

*MikroTik*

MUM Vietnam  
Ho Chi Minh City  
January 2019



What do we do?

We create networks

Our products include

RouterOS

built and advanced for more than 20 years

RouterBOARD

Wireless outdoor, indoor, Ethernet routers

CRS

Switches with RouterOS

CSS

Switches with SwOS



- Established 1996
- RouterOS created in 1997
- RouterBOARD created in 2002
- First MUM event in Prague 2006
- MUM Indonesia 2018 had over 3700 people
- 31 events in 2018





Iceland

Finland

Sweden

Russia

Norway

Estonia

Denmark

Lithuania

LATVIA

Ireland

United Kingdom

Kazakhstan

Netherlands

Belarus

Poland

Belgium

Germany

Ukraine

Luxembourg

Czech Republic

Slovakia

France

Switzerland

Liecht.

Austria

Hungary

Moldova

Romania

Georgia

Azerbaijan

France

Austria

Hungary

Slovenia

Croatia

Armenia

Monaco

Bosnia and Herzegovina

Serbia

Bulgaria

Portugal

Andorra

San Marino

Montenegro

Albania

Macedonia

Iran

Spain

Italy

Vatican City

Greece

Turkey

Syria

Iraq

**STAFF**

Look for MikroTik staff in the red t-shirts

Edmunds Aperans (sales and training)

Pauls Jukonis (technical support)

Martins Strods (technical support)



# Agenda

**Presentations**

**09:00**

**Lunch**

**12:00**

**Presentations**

**13:30**

**Lottery**

**17:00**

**Beer and soft drinks**

**17:30**

[mt.lv/agenda](http://mt.lv/agenda)

# MUM Live

[www.youtube.com/mikrotik](http://www.youtube.com/mikrotik)

