



# **User Manual for Lemko EZ LTE**

## **Product**

Lemko Corporation

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# **1 Product Overview**

## **1.1 Product Orientation**

Lemko is a high-tech company dedicated in wireless broadband access solutions and service operation. With the advent of the Internet+ era, the development of WBB is imminent. Through continuous innovation, Lemko launches the world first mobile broadband system based on the Internet architecture and unlicensed spectrum.

Lemko can provide a wide range of base stations, including Micro, Pico, Femto, Smart Site and other series to be applied in various scenarios, indoor and outdoor on different spectrums.

EZ LTE product is adopting TDD-LTE technology, designed for implementing industry broadband data access. EZ LTE can support backbone network access by way of wired or wireless backhaul to realize various data service conversion and transmission functions. EZ LTE can be deployed outdoors, and widely used by telecom operators, broadband operators; in enterprise private network, power private network, port private network, video monitoring and wireless broadband coverage in rural areas and other fields.

## **1.2 Product Features**

EZ LTE is designed according to the simplicity principle, which can evolve in a short period and realize fast customization, delivery and deployment as well. The main features of EZ LTE are as follows:

- Based on 3GPP international standard TDD-LTE technology; provide high speed data service; support a maximum transfer rate of DL: 110Mbit/s, UL: 20Mbit/s;
- Support frequency spectrum 3.65GHz (spectrums can be customized);
- Support flexible uplink and downlink time slot ratio: 0(3:1), 1(2:2), 2(1:3), realize high speed data transmission;
- Support 10MHz, 20MHz operation bandwidth;
- Easy to deploy and install;
- Built-in DHCP Server, DNS Client and NAT function, provide a strong high speed routing ability;
- Rich security service to provide timely protection against potential security risks and illegal intrusion;

- Centralized network management, easy to maintain and realize automatic start after installation;
- Adopt Web management, convenient and simple;
- Small and exquisite in size, attractive and dedicate in appearance. The access point will draw people's attention in the first sight with its outstanding industrial design, frosted shell and user friendly LED indicator light, making it easier to observe the device working condition;

### 1.3 Product Description

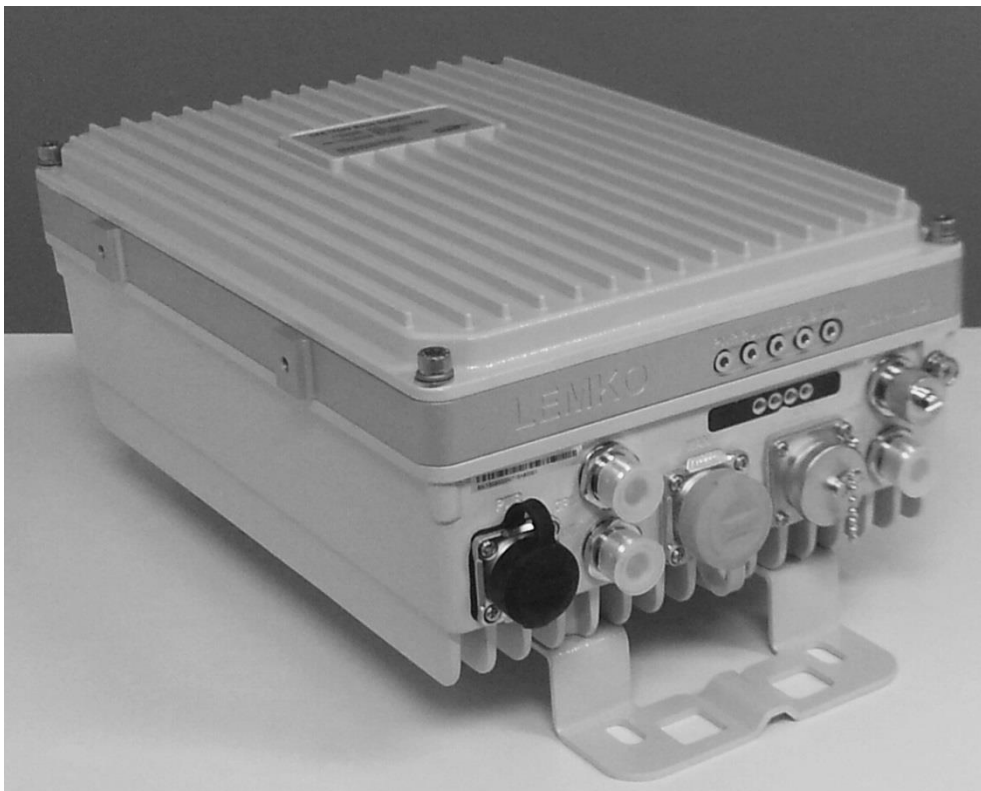
EZ LTE outdoor access point product is shown in Figure 1-1:

