

KONA Enterprise Gateway

Highly Optimized Cost-Effective Gateway for Enterprise Deployments

The KONA Enterprise LoRaWAN® is very compact and lightweight, comes with integrated Cat-6 3G/4G modem and Ethernet backhaul. The LoRaWAN, 3G/4G and GPS antennas are integrated within the enclosure. For remote applications and extra flexibility it also supports optional external LoRaWAN and 3G/4G Antennas.

- Outdoor Network Coverage
- In-building Networks
- Warehouses
- Commercial Farming
- University Campuses
- Multi-building Complex
- Parkades
- Medium Sized Private Developments



Key Software Features

- » Access Control Management
- » Cellular Parameter Configuration
- » Radio Configuration and Control
- » Remote Software Upgrades
- » Active and Passive Image Management
- » DHCP v4 Client
- » TFTP Server
- » HTTP Server
- » Firewall and Access Lists

Key Hardware Features

- » Time Duplex 8 Rx / 1 Tx
- » 3G / 4G Cat-6 Modem
- » IEEE 802.3af PoE or Passive PoE at 37 to 57 VDC
- » IP67 Outdoor Design
- » Built-in LoRaWAN, 3G/4G & GPS Antennas
- » Optional external LoRaWAN and 3G/4G Antennas
- » Pole, Wall, Tower Building DIN Rail Mounting Options

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Technical and Functional System Specifications

Mechanical Parameters

MTBF	450,000 hours
DC Power Consumption	< 7 W
Operational Temperature	-40°C to +60°C
Operational Humidity	10% to 100% Condensing
Ingress Protection	IP67
Size	145.81 x 178.78 x 79.5 mm
Weight	1.2 kg

LoRa Radio Parameters

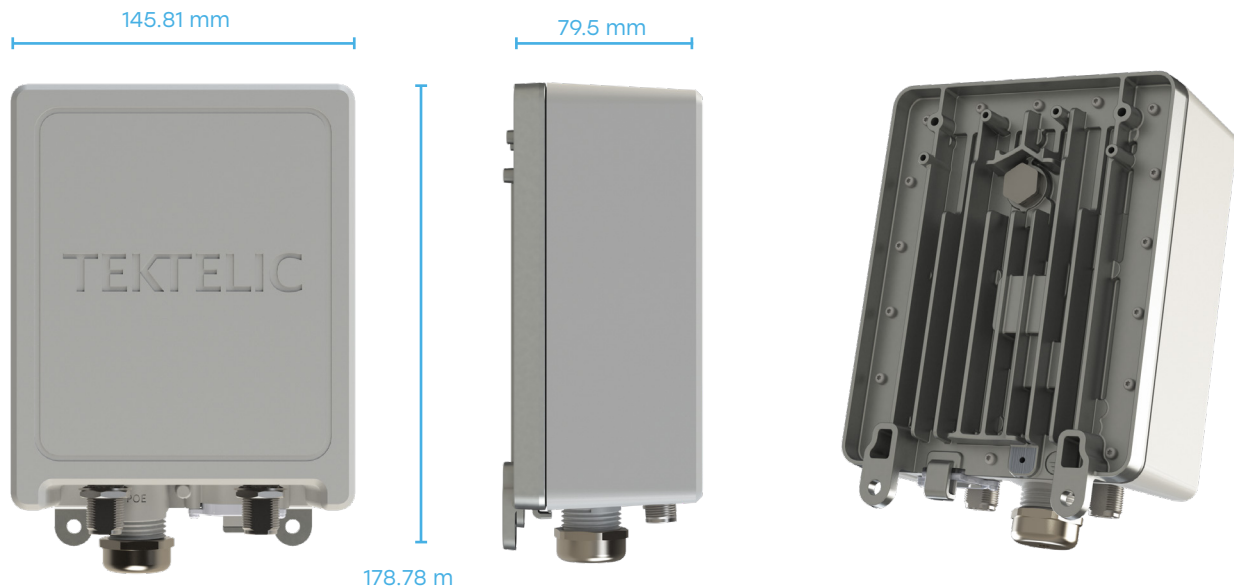
ISM Bands	All Global Bands
Tx Power	14 dBm to 27 dBm
Rx Sensitivity	-139.5 dBm (SF12, 293 bits/sec)
Rx Noise Figure	2.5 dB
Rx Linearity	-5 dBm
Rx Dynamic Range	70 dB Analog, 100+ dB Digital

