



The intercell 10 B38+B39 is an outdoor TDD-LTE dual carriers base station with 2*(2*10W) output power (each carrier supports 2x2 MIMO with 10W output each RF channel).

Please follow these quick steps to set up your device:

- Connect external antennas and Ethernet cable to the connectors (see "[Expansion ports and slots](#)");
- Connect the device to the power source (see "[Powering](#)");
- Connect with your laptop to the Ethernet port for configuration.
- The device can get the IP address by DHCP and Static assignment;
- Once connected, default maintenance IP address: 192.168.200.200, user name: admin, password: MikroTik;
- If connecting with Static assignment method, configure the IP address of your laptop as 192.168.200.100/24, then connect through https to the device: 192.168.200.200;
- Configure backhaul and radio network see "[Configuration](#)".

The device accepts power in the following way:

- Input power jack accepts 48 V DC. The only connector with cable is provided with the package, you will need the power unit - generating 48 V.

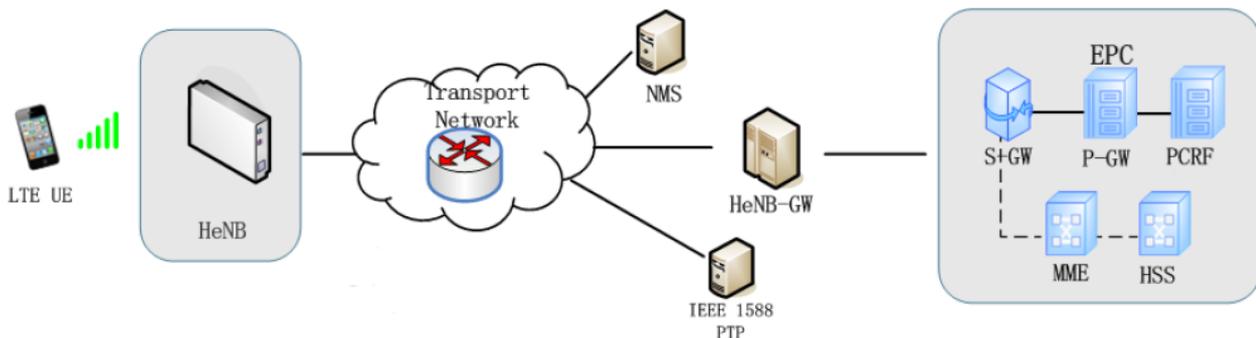
The power consumption under maximum load can reach 200 W.

- Connect provided cable to your power source.
- Connect cable connector to the device.

If using Ethernet cable add RBGESP to the setup, comes with the package.



All configuration is necessary to carry out through the webGUI.
The configuration of this device should be done by a qualified person.

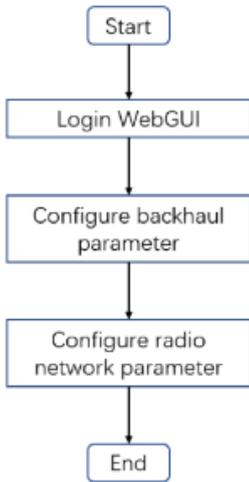


This topology shows typical Smallcell network architecture. HeNB works as LTE the base station provides LTE service to UE ;

NMS: HeNB management system (HeMS) is a virtualized solution that provides a full lifecycle of small cell management functions. It supports TR-181 and TR-196 data model which are defined by Broadband.

HeNB-GW: HeNB Gateway is deployed between HeNB and MME, provide the aggregation of control and user plane traffic and capabilities necessary to manage large clusters of small cells. It plays functions of data aggregation and forwarding, and S1/X2 proxy

Configuration Flow



HeNB can get the IP address by DHCP and Static assignment.

WAN port is SFP port and is named as ID1 in the Network configuration.

LAN port is Ethernet port and is named ID2 in the Network configuration.

In the DHCP method, can check the HeNB IP address by MAC Scan.