**Figure 1-1** EZ LTE product description

Product	Description	Maximum Power
EZ LTE	3.65G LTE TDD outdoor micro base station	2*1W

### 1.4 Product Appearance

Diagram 1-1 Appearance of EZ LTE outdoor station



Interface specifications of EZ LTE outdoor access point are shown in Figure 1-2.

**Figure 1-2** Interfaces of EZ LTE outdoor station

Interface	Description
PWR	Power interface: +48V DC (+42V~+58V)
LAN	Gigabit Ethernet debug port (not connected)
WAN	Gigabit Ethernet WAN port, used for external IP backbone transmission network
GPS	External GPS antenna, N-Female screw(not connected)
ANT1	External antenna interface 1, N-Female screw
ANT2	External antenna interface 2, N-Female screw
SNF	External sniffer interface, N-Female screw

EZ LTE outdoor access point has several indicators. The indicator functions are defined and described in Figure 1-3 and Figure 1-4:

**Figure 1-3** Function definition of EZ LTE-eNodeB outdoor access point indicator lights

Indicator	Color	Status	Meaning
PWR	Green light	On	Access point power-on
		Off	No power input
RUN	Green light	On	Access point operation
		Off	No power input or power fault
ALM	Red light	On	Hardware alarm, e.g. VSWR alarm
		Off	No alarm
ACT	Green light	On	The transmitting channel works normally (Standard: The community can build channels or the transmitting channel is open).
		Off	The transmitting channel works abnormally (for example, the transmitting channel is closed).

**Figure 1-4** Function definition of EZ LTE-EPC outdoor *access* point indicator lights

Indicator	Color	Status	Description
PWR	Green light	On	EPC power-on
		Off	No power input
RUN	Green light	On	All processes are working
		Off	One or all processes are not working
MME	Green light	On	System up
		Off	System down
ENB	Green light	On	Connected to EPC
		Off	Not connected to EPC
WAN	Green light	On	Ethernet WAN port available
		Off	Not available

## 2 Technical Specifications

### 2.1 Hardware Specifications

**Figure 2-1** Hardware specifications of EZ LTE outdoor station

Item	Description	
Working Mode	LTE TDD	
Working Frequency	3650MHz~3700MHz	
Working Bandwidth	10MHz/20MHz	
External Interfaces	PWR interface: 1	
	WAN interface	
	Electrical Port : 1, RJ45	
	LAN interface: 1, RJ45	
	GPS interface: 1 N-Female	
	Antenna interface: 2 N-Female	
	SNF interface: 1 N-Female	
Indicator	PWR	1, green light, Access point power status indicator
	RUN	1, green light, Access point operation status indicator
	ALM	1, red light, Access point alarm status indicator
	ACT	1, green light, transmitting channel status indicator