# Special Thanks



AD.TEK

**Some of our latest products**

1Gbit  
over wireless

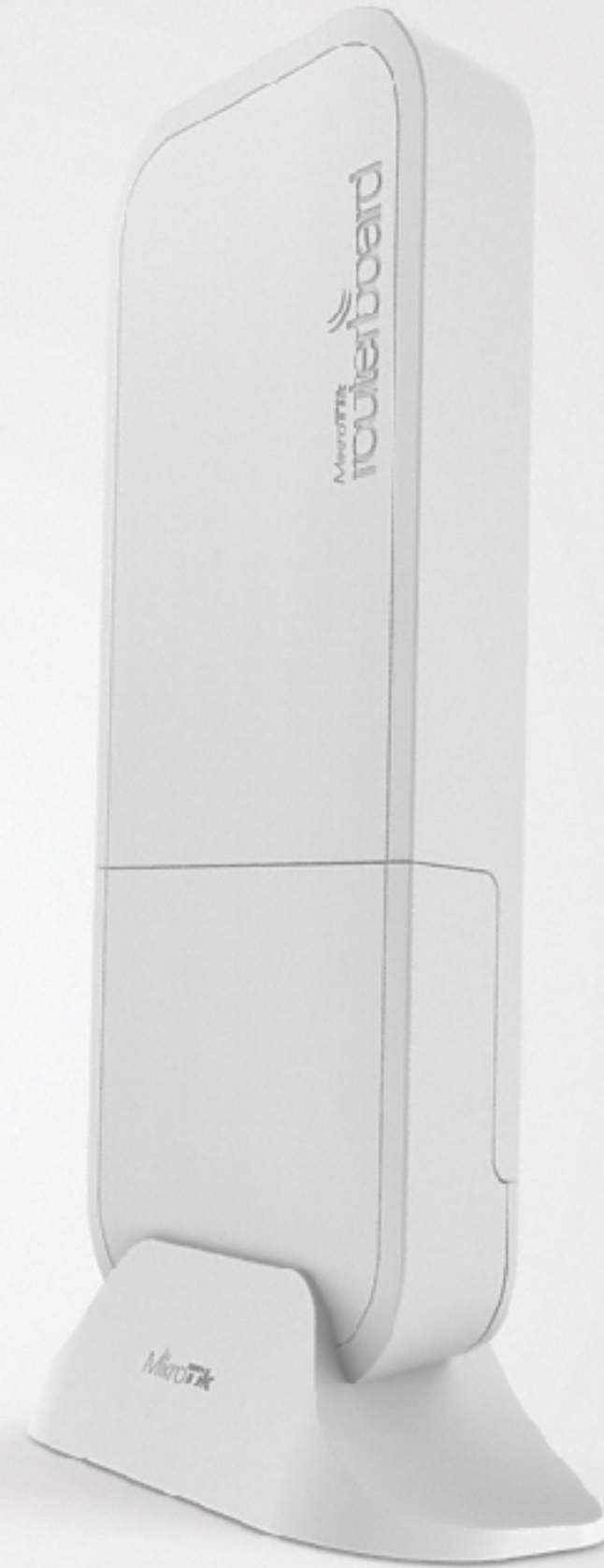
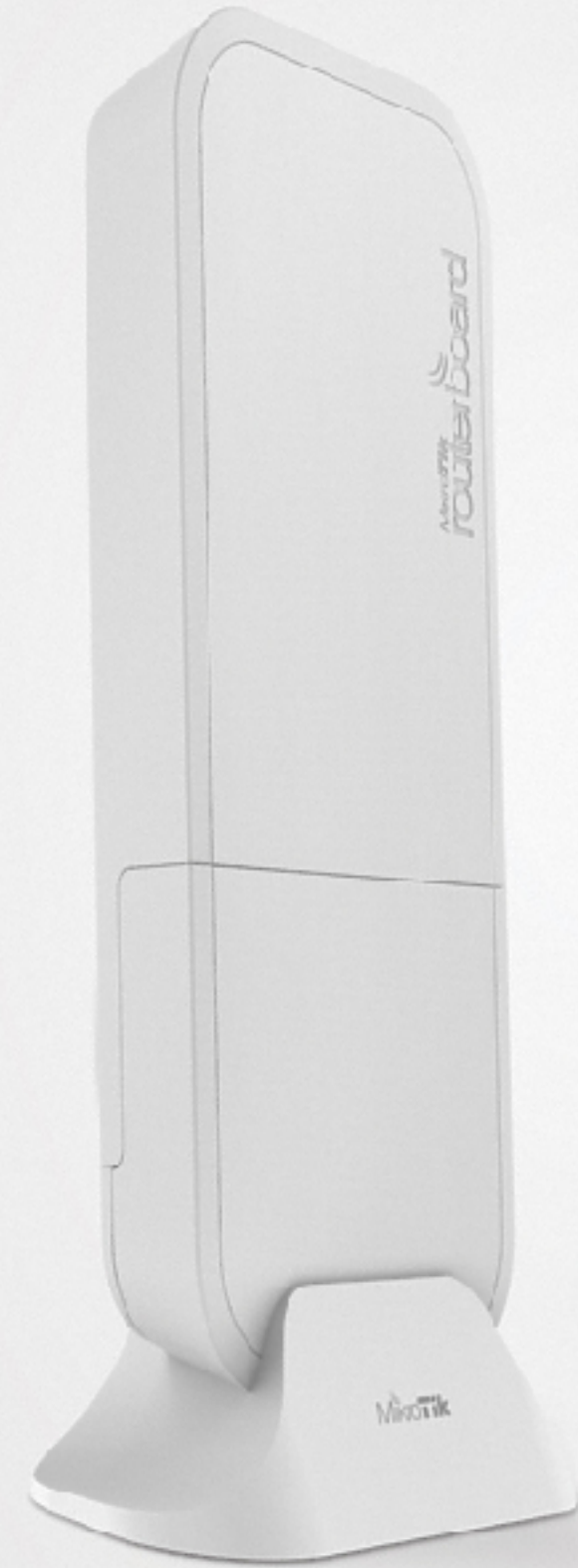
100m+  
range

60GHz  
radio

Gigabit  
Ethernet

Paired  
Secure Link  
preconfigured

Powered by  
AF/AI/Passive  
PoE, DC jack



MikroTik

Wireless Wire

# Wireless Wire

- 1 Gbps full duplex without wires
- For distance 200 meters +
- 60 GHz beam-forming
- Paired secure link preconfigured
- IPsec encryption
- \$198 kit



# Wireless Wire Dish

Two LHG60G devices for long range | Gbit

# LHG 60G

- 1 Gbit full duplex (wire speed)
- Works in 60 GHz spectrum
- Familiar LHG design
- Quad-core ARM CPU
- Low cost and low weight
- Targeted for 1.5 km and more!
- IPsec encryption
- Kit price \$298
- Lite version available \$99 (single unit)