In the static assignment method, configuration procedures are as below:

1. Configure IP address of PC as 192.168.200.100/24
2. Connect to HeNB WAN interface directly, login WebGUI through https
Default maintenance IP address: 192.168.200.200
User name: admin
Password: MikroTik

- Configure HeNB IP address
Configure "Address Type" as "Static"

- Information
- Management
- Cell
- Debug
- Factory
- HeMS
- Network
- Performance
- Security
- Synchronization
- Upgrade
- Access Control
- Data Model

Management -- Network

You can change the IP address, Mac address, MTU of main IP interface.
All the network configures will be effective after rebooting.

IP Interface:

ID:	1		
IPv4:	Address Type:	Static ▼	
	IPv4 address:	10.98.100.127	
	Mask:	255.255.255.0	
IPv6:	Origin:	Disabled ▼	
	IPv6 address:	4001::118	64
Other:	VLAN :	<input type="checkbox"/> Enable	VLANID: <input type="text"/>
	Ethernet:	eth1 ▼	
	Mac address:	74:4d:28:70:27:06	
	MTU:	1500	

Configure "IPv4 address" and "Mask" accordingly.

- Information
- Management
- Cell
- Debug
- Factory
- HeMS
- Network
- Performance
- Security
- Synchronization
- Upgrade
- Access Control
- Data Model

Management -- IP

You can change the IP address, Mac address, MTU of IP interface.
All the network configures will be effective after rebooting.

IP
Route
DNS

IP Interface:

	IPv4			IPv6		Other			
	Address Type	IPv4 address	Mask	Address Type	IPv6 address	VLAN id	Ethernet	Mac address	MTU
<input type="radio"/>	DHCP			Disabled	4001::118/64		eth0	74:4d:28:70:27:06	1500
<input type="radio"/>	Static	192.168.8.248	255.255.255.0	Disabled	4001::119/64		eth1	74:4d:28:70:27:07	1500

- Press "Submit", HeNB will reboot to take configuration into effect.
- Connect the HeNB WAN interface back to LAN.

Login:
Login WebGUI with https.

Backhaul parameter

Configure NME/HeNB-GW IP address:
Path: Management > Cell > S1SigLinkServer.

Information

Management

Cell

Debug

Factory

HeMS

Network

Performance

Security

Synchronization

Upgrade

Access Control

Data Model

AdminState: <input checked="" type="checkbox"/> Enable	EnbType: <input type="radio"/> MACRO ENB <input checked="" type="radio"/> HOME ENB
Duplex Mode: <input type="radio"/> FDD <input checked="" type="radio"/> TDD	TAC: <input type="text" value="10"/>
SecGWServer: <input type="text"/>	Standalone: <input type="checkbox"/> Enable
S1SigLinkServer: 10.98.100.34	S1Status: Indeterminate

PLMNID

Cell1

Cell2

Primary PLMNID No: <input type="text" value="1"/>
PLMNID1: <input checked="" type="checkbox"/> Enable <input type="text" value="00666"/>
PLMNID2: <input type="checkbox"/> Enable <input type="text"/>
PLMNID3: <input type="checkbox"/> Enable <input type="text"/>
PLMNID4: <input type="checkbox"/> Enable <input type="text"/>
PLMNID5: <input type="checkbox"/> Enable <input type="text"/>
PLMNID6: <input type="checkbox"/> Enable <input type="text"/>

Radio network parameter

Configure common radio parameters:
Path: Management > Cell

- Duplex Mode: TDD
- TAC: 10
- PLMNID: 00666

Information

Management

Cell

Debug

Factory

HeMS

Network

Performance

Security

Synchronization

Upgrade

Access Control

Data Model

AdminState: <input checked="" type="checkbox"/> Enable	EnbType: <input type="radio"/> MACRO ENB <input checked="" type="radio"/> HOME ENB
Duplex Mode: <input type="radio"/> FDD <input checked="" type="radio"/> TDD	TAC: <input type="text" value="10"/>
SecGWServer: <input type="text"/>	Standalone: <input type="checkbox"/> Enable
S1SigLinkServer: <input type="text" value="10.98.100.34"/>	S1Status: Indeterminate

