

CRS328-24P-4S+RM



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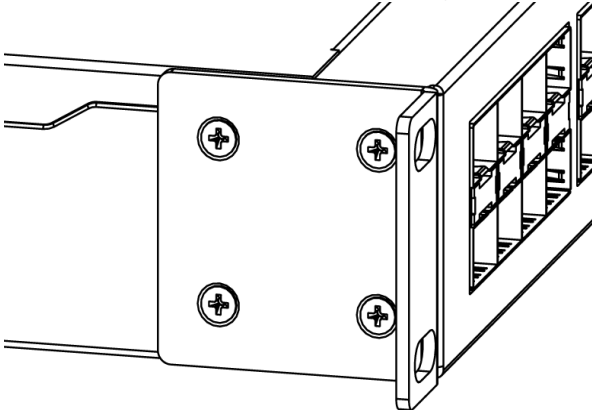
Quick start

- Mount unit in a rackmount cabinet or place on the flat surface (see "[CRS328-24P-4S+RM#Mounting](#)").
- Connect to the power source (see "[CRS328-24P-4S+RM#Powering](#)").
- The Initial connection has to be done via the Ethernet cable, using the MikroTik Winbox utility.
- Set IP for your PC to 192.168.88.2
- Use Winbox to connect to the default IP address of 192.168.88.1 from any port, with the username *admin* and no password.
- Update the device by clicking the "Check for updates" button to v6.46 or the latest RouterOS software to ensure the best performance and stability. The device needs to have an active internet connection.
- To manually update the device, go to our download page <https://mikrotik.com/download>
- Choose your architecture (ARM) and download the latest packages from any channel to your PC.
- Open Winbox and upload packages in the Files menu.
- Reboot the device.
- Updating software will ensure the latest security fixes and regulations set by local law.
- Set up your password to secure the device.

Mounting

The device is designed to use indoors and it can be mounted in a rackmount enclosure using provided rack mounts, or it can be placed on the desktop. Please attach rubber pegs on the bottom of the router if the desired placement is on the flat surface or use a Phillips screwdriver to attach rackmount ears on both sides of the device if designated use is for rackmount enclosure:

1. Attach rack ears to both sides of the device and tighten four screws to secure them in place, as shown in the picture.



2. Place the device in the rackmount enclosure and align with the holes so that the device fits conveniently.
3. Tighten screws to secure it in place.

The device has no protection from water contamination, please ensure the placement of the device in a dry and ventilated environment.

We recommend Cat6 cables for our devices.

Mounting and configuration of this device should be done by a qualified person.

Powering

The unit is equipped with one IEC type AC power input, which accepts 100-240 V powering (~ 50/60 Hz 7 A max). The power consumption of this device itself under maximum load is up to 44 W.

Booting process

The device supports booting RouterOS (for complete routing and switching configuration) or SwOS (for only using as a switch). By default, the device will boot RouterOS, but you can reboot into the other operating system in the following ways:

- From SwOS: In the System menu, click the "Boot RouterOS" button on the bottom of the page.
- From RouterOS: in the System, RouterBOARD menu, click "Settings" and there select "Boot OS".

It is also possible to select the OS and configure other boot settings via the serial console menu.

Configuration

Full RouterOS and SwOS documentation is located here: <https://mt.lv/help>

This device is not preconfigured other than an IP address on the master Ethernet port. You can connect from any port, as all ports are switched together by default. Another configuration has to be applied according to the documentation manual linked above.

The Initial connection has to be done via the Ethernet cable, using the MikroTik Winbox utility. Winbox should be used to connect to the default IP address of 192.168.88.1 from any port, with the username admin and no password.

For recovery purposes, it is possible to boot the device from the network, see Buttons, and Jumpers.

In case the IP connection is not available, the Winbox utility can also be used to connect to the MAC address of the device. Applies only when the device has booted RouterOS.

The device is equipped with an RJ45 serial port, set by default to 115200bit/s, 8 data bits, 1 stop bit, no parity. Standard RJ45 to COM cable can be used, pinout can be found in our manual: <https://mt.lv/help>

Power output

This device can supply PoE powering to external devices from its Ethernet ports. The output voltage will be selected automatically, depending on what kind of voltage the connected device requires. The device can power both 802.3af/at devices and devices that accept passive PoE power. If necessary, the output voltage can be switched manually. By default the PoE mode is set to auto, it will not damage devices and will auto-detect devices with PoE support and the needed voltage. Once a PoE device is detected, it will be powered and the PoE LEDs will turn on.

The PoE out ports is grouped in three PoE out groups of 8 ports each (PSE8). Total device PoE limit = 450w (150w per PSE8 group).