# SXTsq Lite60

- 60 GHz CPE
- SXTsq design
- 100 Mbps Ethernet
- For distance 200 meters +
- Price \$69



# MikroTik 60GHz Products

PtP Link Distances at Full Speed

<b>LHG 60G</b>	<b>1500+ meters</b>	<b>LHG 60G</b>
<b>LHG 60G</b>	<b>800+ meters</b>	<b>wAP 60G</b>
<b>LHG Lite60</b>	<b>800+ meters</b>	<b>wAP 60G</b>
<b>SXTsq Lite60</b>	<b>200+ meters</b>	<b>wAP 60G</b>
<b>wAP 60G</b>	<b>200+ meters</b>	<b>wAP 60G</b>

# LtAP mini

- 2.4 GHz AP in a rugged case
- miniPCIe for LTE
- Built-in GPS
- Optional external antennas for GPS and LTE
- Serial port
- Perfect for outdoor and mobile applications

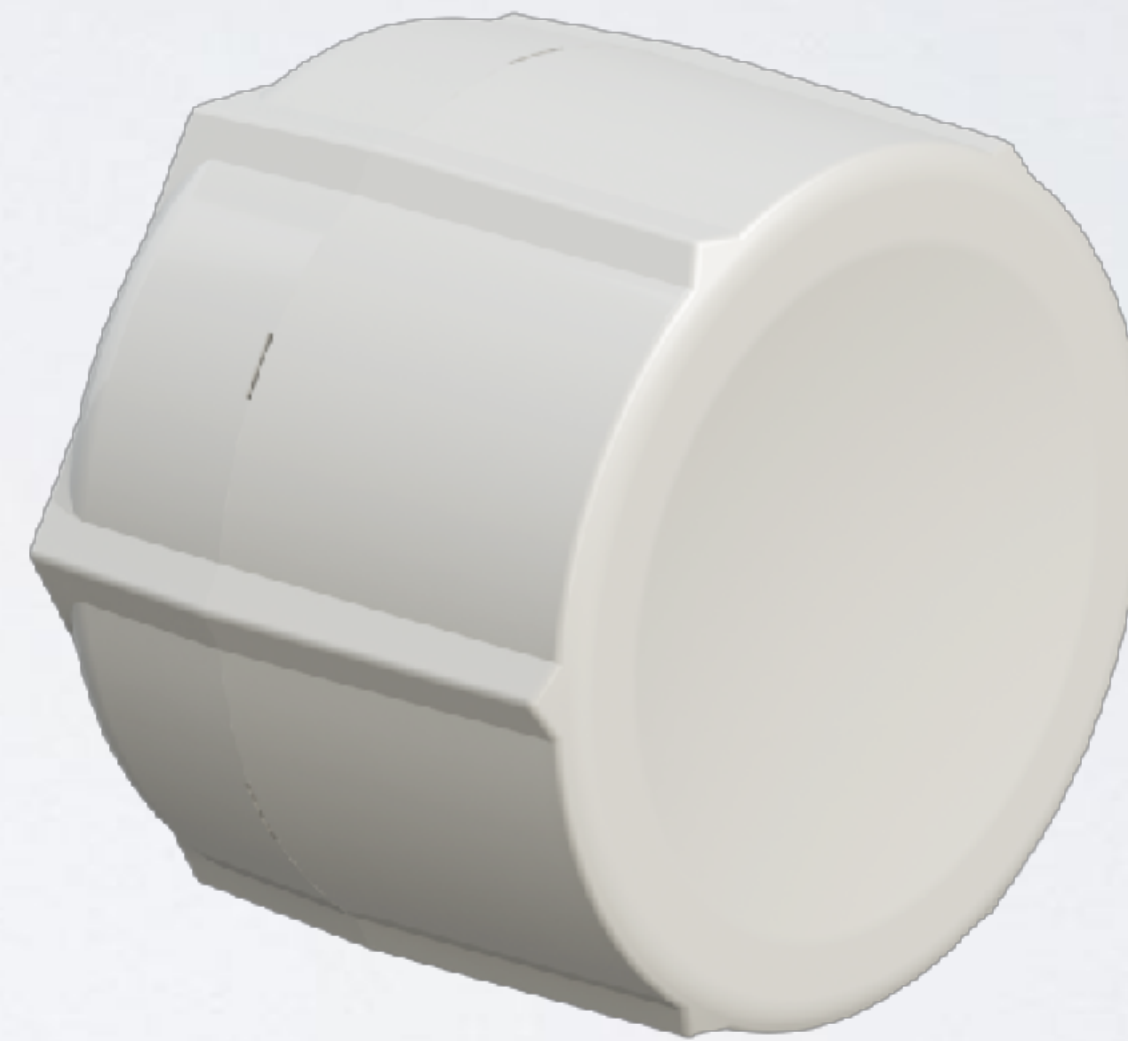




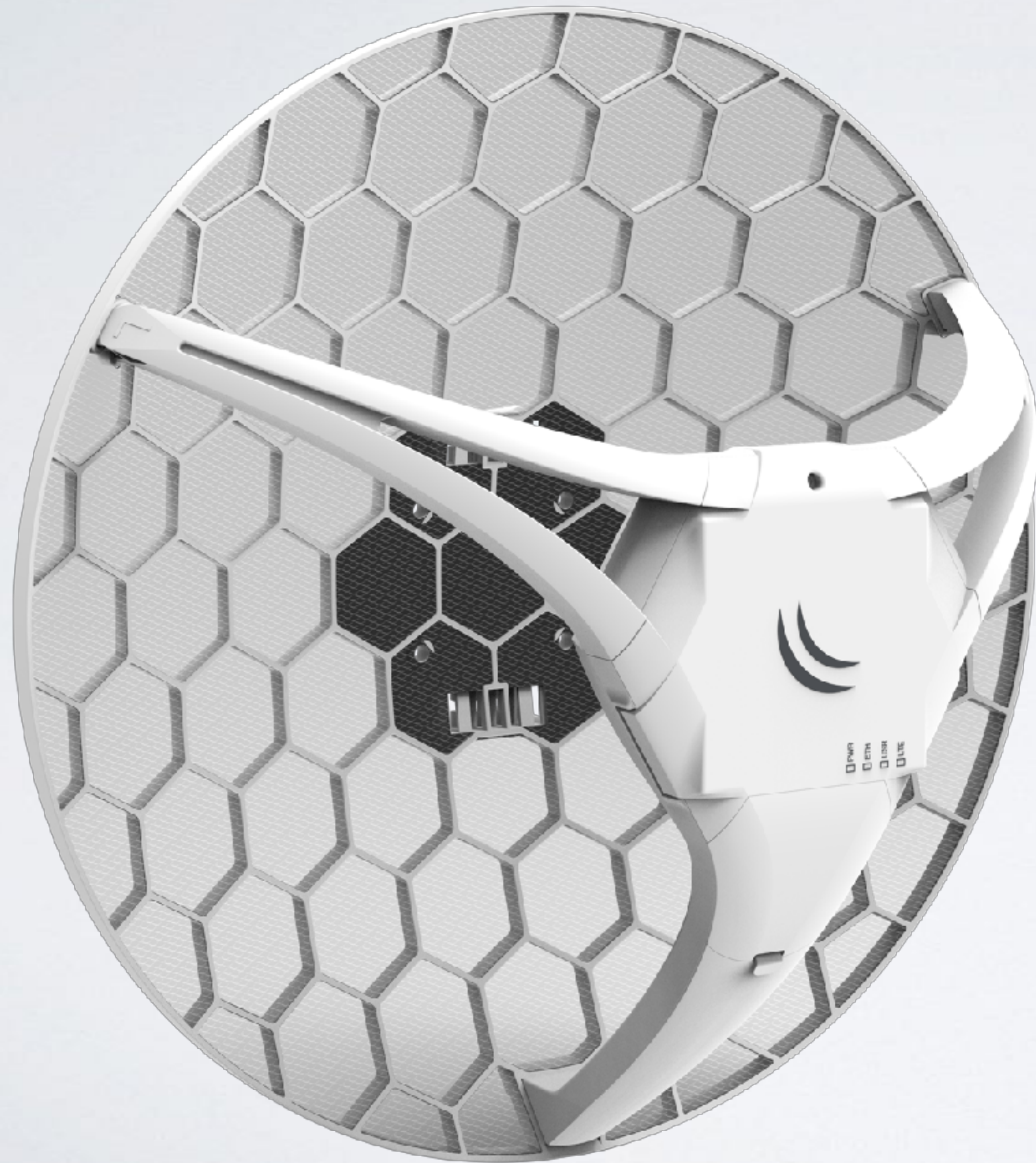
- 89\$ without module
- 129\$ with LTE (US version available) module

