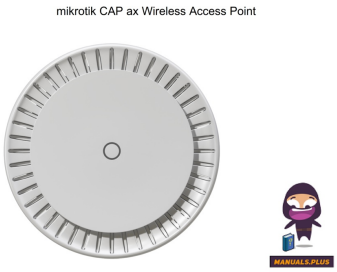


mikrotik CAP ax Wireless Access Point User Manual

Contents

mikrotik CAP ax Wireless Access Point

Product Information

- **Specifications**
  - **Product:** cAP ax
  - **Powering:**
    - **PoE-in:** 802.3af/at
    - **PoE-Out:** Passive PoE up to 57V (30V PoE-In and DC jack can be used)
    - **PoE-Out ports:** Ether2
    - **Max power consumption (without attachments):** 9 W
    - **Max power consumption:** 28.2 W
    - **Mounting:** Wall or ceiling mountable
    - **Operating Humidity:** 5% to 95% non-condensing
    - **Expansion Slots and Ports:** Product code: cAPGi-5HaxD2HaxD

Product Usage Instructions

- **Safety Warnings**
  - Before connecting the device, ensure the following steps:
  - Check with your Internet service provider for hardware compatibility and automatic IP address issuance.
  - Connect the device to a power source.
  - Search for the MikroTik wireless network on your computer and connect to it.
  - Configure the device through the wireless network using a web browser or mobile app.
- **Powering**
  - **To power the device:**
    - Use PoE-in 802.3af/at or PoE-out up to 57V.
    - For PoE-Out ports, ensure the maximum current output per port based on the input voltage.
    - The device supports multiple DC inputs and input voltages of 18-57 V.
- **Mounting**

    - **To mount the device:**
        - Attach the mounting bracket to the wall or ceiling using provided screws.
        - If needed, use a drill bit with the provided dowels.
        - Connect the necessary cables to the device.
        - Attach the device to the mounting bracket by sliding it into place.
        - ***Note:*** Mounting and configuration should be done by a qualified person and maintain a minimum distance of 30 cm between the device and your body.
- **Configuration**
    - The configuration process involves setting up wireless network and router passwords, updating routerOS software, choosing country settings, and more.
    - Follow the manual for detailed steps on configuration.

FAQs

- **How do I reset the routerOS configuration?**
    - To reset the RouterOS configuration, hold the reset button during boot time until the LED light starts flashing, then release the button (total 5 seconds).
- **How do I enable CAP mode?**
    - To enable CAP mode, hold the reset button for an additional 5 seconds after resetting (total 10 seconds) until the LED turns solid, then release. The device will now look for a CAPsMAN server.
- **What is the purpose of the mode button?**
    - The mode button can be configured to execute user-supplied RouterOS scripts. By default, it enables dark mode which disables LED lights. To configure the mode button, access the RouterOS menu /system routerboard mode button.

Safety Warnings

- Before you work on any equipment, be aware of the hazards involved with electrical circuitry, and be familiar with standard practices for preventing accidents.
- Ultimate disposal of this product should be handled according to all national laws and regulations.
- The Installation of the equipment must comply with local and national electrical codes.
- This unit is intended to be installed in the rackmount. Please read the mounting instructions carefully before beginning installation.
- Failure to use the correct hardware or to follow the correct procedures could result in a hazardous situation for people and damage to the system.
- This product is intended to be installed indoors. Keep this product away from water, fire, humidity or hot environments.
- Use only the power supply and accessories approved by the manufacturer, and which can be found in the original packaging of this product.
- Read the installation instructions before connecting the system to the power source.
- We cannot guarantee that no accidents or damage will occur due to the improper use of the device.
- Please use this product with care and operate at your own risk!
- In the case of device failure, please disconnect it from power. The fastest way to do so is by unplugging the power plug from the power outlet.

- 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.

Exposure to Radio Frequency Radiation:

- This MikroTik equipment complies with the FCC, IC, and European Union radiation exposure limits set forth for an uncontrolled environment.
- This MikroTik device should be installed and operated no closer than 30 centimetres from your body, occupational user, or the general public.