Each port can provide up to 30 W with high voltage, and 26,5 W with low voltage power output.

Buttons and Jumpers

Reset button:

- Hold this button during boot time until the USR LED light starts flashing, release the button to reset RouterOS configuration.
- Keep holding the button for 5 more seconds or until the user LED turns off, then release it to make the RouterBOARD look for Netinstall servers. The first Ethernet port is used for the Netinstall process. See RouterOS documentation about using the Netinstall recovery utility.

Regardless of the above option used, the system will load the backup RouterBOOT loader if the button is pressed before power is applied to the device. Release the button before LED begins to flash, to only load backup RouterBOOT without reset. This is useful for RouterBOOT debugging and recovery.

Mode button:

The action of the mode buttons can be configured from RouterOS software to execute any user-supplied RouterOS script. You can also disable this button. The mode button can be configured in RouterOS menu /system routerboard mode-button

Extension slots and ports

- 24 gigabit Ethernet ports (With Auto MDI/X so you can use either straight or cross-over cables for connecting to other network devices).
- 4 SFP+ cages, which accept both 1.25 Gb SFP and 10 Gb SFP+ modules.
- RJ45 serial port.

LED indicators

- PWR LED is lit when the router is powered on.
- The use of LEDs can be configured from RouterOS.
- Triangle LEDs (top row) indicate PoE out status. Green LED indicates that the respective port uses low voltage, a red LED indicates high voltage. Flashing single green LED: problem to start a low voltage device. Flashing single red LED: problem with high voltage device.
- The square port LEDs (bottom row) indicate the individual Ethernet, SFP port activity.
- FAN FAULT LED indicates a problem with any of the cooling fans.
- PoE FAULT LED indicates an exceeded overall max PoE output limit. Port PoE-out priorities will work in 3 independent sections (8 ports each) and overload will happen in any section that breach 150W consumption

Accessories

Package includes the following accessories that come with the device:



IEC cord



Rackmount ears

Please visit wiki pages for MikroTik SFP module compatibility table: https://wiki.mikrotik.com/wiki/MikroTik_SFP_module_compatibility_table

Operating system support

The device supports dual boot SwOS software version 2.9 and RouterOS v6. The specific factory-installed version number is indicated in the RouterOS menu /system resource. Other operating systems have not been tested.

<https://wiki.mikrotik.com/wiki/SwOS>

Safety Notice

Electric shock hazard. This equipment is to be serviced by trained personnel only.

Federal Communication Commission Interference Statement

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.

This equipment complies with the FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and any part of your body.

Industry Canada

This device complies with Industry Canada's 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.

IMPORTANT: Exposure to Radio Frequency Radiation.

This equipment complies with the IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and any part of your body.

Cet équipement est conforme aux limites d'exposition au rayonnement IC définies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé à une distance minimale de 20 cm entre le radiateur et toute partie de votre corps.

CE Declaration of Conformity

Manufacturer: Mikrotikls SIA, Brivibas gatve 214i Riga, Latvia, LV1039.

BG	<p>С настоящото Mikrotikls SIA декларира, че този тип радиосъоръжение RouterBOARD е в съответствие с Директива 2014/53/ЕС. Цялостният текст на ЕС декларацията за съответствие може да се намери на следния интернет адрес:</p> <p>https://mikrotik.com/products</p>
CS	<p>Tímto Mikrotikls SIA prohlašuje, že typ rádiového zařízení RouterBOARD je v souladu se směrnicí 2014/53/EU. Úplné znění EU prohlášení o shodě je k dispozici na této internetové adrese:</p> <p>https://mikrotik.com/products</p>
DA	<p>Hermed erklærer Mikrotikls SIA, at radioudstyrtypen RouterBOARD er i overensstemmelse med direktiv 2014/53/EU. EU-overensstemmelseserklæringens fulde tekst kan findes på følgende internetadresse:</p> <p>https://mikrotik.com/products</p>
DE	<p>Hiermit erklärt Mikrotikls SIA, dass der Funkanlagentyp RouterBOARD der Richtlinie 2014/53/EU entspricht. Der vollständige Text der EU-Konformitätserklärung ist unter der folgenden Internetadresse verfügbar:</p> <p>https://mikrotik.com/products</p>
EL	<p>Με την παρούσα ο/η Mikrotikls SIA, δηλώνει ότι ο ραδιοεξοπλισμός RouterBOARD πληροί την οδηγία 2014/53/ΕΕ. Το πλήρες κείμενο της δήλωσης συμμόρφωσης ΕΕ διατίθεται στην ακόλουθη ιστοσελίδα στο διαδίκτυο:</p> <p>https://mikrotik.com/products</p>
EN	<p>Hereby, Mikrotikls SIA declares that the radio equipment type RouterBOARD is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address:</p> <p>https://mikrotik.com/products</p>
ES	<p>Por la presente, Mikrotikls SIA declara que el tipo de equipo radioeléctrico RouterBOARD es conforme con la Directiva 2014/53/UE. El texto completo de la declaración UE de conformidad está disponible en la dirección Internet siguiente:</p> <p>https://mikrotik.com/products</p>

