DELIBERAZIONE DELLA GIUNTA COMUNALE

COMUNE DI ANZOLA DELL'EMILIA

PROVINCIA DI BOLOGNA

AUTORIZZAZIONE ALL'INSTALLAZIONE DEL RIPETITORE WIFI SULLA TORRE FARO DEL CAMPO SPORTIVO IN VIA LUNGA.	*Nr. Progr.* **155** *Data* **05/11/2013** *Seduta NR.* **43** *Titolo* **4** *Classe* **9** *Sottoclasse* **3**

L'anno DUEMILATREDICI questo giorno CINQUE del mese di NOVEMBRE alle ore 09:30 convocata con le prescritte modalità, nella Sede Municipale si è riunita la Giunta Comunale.

Fatto l'appello nominale risultano:

Cognome e Nome	*Carica*	*Presente*
ROPA LORIS	SINDACO	S
LAZZARI MASSIMILIANO	VICE SINDACO	S
CASTELLUCCI CARLO	ASSESSORE	S
COCCHI MIRNA	ASSESSORE	S
MANFREDINI SILVIA	ASSESSORE	S
MONARI CARLO	ASSESSORE	S
Totale Presenti: ***6***	*Totali Assenti:* ***0***	

Assenti giustificati i signori:

Nessun convocato risulta assente giustificato

Partecipa il SEGRETARIO GENERALE del Comune, CICCIA ANNA ROSA.

Il Sig. ROPA LORIS in qualità di SINDACO assume la presidenza e, constatata la legalità della adunanza, dichiara aperta la seduta invitando la Giunta a deliberare sull'oggetto sopra indicato.

OGGETTO:
AUTORIZZAZIONE ALL'INSTALLAZIONE DEL RIPETITORE WIFI SULLA TORRE FARO DEL CAMPO SPORTIVO IN VIA LUNGA.

LA GIUNTA COMUNALE

Premesso che è stata effettuata una procedura pubblica da parte dell'Associazione Terred'Acqua per conto di tutti i Comuni aderenti al SIAT (escluso Calderara di Reno), per l'individuazione di un fornitore di connettività a banda larga nei territori dei Comuni, ed installazione di una rete di hot spot gratuiti, ai cui materiali di gara si fa rinvio;

Dato atto che al bando ha partecipato una sola Ditta, la Società NEXUS S.r.l. con sede a San Giorgio di Piano (BO);

Dato atto inoltre che il contratto con la suddetta Ditta è stato sottoscritto in data 19.07.2011 dal Comune di San Giovanni in Persiceto – in qualità di Ente capofila del Servizio Informatico Associato;

Dato atto che a fronte della concessione in comodato gratuito del luogo suddetto, la Ditta offre l'installazione di hot spot di accesso gratuito alla rete Internet sul territorio comunale individuati dalla delibera di Giunta Comunale n. 141/2011;

Considerato che per l'installazione del ripetitore principale è stata individuata la Torre faro del Campo Sportivo Comunale, in Via Lunga;

Preso atto dell'elaborato grafico e delle specifiche tecniche delle apparecchiature che verranno installate presso la Torre faro del Campo Sportivo di Via Lunga al fine di consentire il funzionamento del ripetitore WiFi, come prima fase esecutiva del servizio di connettività nel territorio di Anzola dell'Emilia;

Preso atto che questa fase risulta essere propedeutica all'installazione e attivazione dei 7 hot spot gratuiti previsti dal contratto di fornitura e di seguito specificati:

- n. 1 - Municipio – Piazza Berlinguer
- n. 1 - Scuola Media – Parco "Fantazzini"
- n. 1 - Biblioteca – Casa della cultura
- n. 2 - Centro giovani – Area esterna e interno struttura
- n. 1 - Polo Didattico – Interno sale espositive
- n. 1 - Casa Gialla – Urp

Preso atto che in data 24.06.2013 con Prot. n. 12.584 è stata inoltrata ad Arpa la comunicazione ai sensi dell'art. 2-ter L.R. n. 30/2000 relativa all'installazione del ripetitore in Via Lunga n. 8;