# SXT LTE kit

- Dual SIM
- LTE card built-in
- 2x Ethernet
- PoE out
- International LTE bands  
1,2,3,7,8,20,38 and 40
- US bands 2,4,5 and 12
- Kit price \$129

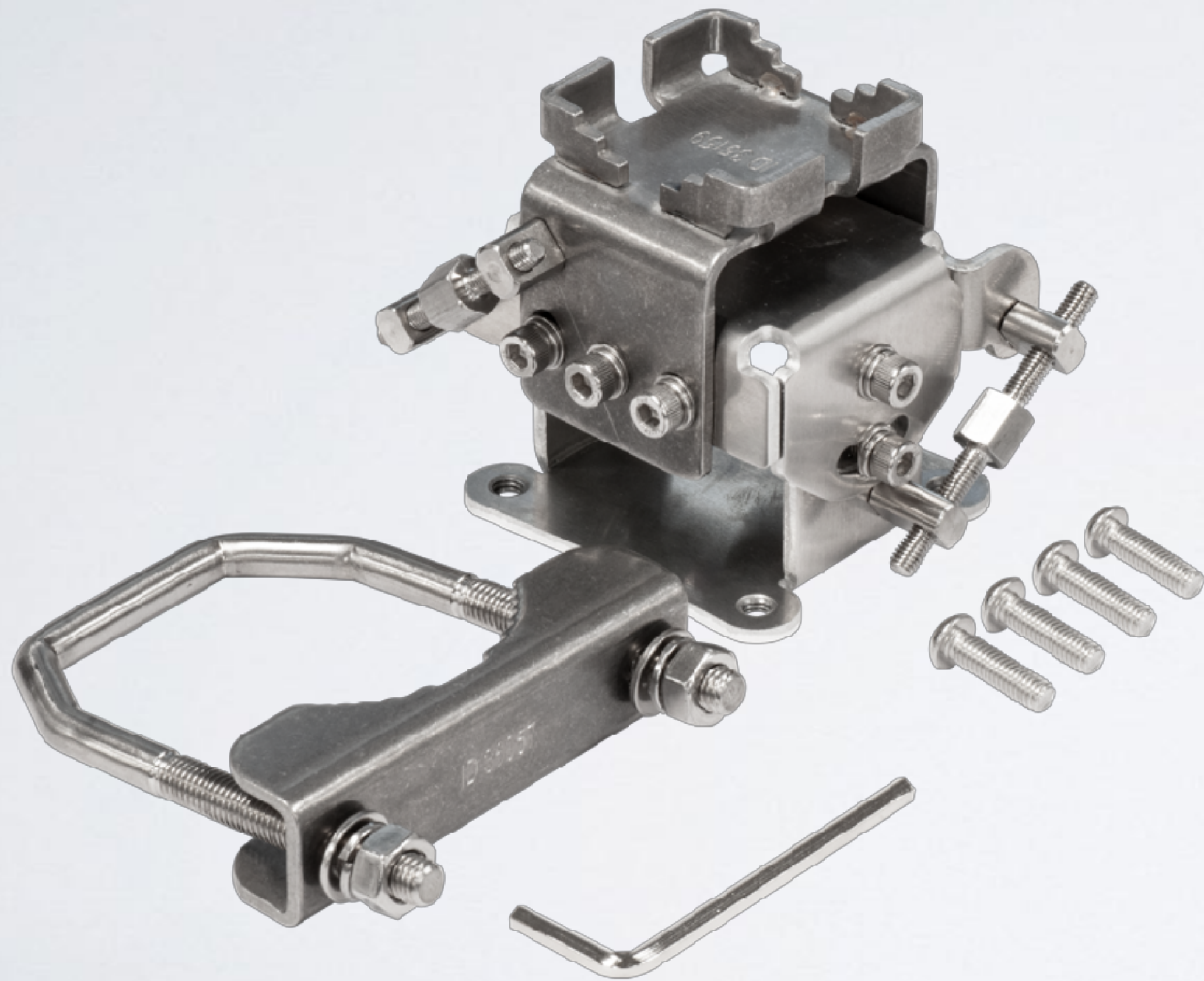


# LHG LTE kit



- LTE built-in modem
- 17 dBi, 25 angle
- 4 category (150 Mbps/50 Mbps) LTE
- 3G - R7/R8
- For long distances
- Kit price \$159