Max Tx Power	33dBm
Receiving Sensitivity	1. 10MHz: -100dBm 2. 20MHz: -97dBm
Synchronization Mode	Support GPS, 1588V2, OTA (same or different frequency)
MIMO	2*2MIMO
Backhaul Mode	Wired backhaul: Ethernet
Installation Method	Tower-mounted
Antenna	External high-gain antenna
Power Consumption	<65W

## 2.2 Software Specifications

**Figure 2-2** Software specifications of EZ LTE outdoor station

Item	Description
Technical Standard	LTE TDD 3GPP Release 9
Business Capability	32 concurrent users, 96 connection users
Maximum Throughput	DL: 110Mbps@20MHz    UL: 20Mbps@20MHz DL: 55Mbps@10MHz    UL: 7Mbps@10MHz
Scheduling Mode	Based on QoS scheduling
Modulation Mode	Support: BPSK, QPSK, 16QAM, 64QAM
Voice Solution	Support CSFB, VoLTE, SRVCC
Traffic Offload	Support LIPA/SIPTO, which is Local IP Access, Selected IP Traffic Offload for short(optional)
SON	Self-organizing network: support plug and play, automatic start, optimization and configuration
RAN Sharing	Support
Network Management Interface	Support TR069 interface protocol
Northbound Interface	Support: Web Service, Socket, FTP and other interface modes
Operation & Maintenance	1. Support local maintenance 2. Support remote maintenance 3. Support online status management 4. Support performance statistics 5. Support failure management 6. Support configuration management 7. Support local or remote software upgrade and load 8. Diary





	9. Support connectivity diagnosis 10. Support automatic start and configuration 11. Alarm reporting: support lower machine broken alarm, high and low temperature alarm, weak wireless signal alarm report
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## 2.3 Environment Specifications

**Figure 2-3** Environment specifications of EZ LTE outdoor station

Item	Description
Temperature	Working temperature: -35 ℃ to 55 ℃ Storage temperature: -40 ℃ to 70 ℃
Humidity	5% ~ 100%
Temperature Change Rate	1 ℃ /min
MTBF	≥150000 hours
MTTR	≤1 hour

## 3 Product List

**Figure 3-1** List of EZ LTE outdoor access point products

Accessories	Quantity	Notes
EZ LTE	1	Standard configuration, check whether the frequency is consistent with the required.
Warranty	1	Standard configuration
User Manual	1	Standard configuration

## 4 Antennas Information

Following is the list of antennas certified for use. Customers can choose according to use environment of different antenna.

Antenna Type	Manufacturer	Model Number	Max Gain (dBi)
External Planar Antenna Dual Pole	Kenbotong Technology Co., Ltd.	KBT90DP16-3338AT0	16
External Planar Antenna Dual Pole	Kenbotong Technology Co., Ltd.	KBT90DP14-3338AT0	14
External Planar Antenna Dual Pole	Alpha Wireless	AW3372	11
External Omnidirectional Antenna Single Pole	Alpha Wireless	AW3374	7
External Omnidirectional Antenna Single Pole	Kenbotong Technology Co., Ltd.	TQJ-3500AC10	10
External Omnidirectional Antenna Single Pole	Kenbotong Technology Co., Ltd.	TQJ-3500AC7	7
External Omnidirectional Antenna Single Pole	Kenbotong Technology Co., Ltd.	TQJ-3500AT6A	6



## 5 Maximum Output Power

The maximum output power can be set as follows:

Max Gain (dBi)	10Log (Number of antennas)	Channel BW (MHz)	Max power output (dBm)	EIRP (dBm)
16	3	10	21	40
		20	24	43
14		10	23	40
		20	26	43
11		10	26	40
		20	29	43
7		10	30	40
		20	33	43
10		10	27	40
		20	30	43
7		10	30	40
		20	33	43
6		10	30	39
		20	33	42

## 6 FCC Compliance

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.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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 or more 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.



#### Warning

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 50 cm between the radiator & your body.

#### **FCC ID: QRB-EZLTE3652X1**

A representative image of the FCC Identification label is shown below.