ET	<p>Käesolevaga deklareerib Mikrotikls SIA , et käesolev raadioseadme tüüp RouterBOARD vastab direktiivi 2014/53/EL nõuetele. ELi vastavusdeklaratsiooni täielik tekst on kättesaadav järgmisel internetiaadressil:</p> <p>https://mikrotik.com/products</p>
FI	<p>Mikrotikls SIA vakuuttaa, että radiolaitetyyppi RouterBOARD on direktiivin 2014/53/EU mukainen. EU-vaatimustenmukaisuusvakuutuksen täysimittainen teksti on saatavilla seuraavassa internetosoitteessa:</p> <p>https://mikrotik.com/products</p>
FR	<p>Le soussigné, Mikrotikls SIA , déclare que l'équipement radioélectrique du type RouterBOARD est conforme à la directive 2014/53/UE. Le texte complet de la déclaration UE de conformité est disponible à l'adresse internet suivante:</p> <p>https://mikrotik.com/products</p>
HR	<p>Mikrotikls SIA ovime izjavljuje da je radijska oprema tipa RouterBOARD u skladu s Direktivom 2014/53/EU. Cjeloviti tekst EU izjave o sukladnosti dostupan je na sljedećoj internetskoj adresi:</p> <p>https://mikrotik.com/products</p>
HU	<p>Mikrotikls SIA igazolja, hogy a RouterBOARD típusú rádióberendezés megfelel a 2014/53/EU irányelvnek. Az EU-megfelelőségi nyilatkozat teljes szövege elérhető a következő internetes címen:</p> <p>https://mikrotik.com/products</p>
IT	<p>Il fabbricante, Mikrotikls SIA , dichiara che il tipo di apparecchiatura radio RouterBOARD è conforme alla direttiva 2014/53/UE. Il testo completo della dichiarazione di conformità UE è disponibile al seguente indirizzo Internet:</p> <p>https://mikrotik.com/products</p>
IS	<p>Hér með lýsir Mikrotikls SIA því yfir að RouterBOARD er í samræmi við grunnkröfur og aðrar kröfur, sem gerðar eru í tilskipun 2014/53/EU. Fullur texti ESB samræmisýfirlýsingar er að finna á eftirfarandi veffangi:</p> <p>https://mikrotik.com/products</p>
LT	<p>Aš, Mikrotikls SIA , patvirtinu, kad radijo įrenginių tipas RouterBOARD atitinka Direktyvą 2014/53/ES. Visas ES atitikties deklaracijos tekstas prieinamas šiuo interneto adresu:</p> <p>https://mikrotik.com/products</p>
LV	<p>Ar šo Mikrotikls SIA deklarē, ka radioiekārta RouterBOARD atbilst Direktīvai 2014/53/ES. Pilns ES atbilstības deklarācijas teksts ir pieejams šādā interneta vietnē:</p> <p>https://mikrotik.com/products</p>
MT	<p>B'dan, Mikrotikls SIA , niddikjara li dan it-tip ta' taghmir tar-radju RouterBOARD huwa konformi mad-Direttiva 2014/53/UE. It-test kollu tad-dikjarazzjoni ta' konformità tal-UE huwa disponibbli f'dan l-indirizz tal-Internet li ġej:</p> <p>https://mikrotik.com/products</p>
NL	<p>Hierbij verklaar ik, Mikrotikls SIA , dat het type radioapparatuur RouterBOARD conform is met Richtlijn 2014/53/EU. De volledige tekst van de EU-conformiteitsverklaring kan worden geraadpleegd op het volgende internetadres:</p> <p>https://mikrotik.com/products</p>
NO	<p>Mikrotikls SIA erklærer herved at utstyret RouterBOARD er i samsvar med de grunnleggende krav og øvrige relevante krav i direktiv 2014/53/EU. Den fulle teksten til EU-samsvarserklæringen er tilgjengelig på følgende nettadresse:</p> <p>https://mikrotik.com/products</p>
PL	<p>Mikrotikls SIA niniejszym oświadczam, że typ urządzenia radiowego RouterBOARD jest zgodny z dyrektywą 2014/53/UE. Pełny tekst deklaracji zgodności UE jest dostępny pod następującym adresem internetowym:</p> <p>https://mikrotik.com/products</p>
PT	<p>O(a) abaixo assinado(a) Mikrotikls SIA declara que o presente tipo de equipamento de rádio RouterBOARD está em conformidade com a Diretiva 2014/53/UE. O texto integral da declaração de conformidade está disponível no seguinte endereço de Internet:</p> <p>https://mikrotik.com/products</p>