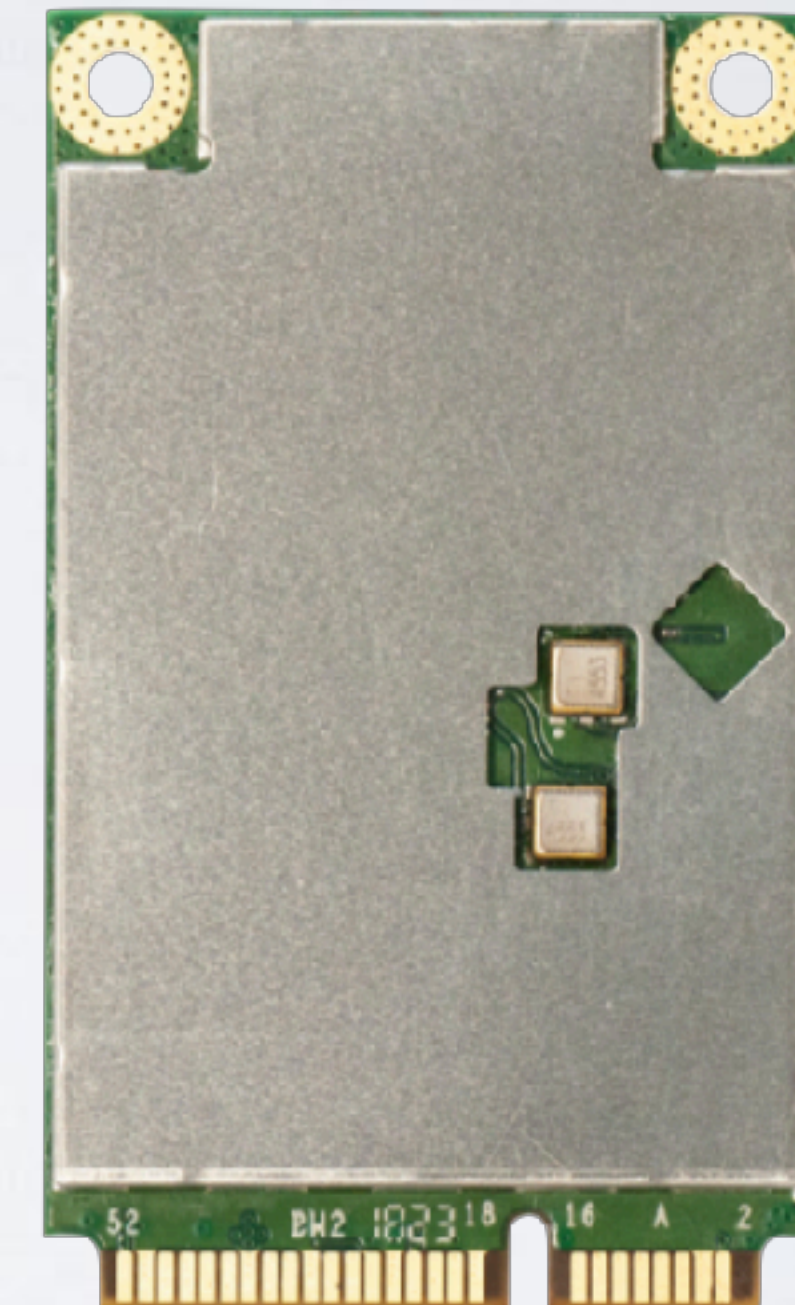
# solidMOUNT



- Allows vertical and horizontal adjustments
- Supports all LHG series (including LHG XL)
- Made from metal
- Includes U-bolt and mounting kit
- \$29