PLMNID

Cell1

Cell2

Primary PLMNID No: <input type="text" value="1"/>
PLMNID1: <input checked="" type="checkbox"/> Enable <input type="text" value="00666"/>
PLMNID2: <input type="checkbox"/> Enable <input type="text"/>
PLMNID3: <input type="checkbox"/> Enable <input type="text"/>
PLMNID4: <input type="checkbox"/> Enable <input type="text"/>
PLMNID5: <input type="checkbox"/> Enable <input type="text"/>
PLMNID6: <input type="checkbox"/> Enable <input type="text"/>

Configure Cell 1 radio parameters:

- CellIdentity: 257
- CandidateARFCNList: 38400

Note: EARFCN in Downlink, the Uplink EARFCN will be configured automatically by HeNB.

- CandidatePCIList: 0..503

Note: Range from 0 to 503, HeNB will select PCI automatically.

- FreqBandIndicator: 39
- DL Bandwidth: 100

Note: 20MHz ↔ 100, 15 MHz ↔ 75, 10MHz ↔ 50, 5MHz ↔ 25.

- UL Bandwidth: equal to DL Bandwidth value.
- ReferenceSignalPower: -14

Note: Reference signal power, -14 means (-14+31) 17dBm, max value for product is 9 which will be (9+31) 40dBm.

The screenshot shows the configuration interface for a HeNB. On the left is a navigation menu with categories: Information, Management, Cell (highlighted), Debug, Factory, HeMS, Network, Performance, Security, Synchronization, Upgrade, Access Control, and Data Model. The main area is divided into two sections. The top section contains general settings: AdminState (checked, Enable), EnbType (radio buttons for MACRO ENB and HOME ENB, with HOME ENB selected), Duplex Mode (radio buttons for FDD and TDD, with TDD selected), TAC (text field with value 10), SecGWServer (text field), Standalone (checkbox, not checked), S1SigLinkServer (text field with value 10.98.100.34), and S1Status (text field with value Indeterminate). Below this is a tabbed interface with tabs for PLMNID, Cell1 (selected), and Cell2. The bottom section is a detailed parameter table for Cell 1:

CellIdentity:	257	OpState:	false
UeNumber:	0	VolteUeNumber:	0
CandidateARFCNList:	38400	CandidatePCIList:	0..503
EARFCN DL:	38400	EARFCN UL:	38400
FreqBandIndicator:	39	PhyCellID:	0..63
DL Bandwidth:	100	UL Bandwidth:	100
ReferenceSignalPower:	-14..-10	PAGain:	0
SubFrameAssignment:	2	SpecialSubframePatterns:	7
AntennaPortsCount:	<input type="radio"/> 1 <input checked="" type="radio"/> 2 <input type="radio"/> 4	RxAntennaPortsCount:	<input type="radio"/> 1 <input checked="" type="radio"/> 2 <input type="radio"/> 4

A Submit button is located at the bottom left of the configuration area.

Configure Cell 2 radio parameters:

- CellIdentity: 258
- CandidateARFCNList: 37900

Note: EARFCN in Downlink, Uplink EARFCN will be configured automatically by HeNB.

- CandidatePCIList: 0..503

Note: Range from 0 to 503, HeNB will select PCI automatically.

- FreqBandIndicator: 38
- DL Bandwidth: 100

Note: 20MHz ↔ 100, 15 MHz ↔ 75, 10MHz ↔ 50, 5MHz ↔ 25.

- UL Bandwidth: equal to DL Bandwidth value.
- ReferenceSignalPower: -14

Note: Reference signal power, -14 means (-14+31) 17dBm, max value for product is 9 which will be (9+31) 40dBm.

