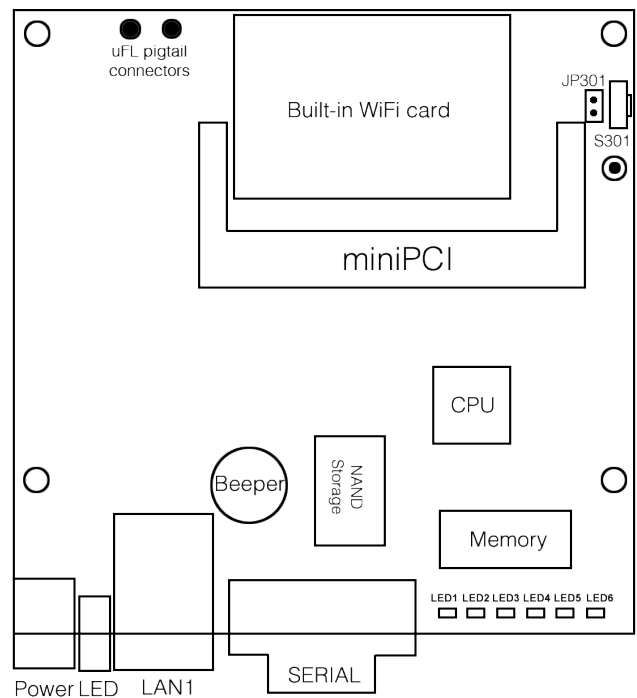
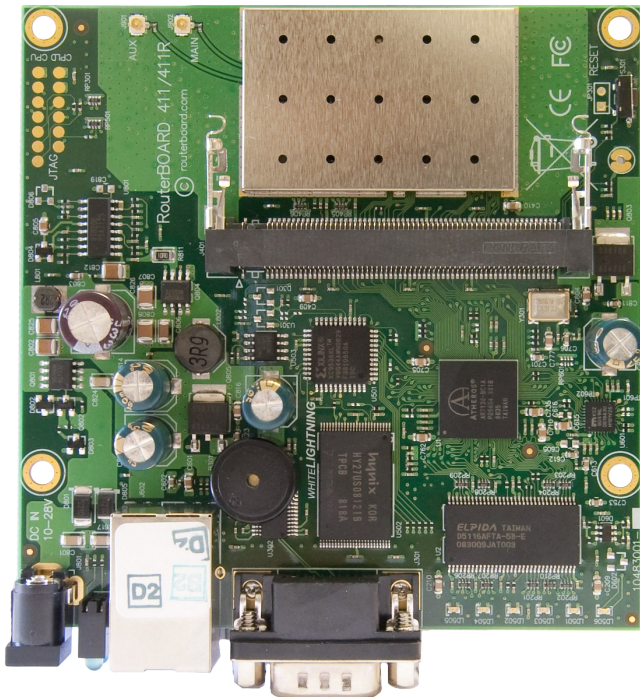


# RouterBOARD 411AR

## Quick Setup Guide and Warranty Information



### Assembling the Hardware

First use of the board:

- Insert the MiniPCI card. RouterBOARD 411AR provides one MiniPCI slot on the top of the board
- Connect antenna cables to the MiniPCI card and/or to the built in WiFi card's uFL connectors
- Install the board in a case and connect other peripherals and cables.
- Plug in power cable to turn on the board.

### Powering

The board accepts powering from either the power jack or the LAN1 Ethernet port:

- direct-input power jack **J7** (5.5mm outside and 2mm inside diameter, female, pin positive plug) accepts 9..28V DC (overvoltage protection starts at 28V).
- LAN1 Ethernet port **J8** accepts 9..28V 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 (no power over datalines). The board **does not** work with IEEE802.3af compliant 48V power injectors.

The maximum output of the power supply available for extension cards is normally 10W (3.0A).

### Booting process

First, RouterBOOT 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. **Note** that the device does not fully implement the hardware (RTS/CTS) flow control, so it is suggested to try to disable hardware flow control in the terminal emulation program in case the serial console does not work as expected, and if it does not help, make a new cable using the pinout given in the User's manual. The loader may be configured to boot the system from the onboard NAND, and/or from network. See the respective section of User's manual on how to configure booting sequence and other BIOS parameters.

[http://wiki.mikrotik.com/wiki/First\\_time\\_startup](http://wiki.mikrotik.com/wiki/First_time_startup)

DHCP or BOOTP (configurable in loader) protocols allow the RouterBOARD 411AR device to get an initial IP address, and provide the address of a TFTP server to download an ELF boot image from. It is especially useful for software installation. See the User's manual for more information and protocol details. Note that you must connect the RouterBOARD you want to boot and the BOOTP/DHCP and TFTP servers to the same broadcast domain (i.e., there must not be any routers between them – they must be on the same Ethernet switch).

## Extension Slots and Ports

- One Ethernet port, 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 Ethernet port accepts 9..28 V DC powering from a passive PoE injector.
- One MiniPCI Type IIIA/IIIB port with 3.3V power signaling.
- Built-in 802.11b/g WiFi card (AR2417) with two uFI connectors to the left of it
- DB9 RS232C asynchronous serial port.

## Buttons and Jumpers

- ROS reset jumper hole (RESET) – resets RouterOS software to defaults. Must short circuit the metallic sides of the hole (with a screwdriver, for example) and boot the device. Hold screwdriver in place until RouterOS configuration is cleared.
- RouterBOOT reset button (S301) – loads backup RouterBOOT Loader firmware. Must hold button while booting. Use in case operating system can't be booted and no useful information on Serial console output.

## Operating System Support

Currently tested operating system is MikroTik RouterOS (starting from version 3.23).

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**Hardware.** MikroTik SIA warrants all RouterBOARD series equipment for the term of one year 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.

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Instructions are located on our webpage here: <http://rma.mikrotik.com>

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