Connecting

- Make sure your Internet service provider is allowing hardware change and will issue an automatic IP address;
- Connect the device to the power source;
- Open network connections on your computer and search for the MikroTik wireless network – connect to it;
- The configuration can be done through the wireless network using a web browser or mobile app. Alternatively, you can use a WinBox configuration tool **https://mt.lv/winbox**;
- Open https://192.168.88.1 in your web browser to start configuration, user name: admin and there is no password by default (or, for some models, check user and wireless passwords on the sticker);
- Click the (Check for updates) button and update your RouterOS software to the latest version;
- The following RouterOS "npk" packages are required for the core functionality of the product: wifiwave2, system;
- Choose your country, to apply country regulation settings;
- Set up your wireless network password;
- Set up your router password;

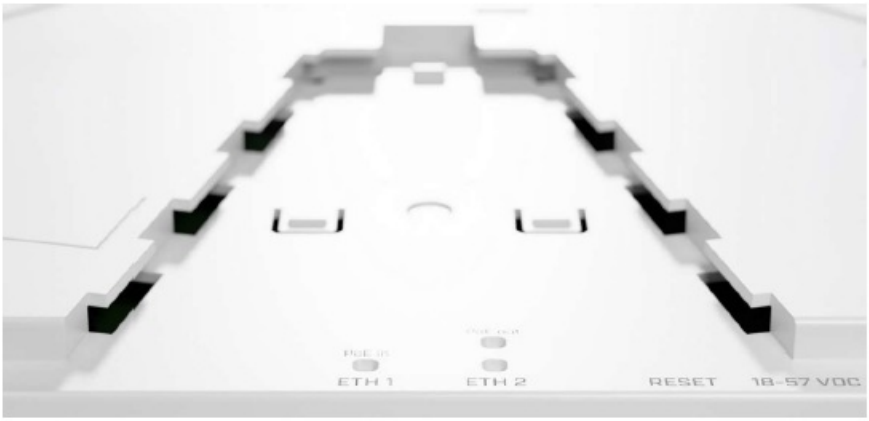
Powering

- PoE-in 802.3af/at
- PoE-Out Passive PoE up to 57V (<30v DC jack must be used, >30V PoE-In and
- DC jack can be used)
- PoE-Out ports
- Ether2, max out per port output (input < 30 V): 600 mA, max out per port output (input > 30 V): 400 mA. Over 300 mA current, please use a DC jack for powering the device.
- Number of DC inputs 2
- Supported input voltage 18-57 V (DC jack) 18-57 (PoE-In)
- Max power consumption (without attachments) 9 W
- Max power consumption 28,2 W

Mounting

It is possible to attach the device to a wall or ceiling, using the provided mounting bracket on the back of the unit:

1. Attach the mounting bracket to the wall or ceiling with provided screws;
2. Use drill bit if necessary with provided dowels;
3. Connect needed cables to the device;
4. Attach the device to the mounting bracket by sliding.



5. Mounting and configuration of this device should be done by a qualified person.
6. **Warning!** This equipment should be installed and operated with a minimum distance of 30 cm between the device and your body. Operation of this equipment in the residential environment could cause radio interference.
7. Operating humidity can be from 5% to 95% non-condensing.

Configuration

- By default, the device is configured as a wireless access point, with the first ethernet port (Eth1) configured as a DHCP client, and the second interface bridged together with the wireless interface. A DHCP server is configured on the bridge interface.
- Once logged in, we recommend clicking the “Check for updates” button in the QuickSet menu, as updating your RouterOS software to the latest version ensures the best performance and stability.
- For wireless models, please make sure you have selected the country where the device will be used, to conform with local regulations.
- RouterOS includes many configuration options in addition to what is described in this document.
- We suggest starting here to get yourself accustomed to the possibilities: **https://mt.lv/help**.
- If an IP connection is unavailable, the Winbox tool (**https://mt.lv/winbox**) can be used to connect to the device’s MAC address from the LAN side (all access is blocked from the Internet port by default).
- For recovery purposes, it is possible to boot the device from the network, see the section Reset button.
- The following RouterOS “npk” packages are required for the core functionality of the product: wifiwave2, system.