RO	<p>Prin prezenta, MikroTiks SIA declară că tipul de echipamente radio RouterBOARD este în conformitate cu Directiva 2014/53/UE. Textul integral al declaraiei UE de conformitate este disponibil la următoarea adresă internet:</p> <p>https://mikrotik.com/products</p>
SK	<p>MikroTiks SIA týmto vyhlasuje, že rádiové zariadenie typu RouterBOARD je v súlade so smernicou 2014/53/EÚ. Úplné EÚ vyhlásenie o zhode je k dispozícii na tejto internetovej adrese:</p> <p>https://mikrotik.com/products</p>
SL	<p>MikroTiks SIA potrjuje, da je tip radijske opreme RouterBOARD skladen z Direktivo 2014/53/EU. Celotno besedilo izjave EU o skladnosti je na voljo na naslednjem spletnem naslovu:</p> <p>https://mikrotik.com/products</p>
SV	<p>Härmed försäkrar MikroTiks SIA att denna typ av radioutrustning RouterBOARD överensstämmer med direktiv 2014/53/EU. Den fullständiga texten till EU-försäkran om överensstämmelse finns på följande webbadress:</p> <p>https://mikrotik.com/products</p>

MPE statement

This equipment complies with EU radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body, unless specifically stated otherwise in page 1 of this document. In RouterOS you must specify your country, to make sure local wireless regulations are observed.

Frequency bands terms of use

Frequency range (for applicable models)	Channels used	Maximum Output Power (EIRP)	Restriction
2412-2472 MHz	1 - 13	20 dBm	Without any restriction to use in all EU Member States
5150-5250 MHz	26 - 48	23 dBm	Restricted to indoor use only*
5250-5350 MHz	52 - 64	20 dBm	Restricted to indoor use only*
5470-5725 MHz	100 - 140	27 dBm	Without any restriction to use in all EU Member States

* It is the customer's responsibility to follow local country regulations, including operation within legal frequency channels, output power, cabling requirements, and Dynamic Frequency Selection (DFS) requirements. All Mikrotik radio devices must be professionally installed!
Note. Information contained here is subject to change. Please visit the product page on www.mikrotik.com for the most up to date version of this document.



BG. Инструкции: Свържете адаптера на захранване, за да включите устройството. Отворете 192.168.88.1 в уеб браузър, за да настроите продукта. Повече информация в <https://mt.lv/help-bg>

CS. Návod k použití: Připojte napájecí adaptér k zapnutí přístroje. Otevřete 192.168.88.1 ve webovém prohlížeči pro konfiguraci produktu. Více informací najdete v <https://mt.lv/help-cs>

DA. Instruktionsbog: Tilslut strømadapteren for at tænde for enheden. Åbn 192.168.88.1 i en webbrowser til at konfigurere produktet. Mere information i <https://mt.lv/help-da>

DE. Bedienungsanleitung: Verbinden Sie das Netzteil, um das Gerät einzuschalten. Öffnen Sie 192.168.88.1 in einem Web-Browser, um das Produkt zu konfigurieren. Weitere Informationen im <https://mt.lv/help-de>

EL. εγχειρίδιο οδηγιών: Συνδέστε τον προσαρμογέα τροφοδοσίας για να ενεργοποιήσετε τη μονάδα. Ανοίξτε 192.168.88.1 σε ένα πρόγραμμα περιήγησης στο Web για να διαμορφώσετε το προϊόν. Περισσότερες πληροφορίες στο <https://mt.lv/help-el>

EN. Instruction manual: Connect the power adapter to turn on the device. Open 192.168.88.1 in your web browser, to configure it. More information on <https://mt.lv/help>

ES. Manual de instrucciones: Conecte el adaptador de alimentación para encender la unidad. Abra 192.168.88.1 en un navegador web para configurar el producto. Más información en <https://mt.lv/help-es>

ET. Kasutusjuhend: Ühendage toiteadapter seadme sisselülitamiseks. Avatud 192.168.88.1 in veebilehitseja seadistada toodet. Rohkem teavet <https://mt.lv/help-et>