Dato atto che, in applicazione dell'art. 49 del Decreto Legislativo 18.08.2000 n. 267 e successive modificazioni e integrazioni, è stato acquisito il parere favorevole espresso dal Direttore dell'Area Tecnica in ordine alla regolarità tecnica;

Con voti unanimi resi nei modi di legge

D E L I B E R A

Per le ragioni di cui in premessa:

1) Di autorizzare i lavori di installazione del ripetitore WiFi sulla Torre faro del Campo Sportivo di Via Lunga e di approvare i seguenti documenti allegati alla presente deliberazione per formarne parte integrante e sostanziale:
   - elaborato grafico
   - schede tecniche apparecchiature installate;

2) Di autorizzare il Direttore dell'Area Tecnica all'adozione di eventuali successivi atti necessari;

Con separata ed unanime votazione si dichiara immediatamente eseguibile la presente deliberazione, ai sensi dell'art. 134 – 4° comma – del Decreto Legislativo 18.08.2000 n. 267.

COMUNE DI ANZOLA DELL'EMILIA

PROVINCIA DI BOLOGNA

Installazione ripetitore WiFi sulla torre faro del campo sportivo di Anzola dell'Emilia via Lunga

Tav.

U

Elaborato grafico

Data

novembre 2013

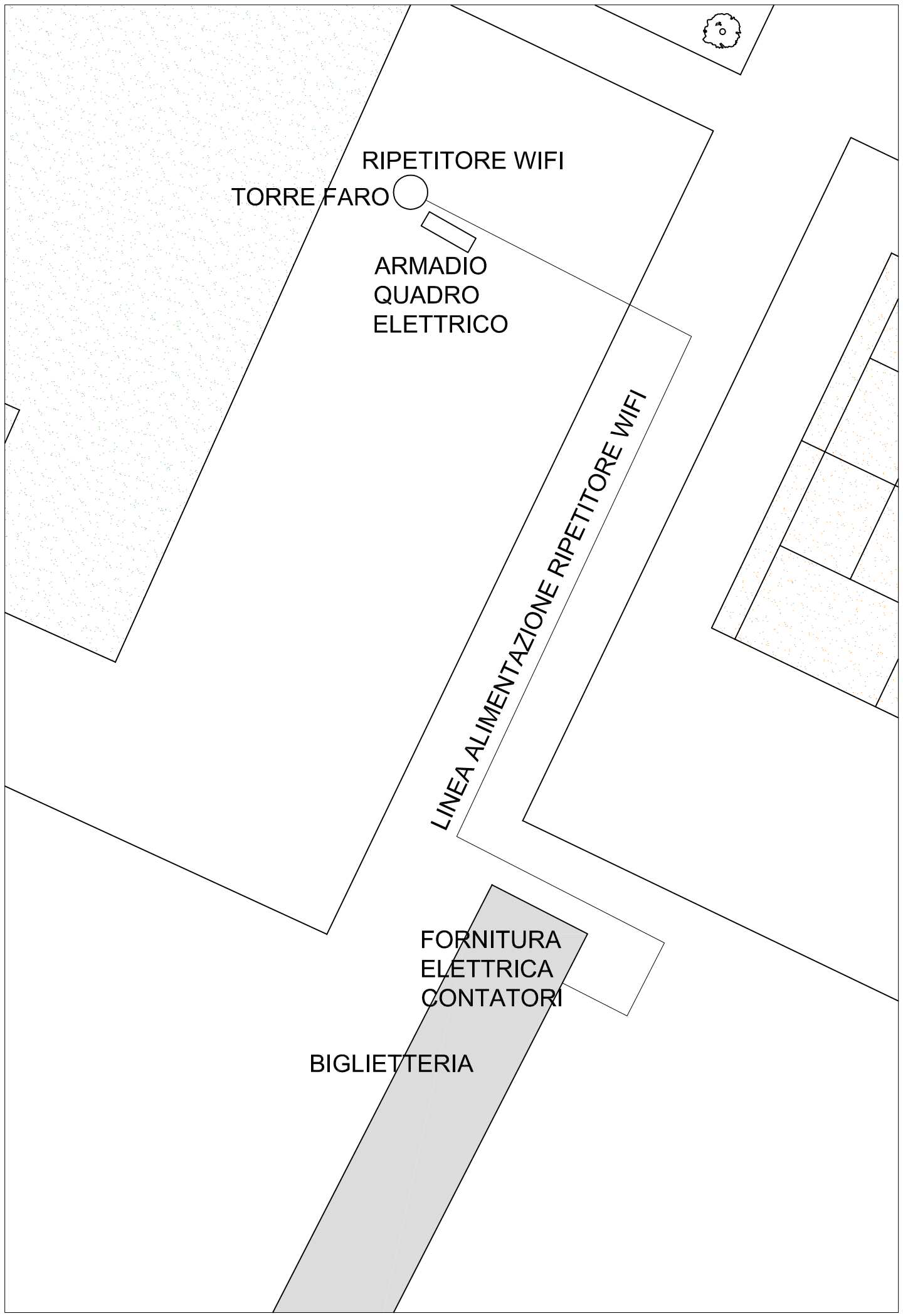
Oggetto

Planimetria generale

Proprietà : Comune di Anzola dell'Emilia

Approvato con delibera di ..... del ..... n. ....

PLANIMETRIA GENERALE



Groove A-5Hn

The Groove is our smallest outdoor series model - a fully featured RouterBOARD powered by RouterOS. Weatherproof, durable and ready to use. It has one 10/100 Ethernet port with PoE support and a built-in 200mW 802.11a/n wireless radio. With the Nv2 TDMA technology, 125Mbit aggregate throughput is possible, limited only by the ethernet port!