Interfaces

Ethernet Backhaul	RJ-45 (10/100 BaseT)
Cellular Backhaul (3G/4G)	Internal with optional External
LoRa Antenna	N-Type
Power	802.3af PoE or Passive PoE at 37 to 57 VDC

Regulatory Compliance

Safety	IEC 62368-1 (CE)
Environmental	ETSI EN 300 019-2
Regulatory	ETSI EN 55022 Class B
	ETSI EN 55024
	ETSI EN 300 489-1/-3



TEKTELIC Communications is a premier supplier of best-in-class LoRaWAN® IoT Gateways, Sensors, and custom applications. These elements combined provide a powerful end-to-end solution that can be easily, quickly, and cost effectively deployed to address the most demanding IoT challenges.

For more information please visit www.tektelic.com

Kona Mega Ex IoT Gateway

Scalable Zone 2/ATEX Rated LoRaWAN® Gateway for Extreme Outdoor Deployments

TEKTELIC's **KONA Mega Ex IoT Gateway** provides network operators with a carrier grade product for the deployment of LoRaWAN® Internet of Things networks in an ATEX or Zone 2 (Class I, Division II) classified location. The Gateway enables massive scalability in a compact form factor by supporting up to 12 million messages per day. Rated IP67 and ATEX/Zone 2 certified, the gateway is designed for the most demanding outdoor installations where combustible gasses, vapours or liquids may be present.

It is ideal for public and private network operators that require Full Duplex, multiple Rx and Tx Channels, rugged industrial design and reliable LoRaWAN® gateways to maximise their network investment.



Key Product Differentiators

- » High availability carrier grade design with support of in-service configuration and software updates.
- » Certified for ATEX/Zone 2 Classified Deployments.
- » Full duplex operation making all receive and transmit channels available simultaneously.
- » Excellent isolation between the Tx and Rx bands as well as out of band rejection of Cellular and Paging networks.
- » Day-One scalability with support of up to 12 million received messages per day.
- » Easy to deploy supporting different backhaul and power options.
- » Fully integrated with the broader eco-system of LoRa® network servers and sensors.

Key Features

- » Frequency Duplex 72 Rx / 4 Tx
- » ATEX/Zone II Certified
- » Double Simultaneous Tx Channels
- » High Linearity LNA/Receiver
- » Integrated Bandpass Filter
- » Precise Network Synchronization (GPS)
- » Integrated GPS Holdover
- » 1 Watt (30 dBm) Tx Power
- » Geolocalization Support
- » Hardened Carrier Grade Enclosure
- » Integrated Cellular 3G/4G Modem
- » Ethernet Backhaul
- » Rated IP67 Enclosure
- » All Global ISM Bands

KONA Mega Ex IoT Gateway

Scalable Zone 2/ATEX Rated LoRaWAN® Gateway for Extreme Outdoor Deployments

Technical and Functional System Specifications

Mechanical Parameters

MTBF	450,000 hours
DC Power Consumption	< 40 W
Operational Temperature	-40°C to +60°C
Operational Humidity	10% to 100% Condensing
Ingress Protection	IP67
Size	222.2 x 267.6 x 101 mm
Weight	5 kg
Volume	5.5 L

LoRa Radio Parameters

ISM Band	All Global Bands
Tx Power	2 x 1W (2 x 30 dBm)
Rx Sensitivity	-142 dBm (SF12, 293 bits/sec)
Rx Noise Figure	3.5 dB
Rx Linearity	-10 dBm
Rx Dynamic Range	70 dB Analog, 100+ dB Digital
Tx to Rx Isolation	75 dB