Expansion slots and ports

- **Product code** cAPGi-5HaxD2HaxD
- **CPU** Quad core IPQ-6010 1.8 GHz
- **Size of RAM** 1 GB
- **RAM type** DDR3L
- **Storage** 128 MB, NAND
- **Number of 1G Ethernet ports** 2

- **Wireless interface model** QCN-5022 (2.4 GHz), QCN-5052 (5 GHz)
- **Wireless** 2.4 GHz 802.11b/g/n/ax dual-chain, 5 GHz 802.11a/n/ac/ax dual-chain
- **Antenna gain** 5.5 dBi
- **Operating system** RouterOS v7, License level 4
- **Switch chip model** IPQ-6010
- **Dimensions** 228 x 48 mm
- **Operating temperature** -40°C to +70°C tested

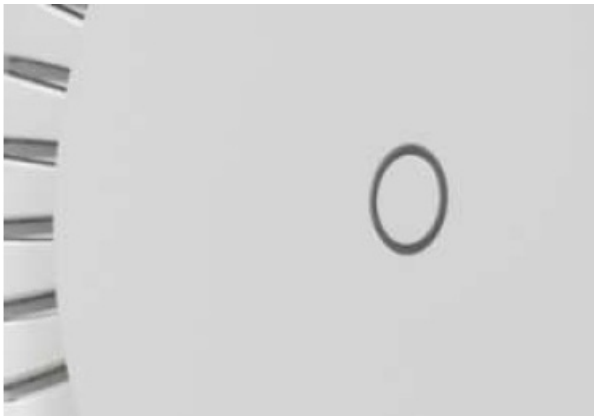
Buttons and jumpers

Reset button

The reset button has three functions:

- Hold this button during boot time until the LED light starts flashing, and release the button to reset the RouterOS configuration (total 5 seconds).
- Keep holding for 5 more seconds, and the LED turns solid, release now to turn on CAP mode. The device will now look for a CAPsMAN server (total 10 seconds).
- Or Keep holding the button for 5 more seconds until the LED turns off, then release it to make the RouterBOARD look for Netinstall servers (total 15 seconds).
- 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. Useful for RouterBOOT debugging and recovery.

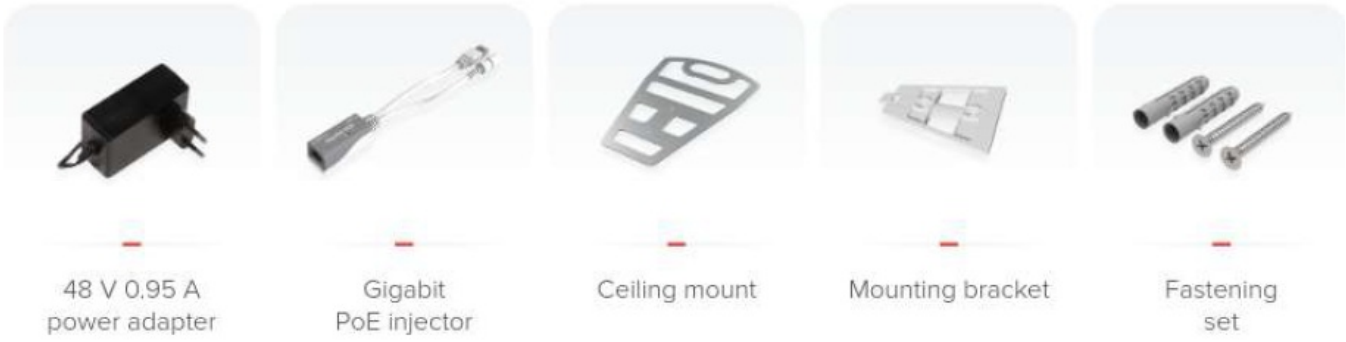
Mode button

- 

  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.
- By default, the buttons will enable “dark mode”, which disables LED lights.
- The mode button can be configured in the RouterOS menu /system routerboard mode button.

Accessories

The package includes the following accessories that come with the device:



Operating system support

- The device supports RouterOS software version 7.8.
- The specific factory-installed version number is indicated in the RouterOS menu /system resource.
- Other operating systems have not been tested.

MikroTik mobile app

- Use the MikroTik smartphone app to configure your router in the field, or to apply the most basic initial settings for your MikroTik home access point.