The Groove A-5Hn has a RouterOS Level4 license, so you can use it as a wireless access point (or as a client and for point to point links).

It has a built-in N-male connector, so you can attach it to an antenna directly, or use a standard antenna cable. LED signal indicators make it easy to install and align.

The Groove runs RouterOS with all it's features.

CPU	Atheros AR7241 400MHz network processor
Memory	64MB DDR SDRAM onboard memory
Boot loader	RouterBOOT
Data storage	64MB onboard NAND memory chip
Ethernet	One 10/100 Mbit/s Fast Ethernet port with Auto-MDI/X, L2MTU frame size up to 2030
Wireless	Wireless Built-in 5GHz 802.11a/n 1x1 MIMO, N-male connector
Extras	Reset switch, Beeper, Voltage monitor, Temperature monitor
LEDs	5 wireless signal LEDs, ethernet activity LED (configurable)
Power options	Passive 9-30V PoE only. 16KV ESD protection on RF port
Consumption	Up to 0,19A at 24V (4.56W)
Dimensions	177x44x44mm, 193g. Must be mounted with ethernet pointing down
Operating temperature	-30 to +70C
Operating System	MikroTik RouterOS v5, Level4 license (AP, station, or point-to-point)
Package contains	Groove A-5Hn unit, mounting loops, PoE injector, 24V power adapter

RX sensitivity	**802.11a**: –93 dBm @ 6Mbps to -77 dBm @ 54 Mbps **802.11n**: –93 dBm @ MCS0 to –71 dBm @ MCS7
TX power	**802.11a:** 23dBm @ 6Mbps to 19dBm @ 54 Mbps **802.11n:** 22dBm @ MCS0 to 15dBm @ MCS7
Modulations	OFDM: BPSK, QPSK, 16 QAM, 64QAM DSSS: DBPSK, DQPSK, CCK

RouterBOARD 751 series

User's Manual

Copyright and Warranty Information

Hardware. MikroTik warrants all RouterBOARD series equipment for the term of fifteen (15) 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.