Software and Management

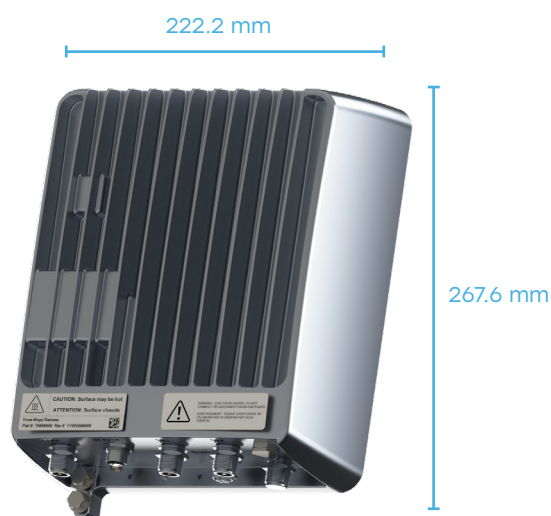
Tools	Access Control List management
	3G/4G Parameter Configuration
	System Health Monitor
	Flight Recorder
	Radio Configuration and Control
	Remote Software Upgrade
	Active and Passive image management
Networking	Factory image provisioning
	DHCPv4 client
	TFTP server
	HTTP server
	Firewall and Access Lists

Interfaces

Ethernet Backhaul	RJ-45
GPS	N-Type
Cellular Backhaul (3G/4G)	N-Type (Optional)
LoRa Antenna	N-Type
Power	-48V DC or POE ++ (802.3bt)

Regulatory Compliance

Safety	Canada/USA Division Marking Class I Div 2 group A B C D T6 Class II Div 2 Group F G T6	CSA C22.2 No. 213 UL 12.12.01: 2017
	Canada/USA Zone Marking Class I Zone 2 AEx ec (Ic) IIC T6 Gc Class I Zone 2 AEx nA (Ic) IIC T6 Gc Class II Zone 22 AEx tc (Ic) IIIC T85°C Dc	CSA C22.2 No. 60079 0, UL 60079 0 CSA C22.2 No. 60079 7, UL 60079 7 CSA C22.2 No. 60079 11, UL 60079 11
IECEX Marking Ex ec (Ic) IIC T6 Gc Ex tc (Ic) IIIC T85°C Dc		IEC 60079-0 IEC 60079-7 IEC 60079-11 IEC 60079-31
ATEX Marking <Ex> II 3 G Ex ec (Ic) IIC T6 Gc <Ex> II 3 D Ex tc (Ic) IIIC T85°C Dc		EN 60079-0 EN 60079-7 EN 60079-11 EN 60079-31
Temperature Marking -40°C to +60°C		60079-0
Environmental	ETSI EN 300 019-2	
Regulatory	FCC Part 15.247, 109, 209	
	ETSI EN 55022 Class B	
	ETSI EN 55024	
	ETSI EN 300 489-1/-3	



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IoT products

New MikroTik IoT products – Internet of things has never been so affordable

MikroTik is bringing you new, powerful IoT products for the fraction of the cost you would expect.

R11e-LR8/R11e-LR9 – a new Concentrator Gateway card for LoRa® technology in mini PCIe form factor based on Semtech SX1301 chipset. It enables LoRa® connectivity for any MikroTik product that has mini PCIe slot with connected USB lines.

With the support of 8 different channels, Listen Before Talk (LBT) and spectral scan features this product will astound you with its enticing price point.

Price: \$89

See device specifications on page 3



wAP LR8/LR9 kit – an out-of-the-box solution to use gateway solution for LoRa® technology. This kit contains a pre-installed UDP packet forwarder to any public or private LoRa® servers and an outdoor weatherproof wireless access point with 2.4 GHz WLAN interface and Ethernet port that could be used as a backend.