FI. Käyttöohje: Kytke virtalähde päälle laitteen. Avaa 192.168.88.1 in selaimen määrittää tuotteen. Lisää tietoa <https://mt.lv/help-fi>

FR. Mode d'emploi: Connectez l'adaptateur d'alimentation pour allumer l'appareil. Ouvrez 192.168.88.1 dans un navigateur Web pour configurer le produit. Plus d'informations dans <https://mt.lv/help-fr>

HR. Uputa za uporabu: Prikjučite napajanje i uključite uređaj. Za konfiguraciju uređaja u pregledniku otvorite 192.168.88.1. Više informacija je na <https://mt.lv/help-hr>

HU. Használati utasítás: Csatlakoztassa a hálózati adaptert a készülék bekapcsolásához. Megnyitása 192.168.88.1 egy webböngészőben beállítani a terméket. Több információ <https://mt.lv/help-hu>

IT. Manuale di istruzioni: Collegare l'adattatore di alimentazione per accendere l'unità. Aprire 192.168.88.1 in un browser Web per configurare il prodotto. Maggiori informazioni in <https://mt.lv/help-it>

IS. Notkunarleiðbeiningar: Tengdu straumbreytinn til að kveikja á tækinu. Opnaðu 192.168.88.1 í vafra til að stilla það. Nánari upplýsingar á <https://mt.lv/help-is>

NO. Instruksjonsmanual: Koble strømadapteren for å slå på enheten. Åpne 192.168.88.1 i nettleseren din for å konfigurere den. Mer informasjon på <https://mt.lv/help-no>

LT. Naudojimosi instrukcija: Prijunkite maitinimo adapterį įjunkite įrenginį. [interneto naršyklę 192.168.88.1 Atidarykite galite konfigūruoti gaminį. Daugiau informacijos rasite <https://mt.lv/help-lt>

LV. Lietošanas instrukcija: Pievienojiet Strāvas adapteri, lai ieslēgtu ierīci. Atvērt 192.168.88.1 ar interneta pārlūku, lai konfigurētu produktu. Plašāka informācija <https://mt.lv/help-lv>

MT. Manwal tal-istruzzjoni: Qabbad l-adapter tal-qawwa biex iddawwar it-tagħmir. Iftaħ 192.168.88.1 fil-web browser tiegħek, biex jiġi kkonfiguratur. Aktar informazzjoni fuq <https://mt.lv/help-mt>

NL. Handleiding: Sluit voedingsadapter aan op het apparaat in te schakelen. Open 192.168.88.1 in een webbrowser om het product te configureren. Meer informatie in <https://mt.lv/help-nl>

PL. Instrukcja obsługi: Podłącz adapter zasilania, aby włączyć urządzenie. Otwórz 192.168.88.1 w przeglądarce internetowej, aby skonfigurować urządzenie. Więcej informacji w <https://mt.lv/help-pl>

PT. Manual de instruções: Conecte o adaptador de alimentação para ligar o aparelho. Abra 192.168.88.1 em um navegador da web para configurar o produto. Mais informações em <https://mt.lv/help-pt>

RO. Instrucțiuni de utilizare: Conectai adaptorul de alimentare pentru a porni aparatul. Deschide 192.168.88.1 într-un browser web pentru a configura produsul. Mai multe informații în <https://mt.lv/help-ro>

SK. Navodila: Priključite napajalnik za vklop naprave. Odprite 192.168.88.1 v spletnem brskalniku nastaviti izdelek. Več informacij v <https://mt.lv/help-sk>

SL. Návod na použitie: Pripojite napájací adaptér k zapnutiu prístroja. Otvorte 192.168.88.1 vo webovom prehliadači pre konfiguráciu produktu. Viac informácií nájdete v <https://mt.lv/help-sl>

SV. Instruktionsmanual: Anslut nätadaptern för att slå på enheten. Öppna 192.168.88.1 i en webbläsare för att konfigurera produkten. Mer information på <https://mt.lv/help-sv>

NO. Bruksanvisningen: Koble strømadapteren for å slå på enheten. Åpne 192.168.88.1 i en nettleaser for å konfigurere produktet. Mer informasjon på <https://mt.lv/help-no>

RU. Руководство по эксплуатации: подключите адаптер питания чтобы включить устройство. Откройте 192.168.88.1 в своем веб-браузере для конфигурации. Дополнительная информация <https://mt.lv/help-ru>

CN. 说明书。 连接电源适配器以打开设备。在Web浏览器中打开192.168.88.1进行配置。有关<https://mt.lv/help-zh>的更多信息