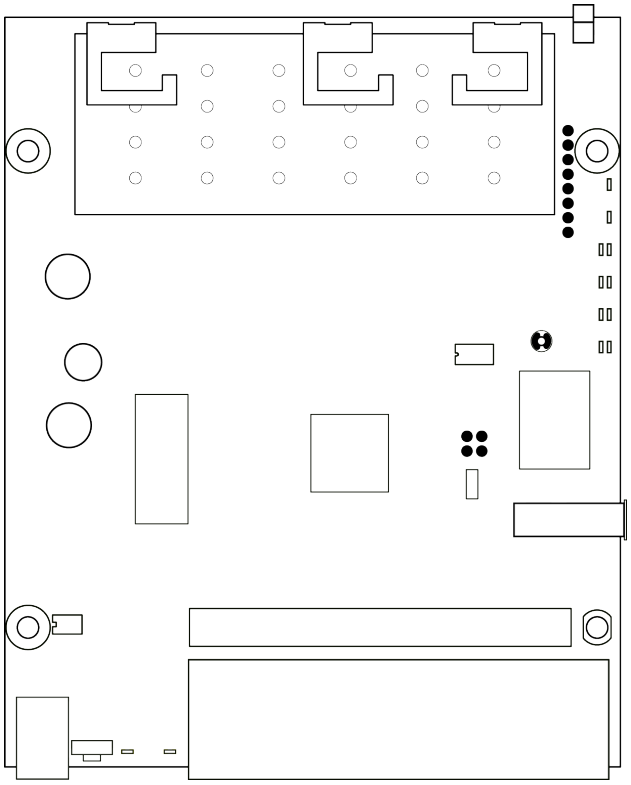
To return failed units to MikroTik, you must perform the following RMA (Return Merchandise Authorization) procedure. Follow the instructions below to save time, efforts, avoid costs, and improve the speed of the RMA process.

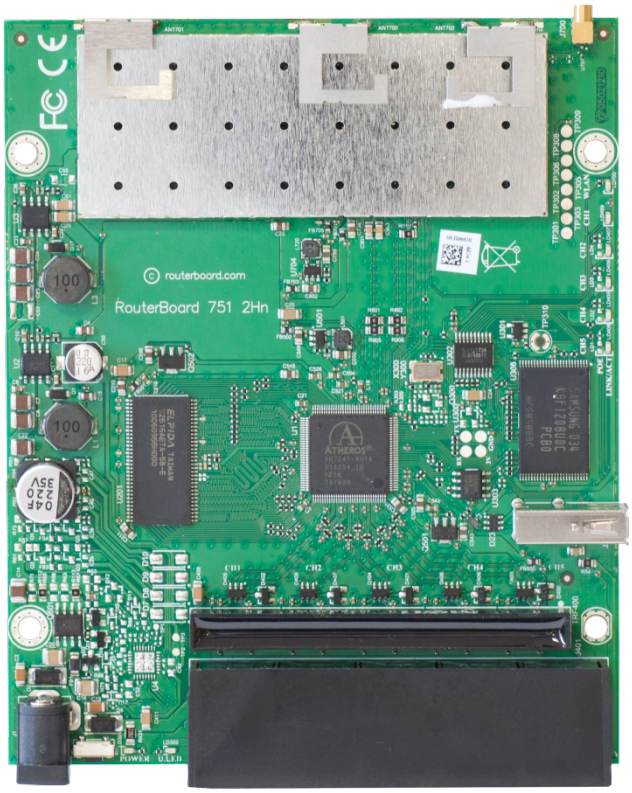
1. If you have purchased your product from a MikroTik Reseller, please contact the Reseller company regarding all warranty and repair issues, the following instructions apply ONLY if you purchased your equipment directly from MikroTik in Latvia.
2. We do not offer repairs for products that are not covered by warranty. Exceptions can be made for RB1000, RB1100, RB1200.
3. Out-of-warranty devices and devices not covered by warranty sent to Mikrotikls will be returned to the sender at sender's cost.