1. Scan the QR code and choose your preferred OS.
2. Install and open the application.
3. By default, the IP address and user name will be already entered.
4. Click Connect to establish a connection to your device through a wireless network.
5. Choose Quick Setup and the application will guide you through all basic configuration settings in a couple of easy steps.
6. An advanced menu is available to fully configure all necessary settings.

Notice

- The Frequency band 5.470-5.725 GHz isn’t allowed for commercial use.
- In case WLAN devices work with different ranges than the above regulations, then a customized firmware version from the manufacturer/supplier is required to be applied to the end-user equipment and also prevent the end-user from reconfiguration.
- **For Outdoor Usage:** The user requires approval/license from the NTRA.
- The datasheet for any device is available on the official manufacturer’s website.
- Products with the letters “EG” at the end of their serial number have their wireless frequency range limited to

2.400 – 2.4835 GHz, and the TX power is limited to 20dBm (EIRP).

- Products with the letters “EG” at the end of their serial number have their wireless frequency range limited to 5.150 – 5.250 GHz, and the TX power is limited to 23dBm (EIRP).
- Products with the letters “EG” at the end of their serial number have their wireless frequency range limited to 5.250 – 5.350 GHz, and the TX power is limited to 20dBm (EIRP).
- Please make sure the device has a locking package (firmware version from the manufacturer) which is required to be applied to the end-user equipment to prevent the end-user from reconfiguration. The product will be marked with the country code “-EG”.
- This device needs to be upgraded to the latest version to ensure compliance with local authority regulations!
- It is the end user’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.
- To avoid pollution of the environment, please separate the device from household waste and dispose of it in a safe manner, such as in designated waste disposal sites.
- Familiarize yourself with the procedures for the proper transportation of the equipment to the designated disposal sites in your area.

Federal Communication Commission Interference Statement

- Capri- TV7CPG52
- 5HaxD2HaxD X

This equipment has been tested and found to comply with the limits for a Class B digital device, under 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 per 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 or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to 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.

Note: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance.
Exposure to Radio Frequency Radiation: This MikroTik equipment complies with the FCC and IC radiation exposure limits set forth for an uncontrolled environment. This MikroTik device should be installed and operated no

closer than 30 centimetres from your body, occupational user, or the general public. FCC regulations restrict operation to indoor use only.

Innovation, Science and Economic Development Canada

- Capri-7442A
- 5HaxD2HaxD CAPAX

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science, and Economic Development Canada's license-exempt RSS(s).

Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe [B] est conforme à la norme NMB-003 du Canada. CAN ICES-003 (B) / NMB-003 (B) 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.

Exposure to Radio Frequency Radiation:

- This MikroTik equipment complies with the FCC and IC radiation exposure limits set forth for an uncontrolled environment.
- This MikroTik device should be installed and operated no closer than 30 centimetres from your body, occupational user, or the general public.

UKCA marking CE Declaration of Conformity

Hereby, Mikrotīkls SIA declares that the radio equipment type cAPGi-5HaxD2HaxD complies with Directive 2014/53/EU. The full text of the EU declaration of Conformity is available at the following internet address: **https://mikrotik.com/products**.

WLAN

- **Operating Frequency** / **Maximum Output power**
  - 2400-2483.5 MHz / 20 dBm
  - 5150-5250 MHz / 23 dBm
  - 5250-5350 MHz / 20 dBm
  - 5470-5725 MHz / 27 dBm
  - 5725-5850 MHz / 14 dBm
  - 5850-5895 MHz / 14 dBm

This MikroTik device meets Maximum WLAN transmit power limits per ETSI regulations. For more detailed information see Declaration of Conformity above.

Technical Specifications

Technical Specifications			
	DC Adapter Output Specification		**Operating Temperature**

Product Power Input Options			**IP class of the enclosure**	
	Voltage, V	**Current, A**		
DC Jack (18 – 57 V DC) PoE in Ethernet (18 – 57 V DC)	24	1.5	IP20	±0°..+40°C

Documents / Resources

	mikrotik CAP ax Wireless Access Point [pdf] User Manual CAP ax, CAP ax Wireless Access Point, Wireless Access Point, Access Point, Point

References

- MikroTik Routers and Wireless - Products
- User Manual