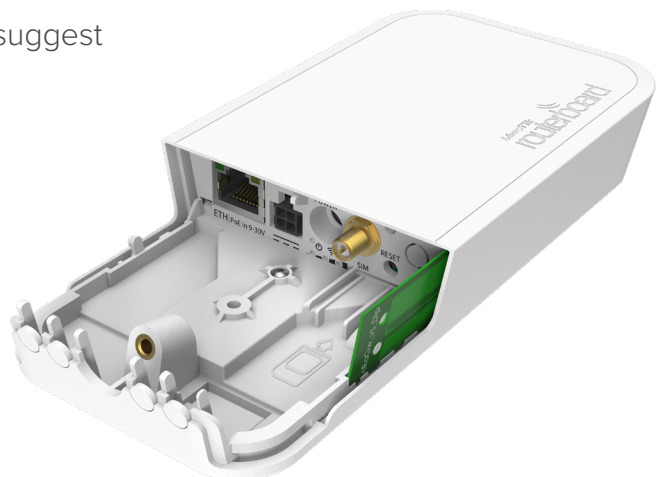
This particular wAP form-factor has been tested in many other MikroTik products – it can deliver excellent and stable performance in almost any weather conditions.

You can use the optional internal 2 dBi antenna or attach an external antenna. For extra network coverage we suggest adding Antenna kit for LoRa®.

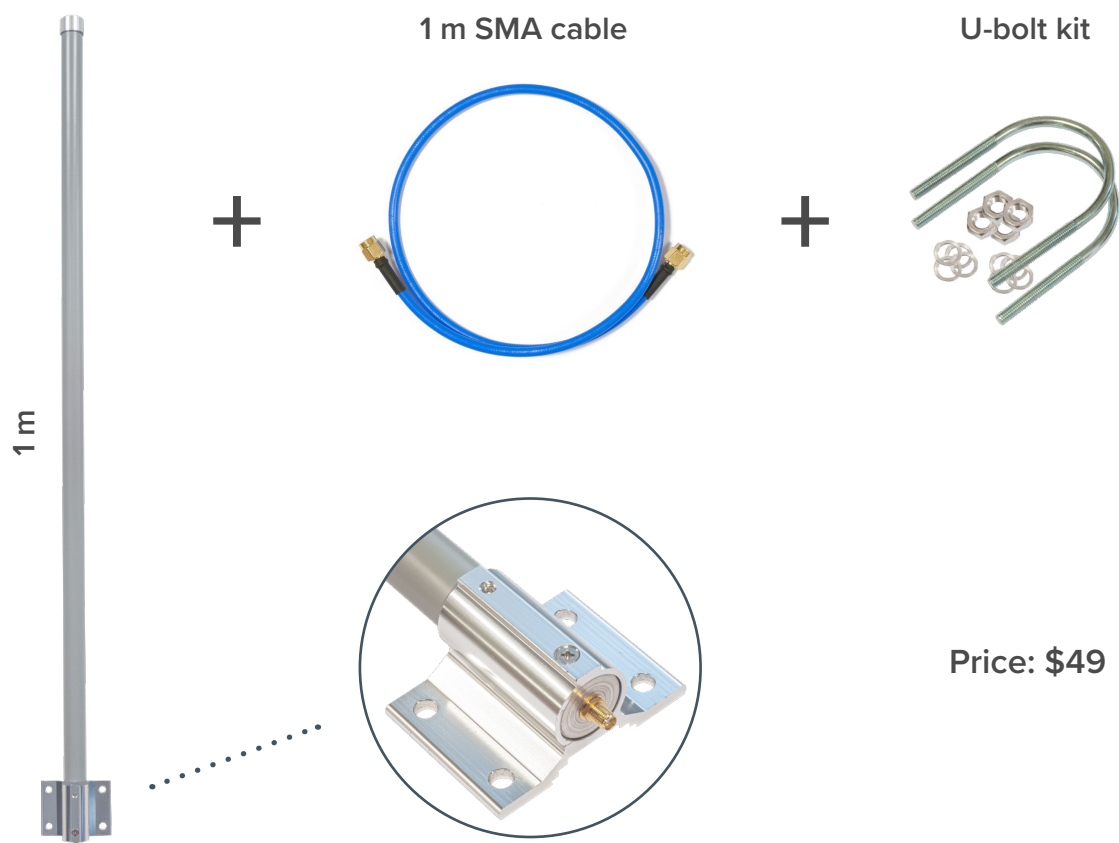
Functional and non-intrusive design, astonishing durability and great value – that is the wAP LR8 kit, the long-awaited solution for LoRa® technology for all level enthusiasts of any level.