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

Manual. This manual is provided “as is” without a warranty of any kind, expressed or implied, including, but not limited to, the implied warranty of merchantability and fitness for a particular purpose. The manufacturer has made every effort to ensure the accuracy of the contents of this manual; however, it is possible that it may contain technical inaccuracies, typographical or other errors. No liability is assumed for any inaccuracy found in this publication, nor for direct or indirect, incidental, consequential or other damages that may result from such an inaccuracy, including, but not limited to, loss of data or profits. Please report any inaccuracies found to support@mikrotik.com

System Board View and Layout





You can download the board dimensions and case design files (PDF and DXF) from www.routerboard.com

Specifications

	RouterBOARD 751U-2HnD	*RouterBOARD 751G-2HnD*
CPU	AR7241 400MHz	
Memory	32 / 64MB DDR SDRAM onboard	
Boot loader	RouterBOOT	
Data storage	onboard NAND memory chip	
Ethernet	RB751U-2HnD: Five 10/100 Mbit/s Ethernet ports supporting Auto-MDI/X RB751G-2HnD: Five 10/100/1000 Gigabit ports with Auto-MDI/X	
MiniPCI slot	-	
Expansion	USB 2.0 port	
CompactFlash slots	-	
Serial port	-	
LEDs	Power, NAND activity, 5 Ethernet and 1 wireless LEDs	
Beeper	+	
Power at the device	**DC power jack** (5.5mm outside and 2mm inside diameter, female, pin positive plug) accepts **8-30V DC**	
Power over Ethernet	Ether 1 requires 8-30V DC (non 802.3af), to compensate for losses, it's recommended to use 12V or more	
Power consumption	Up to 7W	
Dimensions	113x138x29mm. Weight without packaging and cables: 230g	
Temperature	Indoor device. Operational temperature: -20°C to +50°C	
Humidity	Operational: up to 70% relative humidity (non-condensing)	

RouterOS	RouterOS v5, Level4 license
Wireless specifications	
Wireless	Integrated Wireless 2.4GHz 802.11b/g/n 2x2 MIMO
Antenna	2x2 MIMO PIF antennas, max gain 2.5dBi, external MMCX option
RX Sensitivity	802.11g: -96dBm (6Mbit/s) to -81dBm (54Mbit/s) 802.11n: –96 dBm (MCS0) to –78 dBm (MCS7)
TX Power	802.11g: 30dBm (6Mbps) to 27dBm (54Mbps) 802.11n: 30dBm (MCS0) to 26dBm (MCS7)
Modulations	**OFDM**: BPSK, QPSK, 16 QAM, 64QAM; **DSSS**: DBPSK, DQPSK, CCK

Hardware Guide

Memory and Storage Devices

Memory

The RB751 has 32MB of built-in memory. There are no memory upgrade options.

Storage Device

The device is equipped with one built in NAND nonvolatile memory chip.

Input/Output Ports

Ethernet ports

There are five individual Ethernet ports. Ports 2-5 are connected to a switch and can be switched together by an option in the RouterOS software.

All cables made to EIA/TIA 568A/B cable specifications will work correctly (see **Connector Index** for pinout). Note that this port supports automatic cross/straight cable correction (Auto MDI/X), so you can use either straight or cross-over cable for connecting to other network devices.

LEDs

Ethernet LED lights up when a cable is connected, these LEDs don't show ethernet activity, just connectivity. Wireless LED flashes on activity. Power LED indicates that the device receives power. ACT LED shows NAND activity and can be programmed to show other things via RouterOS LED menu.