Information
 Management
Cell
 Debug
 Factory
 HeMS
 Network
 Performance
 Security
 Synchronization
 Upgrade
 Access Control
 Data Model

AdminState: <input checked="" type="checkbox"/> Enable	EnbType: <input type="radio"/> MACRO ENB <input checked="" type="radio"/> HOME ENB
Duplex Mode: <input type="radio"/> FDD <input checked="" type="radio"/> TDD	TAC: <input type="text" value="10"/>
SecGWServer: <input type="text"/>	Standalone: <input type="checkbox"/> Enable
S1SigLinkServer: <input type="text" value="10.98.100.34"/>	S1Status: Indeterminate

PLMNID
Cell1
Cell2

CellIdentity: <input type="text" value="258"/>	OpState: false
UeNumber: <input type="text" value="0"/>	VolteUeNumber: <input type="text" value="0"/>
CandidateARFCNList: <input type="text" value="37900"/>	CandidatePCIList: <input type="text" value="0..503"/>
EARFCNLD: <input type="text" value="37900"/>	EARFCNUL: <input type="text" value="37900"/>
FreqBandIndicator: <input type="text" value="38"/>	PhyCellID: <input type="text" value="0..63"/>
DL Bandwidth: <input type="text" value="100"/>	UL Bandwidth: <input type="text" value="100"/>
ReferenceSignalPower: <input type="text" value="-14..-10"/>	PAGain: <input type="text" value="0"/>
SubFrameAssignment: <input type="text" value="2"/>	SpecialSubframePatterns: <input type="text" value="7"/>
AntennaPortsCount: <input type="radio"/> 1 <input checked="" type="radio"/> 2 <input type="radio"/> 4	RxAntennaPortsCount: <input type="radio"/> 1 <input checked="" type="radio"/> 2 <input type="radio"/> 4

Select the "AdminState" when all the above parameters are well configured.

Note: This is the switch to control the RF function, select enable RF function when all parameters are well configured. Press "Submit", then HeNB will reboot to take configuration into effect.

Checking RF status:

Path: Management > Cell > Cell1 > OpState, Management > Cell > Cell1 > OpState;

Note: "True" means the radio cell was established successfully.

Information
 Management
Cell
 Debug
 Factory
 HeMS
 Network
 Performance
 Security
 Synchronization
 Upgrade
 Access Control
 Data Model

AdminState: <input checked="" type="checkbox"/> Enable	EnbType: <input type="radio"/> MACRO ENB <input checked="" type="radio"/> HOME ENB
Duplex Mode: <input type="radio"/> FDD <input checked="" type="radio"/> TDD	TAC: <input type="text" value="10"/>
SecGWServer: <input type="text"/>	Standalone: <input type="checkbox"/> Enable
S1SigLinkServer: <input type="text" value="10.98.100.34"/>	S1Status: Success

PLMNID
Cell1
Cell2

CellIdentity: <input type="text" value="258"/>	OpState: true
UeNumber: <input type="text" value="0"/>	VolteUeNumber: <input type="text" value="0"/>
CandidateARFCNList: <input type="text" value="37900"/>	CandidatePCIList: <input type="text" value="0..503"/>
EARFCNLD: <input type="text" value="37900"/>	EARFCNUL: <input type="text" value="37900"/>
FreqBandIndicator: <input type="text" value="38"/>	PhyCellID: <input type="text" value="0..63"/>
DL Bandwidth: <input type="text" value="100"/>	UL Bandwidth: <input type="text" value="100"/>
ReferenceSignalPower: <input type="text" value="-14..-10"/>	PAGain: <input type="text" value="0"/>
SubFrameAssignment: <input type="text" value="2"/>	SpecialSubframePatterns: <input type="text" value="7"/>
AntennaPortsCount: <input type="radio"/> 1 <input checked="" type="radio"/> 2 <input type="radio"/> 4	RxAntennaPortsCount: <input type="radio"/> 1 <input checked="" type="radio"/> 2 <input type="radio"/> 4



The device is designed to be used outdoors.