Price: \$169

See device specifications on page 3

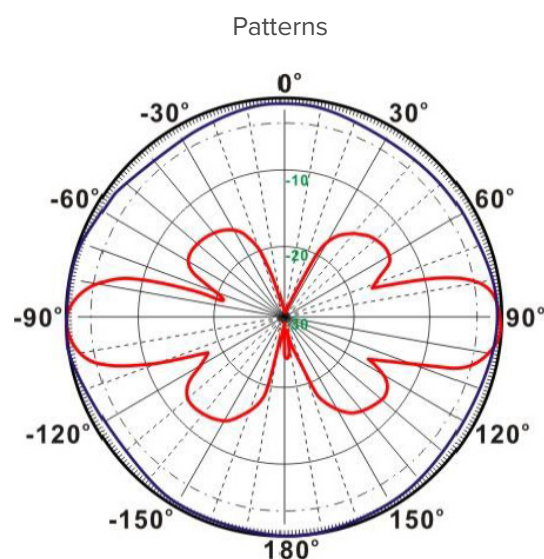


Antenna kit for LoRa® with a 6.5 dBi Omni antenna for 824-960 MHz, 1 m long SMA cable and mechanical holder for quick and easy mast attachment – when you need that extra network coverage.



Antenna kit for LoRa® specifications

Product code	TOF-0809-7V-S1
Frequency	824 - 960 MHz
Gain	6.5 dBi
Horizontal beamwidth	360°
Vertical beamwidth	30°
Nominal impedance	50 Ω
Lightning protection	DC ground
Connector	SMA female
Weight	0.6 kg
Dimensions	Ø 25 x 950 mm
Mast diameter	Ø 30 - 50 mm



R11e-LR8/R11e-LR9 specifications



Product code	R11e-LR8	R11e-LR9
Interface	Mini-PCIe	
Supported class	A and C	
Frequency	863-870 MHz (EU863-870, RU864-870, IN865-867)	902-928 MHz (AU915-928, US902-928, AS923, KR920-923)
RF Output power	863-870 MHz 20 dBm	902-928 MHz 23 dBm
Receive max sensitivity	-137 dB @ SF12	
Range	Up to 15 km in rural environment and up to 2 km in urban environment when using MikroTik LoRa® 6.5 dBi antenna kit	
Operating ambient temperature	-40°C .. +70°C	
Max power consumption	2 W	

wAP LR8/LR9 kit specifications



Product code	RBwAPR-2nD&R11e-LR8	RBwAPR-2nD&R11e-LR9
CPU	QCA9531 650 MHz	
Size of RAM	64 MB	
10/100 Ethernet ports	1	
Wireless	Built-in 2.4 GHz 802.11b/g/n, dual-chain	
Antenna gain	2 dBi	
PoE in	Yes	
Supported input voltage	9 V - 30 V (Passive PoE)	
Dimensions	185 x 85 x 30 mm	
Operating ambient temperature	-40°C .. +60°C	
Operating system	RouterOS, License level 4	
Max power consumption	7 W	

Wireless specifications

Rate (2.4 GHz)	Tx (dBm)	Rx (dBm)	Rate (2.4 GHz)	Tx (dBm)	Rx (dBm)
1MBit/s	22	-96	54MBit/s	18	-74
11MBit/s	22	-89	MCS0	20	-93
6MBit/s	20	-93	MCS7	16	-71



LtAP LR8 LTE kit

LtAP LR8 LTE - a compact all-in-one solution with LTE, GPS and wireless support for LoRa® in a rugged heavy-duty case.