User's Guide

Powering

The device accepts powering from the power jack or from the first Ethernet port (Passive PoE):

- DC power jack (5.5mm outside and 2mm inside diameter, female, pin positive plug) accepts 8-30V DC
- The first Ethernet port accepts passive Power over Ethernet accepts 8-30V DC

Under maximum load, the power consumption of this device is 7W

Booting options

RouterOS is the operating system of all RouterBOARD routers. Please see detailed configuration guide here

http://wiki.mikrotik.com/wiki/Category:Manual

Initial configuration includes the following:

> wirelesss AP with SSID „MikroTik" has been enabled, and bridged to ports Ether2-Ether5. This bridge has a DHCP server runni ng, so you can connect to the devide using the Web based „**Webfig**" interface from Ether2-Ether5 or from the wireless interface. Open **http://192.168.88.1** in your browser, in the page that opens, select „**Webfig**" and log in with username „admin" and no password. The Ether1 port has a firewall on it, and a DHCP client, so it's configured to be connected to your ISP.

An alternative configuration option is the **MikroTik Winbox utility** (Windows only). Winbox can 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 the device 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

Onboard NAND Storage Device

The RouterBOARD may be started from the onboard NAND storage chip. As there is no partition table on the device, the boot loader assumes the first 4MiB form a YAFFS filesystem, and executes the file called "kernel" stored in the root directory on that partition. It is possible to partition the rest of the medium by patching the kernel source.

Booting from network

Network boot works similarly to PXE or EtherBoot protocol, and allows you to the device from an executable image stored on a TFTP server. It uses BOOTP or DHCP (configurable in boot loader) protocol to get a valid IP address, and TFTP protocol to download an executable (ELF) kernel image combined with the initial RAM disk (inserted as an ELF section) to boot from (the TFTP server's IP address and the image name must be sent by the BOOTP/DHCP server).

To boot the RouterBOARD computer from Ethernet network you need the following:

- An ELF kernel image for the loader to boot from (you can embed the kernel parameters and initrd image as ELF sections called *kernparm* and *initrd* respectively)
- A TFTP server which to download the image from
- A BOOTP/DHCP server (may be installed on the same machine as the TFTP server) to give an IP address, TFTP server address and boot image name

Operating System Support

MikroTik RouterOS starting from version v5 is fully compatible with RouterBOARD 751 series devices. If your device is preinstalled with an earlier RouterOS release, please upgrade RouterOS to v5.8 or newer.

Buttons and Jumpers

- RouterOS reset jumper hole (on the **bottom** of case) – resets RouterOS software to defaults. Must short circuit the metallic sides of the hole with a screwdriver and boot the device. Hold screwdriver in place until RouterOS configuration is cleared.
- RouterBOOT reset button (**RES**, front panel) has two functions:
    - Hold this button during boot time until LED light starts flashing, release the button to reset RouterOS configuration (same result as with RouterOS reset hole)
    - Hold this button during boot time longer, until LED turns off, then release it to make the RouterBOARD look for Netinstall servers.

Wireless device

RB751U includes a 2GHz 802.11b/g/n wireless device built in. It has PIF type antennas (2.5dBi) built into the case, and one MMCX connector for an optional external antenna.

RB 751U has 3 built-in wireless antennas

- Chain0
    - one antenna for TX
    - one antenna for RX
- Chain1
    - one antenna for TX/RX
    - MMCX connector for external antenna

To enable the external MMCX connector, set „antenna mode: antenna-b" in RouterOS wireless settings, in the HT tab of Winbox. **Note**: *enabling the external antenna disables the built-in Chain1 antenna.*

RouterBOOT

The RouterBOOT firmware (also referred as Bootloader here) provides the basic functionality to boot an Operating System. It supports serial console via the onboard serial port at the boot time. The loader supports booting from the onboard NAND device and from a network server (see the respective section for details on this protocol).

Boot Loader Configuration

This device doesn't come fitted with a serial port connector, so all Bootloader specific settings must be done in RouterOS. See *„RouterOS functions"*

Boot Loader Upgrading

The boot loader is needed to initialize all the hardware and boot the system up.