When mounting on the wall or mast, please ensure that cable feed is pointing downwards.

The IPX rating scale of this device is IP66. We recommend using Cat6 shielded cables.

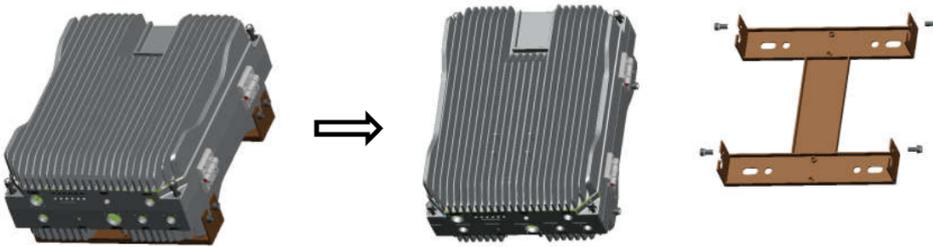
Mounting and configuration of this device should be done by a qualified person.

Package includes mounting parts for pole or wall mounting. Acceptable pole diameter 50 – 120 mm.

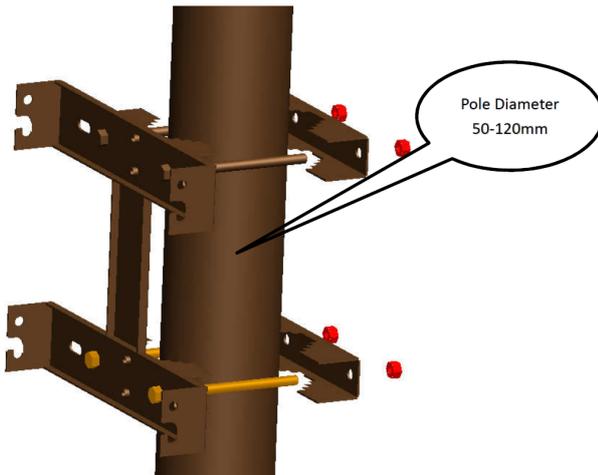
Please note the weight of the device is 25kg!

- Package contains mounting accessories – 4 x fixed plates, 4 x M12 Bolts, 4 x M12 nuts. Use the M12 bolt and guide through the mounting frame, the fixing plate, and the cradle.
- Screw in the four fixing screws near the lower side of the base, leave a 3mm gap for hanging to the mounting frame.
- Install the case at the mount, let the screws on the two sides of the chassis fall into the mounting frame fixing holes. Lock all eight screws and secure them.

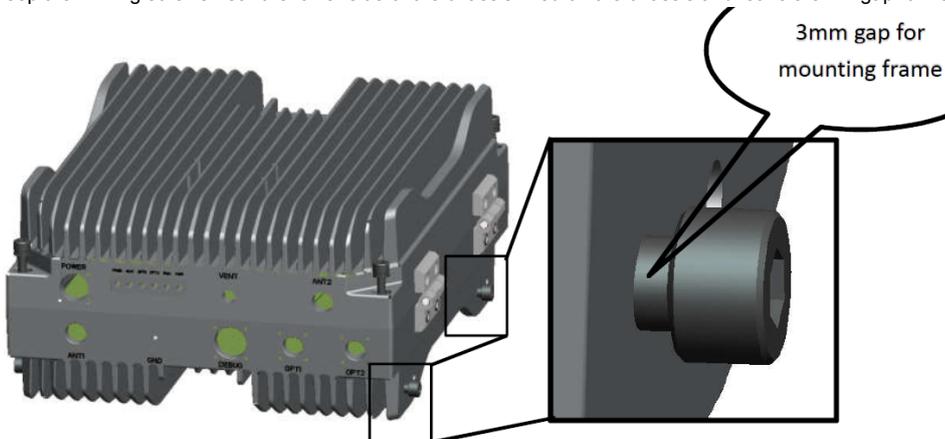
1. Open the packing case and get mounting racks.