Brand new:

affordable LTE
connectivity for LoRa®



All-in-one:
High-speed LTE, GPS,
Internet-of-things



2.4 GHz AP in a
rugged heavy-duty
case



3 MiniSIM slots –
perfect for roaming



Many powering options,
including automotive



Ready for “The Things
Network” integration

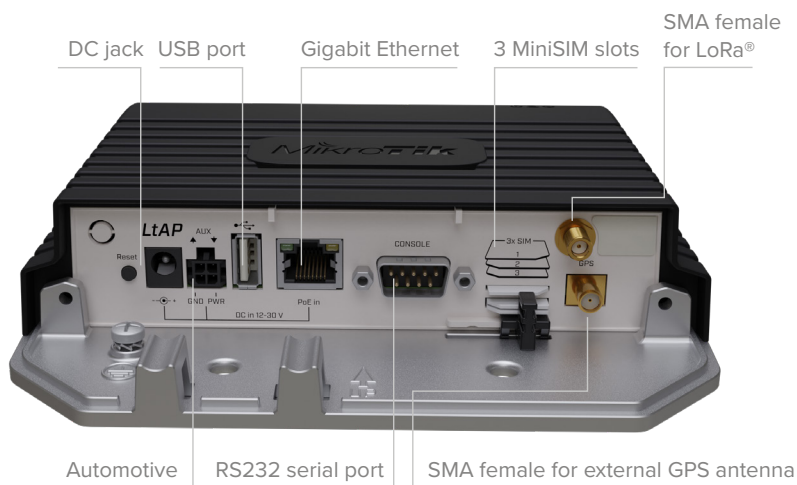
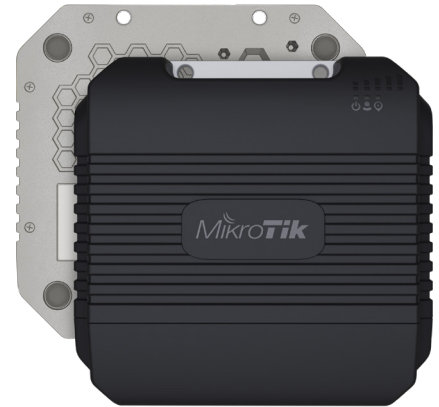


Gigabit Ethernet
with PoE-in



Extreme versatility with the
powerful RouterOS

Inside the heavy-duty case, there is a powerful 2.4 GHz wireless access point with a Gigabit Ethernet port, built-in GPS and two internal LTE antennas. There are two miniPCle slots – one is used for the LTE modem, the other one is populated with the concentrator gateway card for LoRa® technology.



There are three powering options: DC jack, PoE-in and automotive. We have even seen users powering the LtAP with a 20 000 mAh power bank throughout the day!

Internet-of-things has never been so affordable

To fully understand what this device can do, we need to talk about Internet-of-things. Let's start with an example. Imagine a farmer who has cattle, an irrigation system for the crops, and storage for the goods. On a day-to-day basis he needs to:

- track the animals;
- monitor the grain stock level;
- control the irrigation system.

For all these tasks the farmer can use low-cost wireless sensors. By connecting them to the LtAP - he can gather the real-time data, combine it with the location information of the vehicle, and send it to the cloud via high-speed LTE. Now all the information he needs to monitor and plan the growth of his farms is in one place. So simple and so handy.

The wireless technology behind this is called LoRa®, which stands for Long Range. It requires very low power. That's why LoRa® is the best way to build your Internet-of-things solutions. LoRa® can be used for anything from smart homes to agriculture, supply chains, logistics and even smart cities. Monitor parking spaces, track utility services, measure environmental data and so on - the possibilities are endless.