The boot loader upgrading is possible from MikroTik RouterOS, from within the "/system routerboard" menu. Updates are included with each RouterOS update. The procedure is described in the MikroTik RouterOS manual: http://wiki.mikrotik.com/wiki/Manual:Bootloader_upgrade

Primary Boot Loader

There are two boot loaders present on the NOR flash memory chip. Secondary is the main one, that is executed by default. This is the one that can be upgraded. In case something goes wrong in the upgrade process, or you have set some incorrect settings that render it unusable, you can load the Primary boot loader by holding the Software Reset 1 button (**S401**), connecting the power, and then releasing the button/jumper.

The Primary boot loader has the default settings, which can not be changed. It is also not possible to upgrade it.

RouterOS functions

The default OS of RouterBOARD devices is RouterOS, when the *routerboard.npk* package is installed, RouterOS can configure some RouterBOARD hardware settings

Firmware information

This menu displays RouterBOARD model number, serial number, the current boot loader version and the version available in the current software packages installed.

```
[admin@MikroTik] > system routerboard print
       routerboard: yes
             model: "rb751u"
     serial-number: "154201C1DD3C"
  current-firmware: "2.26"
  upgrade-firmware: "2.27"
[admin@MikroTik] >
```

The firmware version can be upgraded from **RouterOS** by using "**/system routerboard upgrade**" command.

Firmware Settings

Boot loader settings are also accessible through this menu.

```
[admin@MikroTik] > system routerboard settings print
           boot-delay: 2s
          boot-device: nand-if-fail-then-ethernet
        boot-protocol: bootp
  enable-jumper-reset: yes
[admin@MikroTik] >
```

- **Boot-device**: *use this to enable Netinstall*
- **Boot protocol:** *for Netinstall use Bootp, for installing other operating systems, you need to use DHCP*
- **Enable-jumper-reset**: *Disable this to avoid accidental setting reset via the onboard jumper*

The Software Reset jumper , which resets both boot loader settings and RouterOS settings by default, can be disabled in this menu (it will still reset the boot loader settings).

Appendix

Connector Index

Ether1-5	RJ45 Ethernet 100Base-T ports, Ether1 accepts passive PoE power
Power	Power Jack (8-30V DC)
USB (unlabeled)	USB 2.0 port for connecting 3G modem, storage device or GPS module
ANT	MMCX connector for connecting an external antenna

Button Index

RES	Software Reset 1 button. (see "Buttons and Jumpers")
RESET (unlabeled)	Software Reset 2 jumper hole. Resets RouterOS settings (see „Buttons and Jumpers")

Ethernet Cables

RJ45 Pin	**Color**	**Function** (100Mbit)	**Function** (1Gbit)	**RJ45 pin for Straight cable** (MDI, EIA/TIA568A)	**RJ45 pin for Crossover cable** (MDI-X, EIA/TIA568B)
1	Green	TX+ Data	Data A+	1	3
2	Green/White	TX- Data	Data A-	2	6
3	Orange	RX+ Data	Data B+	3	1
4	Blue	-	Data C+	4	4
5	Blue/White	-	Data C-	5	5
6	Orange/White	RX- Data	Data B-	6	2
7	Brown	-	Data D+	7	7
8	Brown/White	-	Data D-	8	8

RouterBOARD SXT

SXT 5HnD is a low cost, high speed 5GHz wireless device. Dual chain 802.11n and Nv2 TDMA technology help to achieve even 200Mbit real throughput speed.

Complete with a ready to mount enclosure and built-in antenna, this is the perfect CPE.

Powered by RouterOS it is also the most advanced router, bandwidth controller and firewall.

- Solid all-in-one design: quick and easy to mount
- Tower friendly one hand enclosure access
- 5GHz 802.11a/n wireless onboard
- One 10/100 Ethernet port
- 16dBi dual chain antenna built-in
- Signal strength LED indicators on back
- USB 2.0 port, voltage and temperature monitors
- Extended L2MTU support to avoid fragmentation overhead in MPLS, QinQ etc.