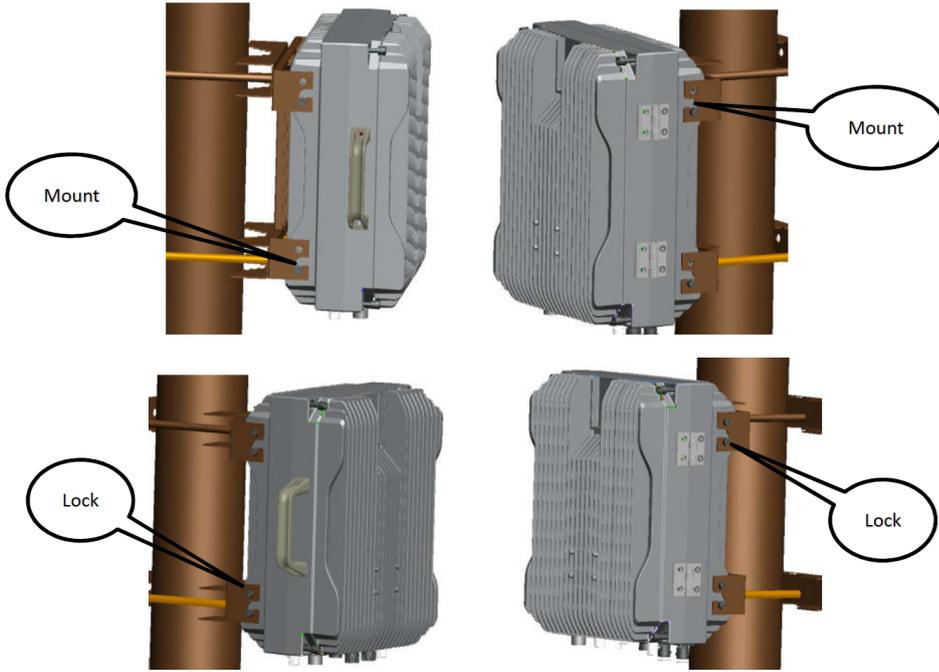
2. Get the pole mounting accessories from the packing case, including 4 fixed plates, 4 M12 bolts, 4 M12 nuts. Guide the M12 bolt through the mounting frame, the fixing plate, cradle and fix it on the cradle as shown in the picture.



