfigūruoti gaminį. Daugiau informacijos rasite http://mt.lv/help **HU. Használati utasítás**: Csatlakoztassa a hálózati adaptert a készülék bekapcsolásához. Megnyitása 192.168.88.2/192.168.88.3 egy webböngészőben beállítani a terméket. Több információ http://mt.lv/help **NL. Handleiding**: Sluit voedingsadapter aan op het apparaat in te schakelen. Open 192.168.88.2/192.168.88.3 in een webbrowser om het product te configureren. Meer informatie in http://mt.lv/help **PL. Instrukcja obsługi**: Podłącz adapter zasilania, aby włączyć urządzenie. Otwórz 192.168.88.2/192.168.88.3 w przeglądarce internetowej, aby skonfigurować urządzenie. Więcej informacji w http://mt.lv/help **PT. Manual de instruções**: Conecte o adaptador de alimentação para ligar o aparelho. Abra 192.168.88.2/192.168.88.3 em um navegador da web para configurar o produto. Mais informações em http://mt.lv/help **RO. Instrucţiuni de utilizare**: Conectaţi adaptorul de alimentare pentru a porni aparatul. Deschide 192.168.88.2/192.168.88.3 într-un browser web pentru a configura produsul. Mai multe informaţii în http://mt.lv/help **SK. Návod na použitie**: Pripojte napájací adaptér k zapnutiu prístroja. Otvorte 192.168.88.2/192.168.88.3 vo webovom prehliadači pre konfiguráciu produktu. Viac informácií nájdete v http://mt.lv/help **SI. Navodila**: Priključite napajalnik za vklop naprave. Odprite 192.168.88.2/192.168.88.3 v spletnem brskalniku nastaviti izdelek. Več informacij v http://mt.lv/help **FI. Käyttöohje**: Kytke virtalähde päälle laitteen. Avaa 192.168.88.2/192.168.88.3 in

selaimen määrittää tuotteen. Lisää tietoa http://mt.lv/help **SE. Instruktionsmanual**: Anslut nätadaptern för att slå på enheten. Öppna 192.168.88.2/192.168.88.3 i en webbläsare för att konfigurera produkten. Mer information på http://mt.lv/help **NO. Bruksanvisningen**: Koble strømadapteren for å slå på enheten. Åpne 192.168.88.2/192.168.88.3 i en nettleser for å konfigurere produktet. Mer informasjon på http://mt.lv/help **GR. εγχειρίδιο οδηγιών**: Συνδέστε τον προσαρμογέα τροφοδοσίας για να ενεργοποιήσετε τη μονάδα. Ανοίξτε 192.168.88.2/192.168.88.3 σε ένα πρόγραμμα περιήγησης στο Web για να διαμορφώσετε το προϊόν. Περισσότερες πληροφορίες στο http://mt.lv/help

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