Improved wireless speed with Nv2:

without Nv2

with Nv2 **x2 TCP speed**

times faster compared to similar RouterOS CPE device before Nv2 was introduced, in ideal conditions

Features	5HnD (5Ghz, High power wireless, 802.11n, Dual-chain)
CPU	Atheros AR7241 400MHz CPU
Memory	32MB DDR SDRAM onboard memory
Data storage	64MB onboard NAND storage chip
Ethernet	One 10/100 ethernet port, L2MTU frame size up to 4076
Wireless cards	Onboard dual chain 5GHz 802.11a/n Atheros AR9280 wireless module; 10kV ESD protection on each RF port
Extras	Reset switch, beeper, USB 2.0 port, voltage and temperature monitors
Serial port	No serial port
LEDs	Power LED, Ethernet LED, 5 wireless signal LED
Power options	Power over Ethernet: 8-30V DC Packaged with 24V DC 0.8A power adapter and passive PoE injector
Dimensions	140x140x56mm. Weight without packaging, adapters and cables: 265g
Power consumption	Up to 7W
Operating Temperature	-30C .. +80C
Operating System	MikroTik RouterOS v5, Level3 license
Package contains	SXT wireless device with integrated antenna, pole mounting bracket, mounting ring, PoE injector, power adapter, quick setup guide
Certifications	FCC, CE, ROHS

Wireless signal indicators

Easy to access enclosure, door latches open

Antenna	
Type	Dual polarization 5GHz antenna
Frequency range	5.17 - 5.825 GHz
Gain	16 ± 2 dBi
VSWR, max	1.7:1
3 dB Beam-Width, H-Plane, typ.	25 °
3 dB Beam-Width, E-Plane, typ.	25 °
Polarization	Dual Linear (V-pol, H-pol)
Port to Port Isolation	- 35 dB

Protocol	Data rate	TX Power
802.11a	6 Mbit/s	26dBm
	54 Mbit/s	22dBm
802.11n 1 stream	MCS0 20MHZ	25dBm
	MCS0 40MHZ	25dBm
	MCS7 20MHZ	19dBm
	MCS7 40MHZ	18dBm
802.11n 2 streams	MCS8 20MHZ	25dBm
	MCS8 40MHZ	25dBm
	MCS15 20MHZ	19dBm
	MCS15 40MHZ	18dBm

Protocol	Data rate	RX Sensitivity
802.11a	6 Mbit/s	-96dBm
	54 Mbit/s	-80dBm
802.11n 1 stream	MCS0 20MHZ	-96dBm
	MCS0 40MHZ	-92dBm
	MCS7 20MHZ	-77dBm
	MCS7 40MHZ	-74dBm
802.11n 2 streams	MCS8 20MHZ	-96dBm
	MCS8 40MHZ	-92dBm
	MCS15 20MHZ	-77dBm
	MCS15 40MHZ	-74dBm

COMUNE DI ANZOLA DELL'EMILIA
PROVINCIA DI BOLOGNA

DELIBERAZIONE DELLA GIUNTA COMUNALE

Numero Delibera **155** del **05/11/2013**

AREA TECNICA

OGGETTO

AUTORIZZAZIONE ALL'INSTALLAZIONE DEL RIPETITORE WIFI SULLA TORRE FARO DEL CAMPO SPORTIVO IN VIA LUNGA.

PARERI DI CUI ALL' ART. 49 DEL DECRETO LEGISLATIVO 18.08.2000 N. 267

IL DIRETTORE DELL'AREA INTERESSATA	Per quanto concerne la REGOLARITA' TECNICA esprime parere: **FAVOREVOLE** IL DIRETTORE AREA TECNICA Data 31/10/2013 FORNALE' DAVIDE
IL DIRETTORE AREA ECONOMICO / FINANZIARIA E CONTROLLO	Per quanto concerne la REGOLARITA' CONTABILE esprime parere: Data

DELIBERAZIONE DELLA GIUNTA COMUNALE NR. 155 DEL 05/11/2013

Letto, approvato e sottoscritto.

IL SINDACO	IL SEGRETARIO GENERALE
ROPA LORIS	CICCIA ANNA ROSA

ANZOLA DELL'EMILIA, Lì 14/11/2013