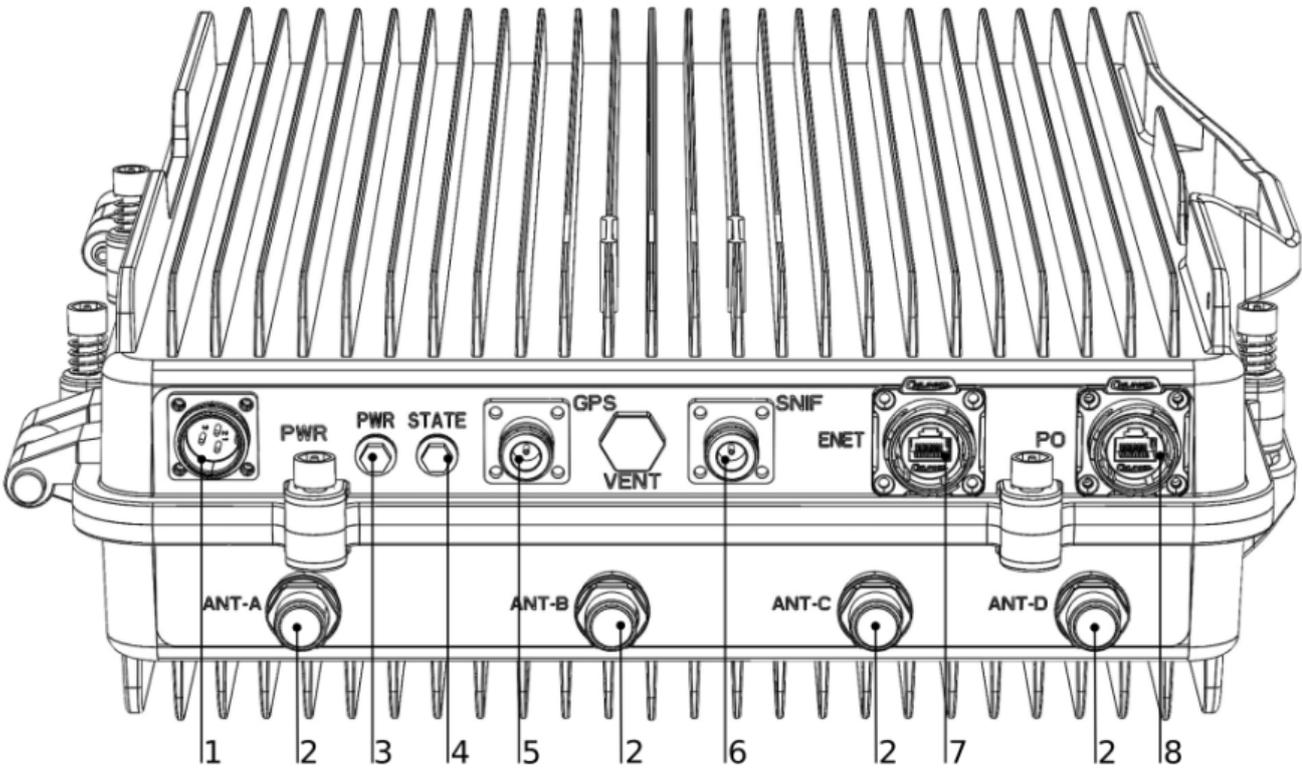
3. Keep the 4 fixing screws near the lower side of the chassis fixed on the chassis and leave a 3mm gap for hanging the mounting frame.



4. Aim the case on the wall mount, let screws on the 2 sides of the chassis fall into the mounting frame fixing holes. Lock all 8 screws to finish.



The installation infrastructure (towers and masts), as well as the router itself, must be properly grounded. Attach your grounding wire to the grounding screw, then attach the other end of the grounding wire to the grounded mast.
Power interface lightning protection – GB/T 17626.5, IEC61000-4-5.



- 1. Power supply connector.
- 2. Antenna connectors.
- 3. LED indicating power.
- 4. LED indicating activity.
- 5. GPS antenna connector.

6. SNIFF antenna connector.
7. Ethernet port connector.
8. SFP connector.

-
- Standard TDD bands 38 and 39.
 - The peak data rate of each carrier (20MHz).

-DL 140 Mbps (256QAM,SF2).
-UL 30Mbps (64QAM,SF1).

- The peak data rate of carrier aggregation (20MHz).

-DL 280 Mbps (256QAM,SF2).
-UL 60Mbps (64QAM,SF1).

- Maximum 2*196 RRC connected users and 2 * 96 active users.
- GPS, 1588v2, Network Listening.
- 1 RJ45 Gigabit Ethernet, 1 optical SFP.
- 6 RF(4*ANT, SNF, GPS/BD).
- Max output power 40 ± 1dBm / antenna.
- All IP based backhaul, many IP backhails methods can be used, including RJ45 Ethernet, SFP.

Frequency Bands B38:2570MHz-2620MHz, B39:1880MHz-1920MHz, channel bandwidth 5/10/15/20 MHz.

Package includes the following accessories that come with the device:

- Power cable with a plug (PSU not included);
- SFP – S-31DLC20D, <https://mikrotik.com/product/S-31DLC20D-181>
- Ethernet cable navigation plug, RBGESP - <https://mikrotik.com/product/rbgesp#fndtn-specifications>
- Converter (N/SMA-JK);
- Lightning protection for GPS and Sniffer connectors;
- Installation bracket;
- Large pole installation accessories.

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

The device supports Intercell HeNB software. RouterOS are not supported.

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