# R11e-4G

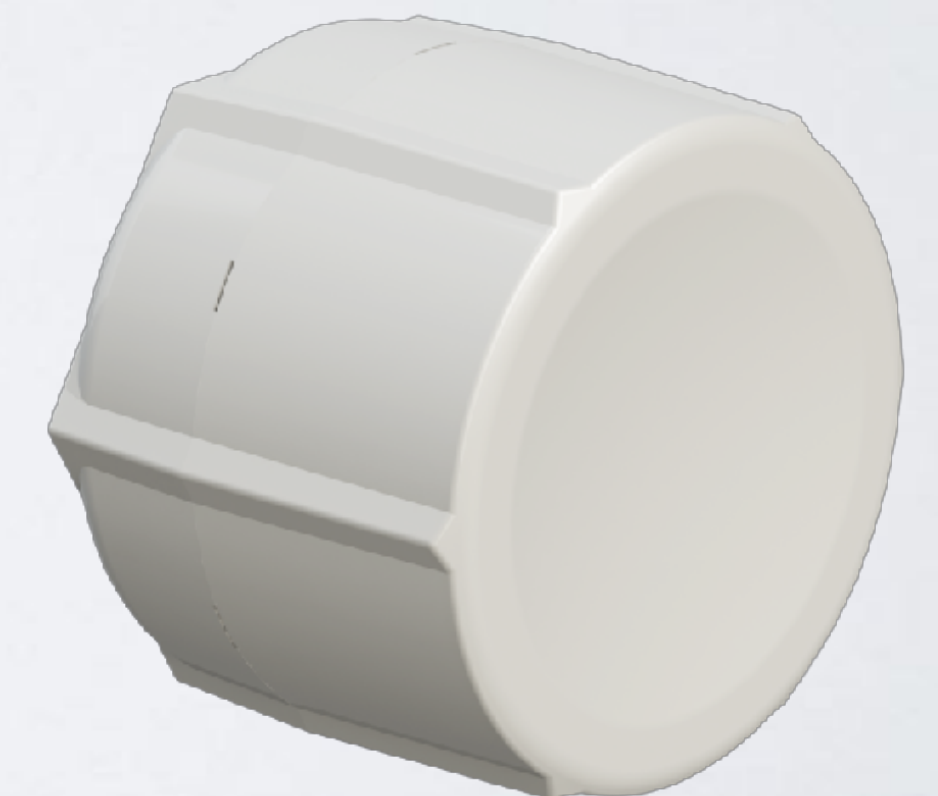
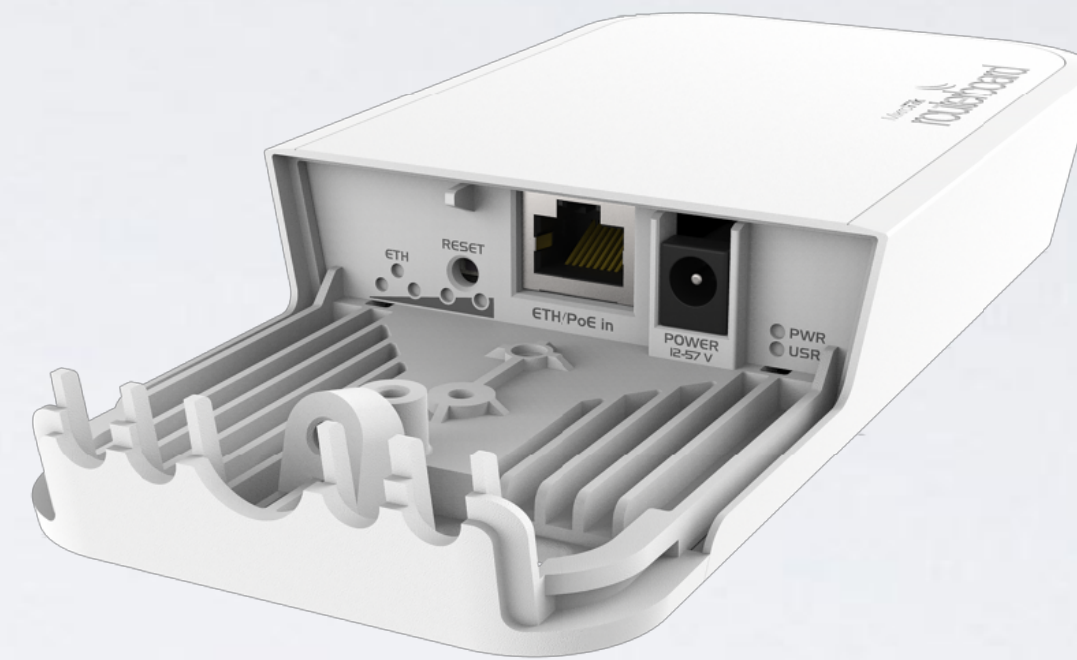
- 4G Modem (no 2G/3G)
- 4 Category (150Mbps/50Mbps)
- 3,7,20,31 FDD bands
- 41n,42,43 TDD bands
- \$79





# 4G kits

- wAP 4G kit \$129
- LtAP mini 4G kit \$139
- SXT 4G kit \$139
- LHG 4G kit \$169



# hAP ac<sup>2</sup>

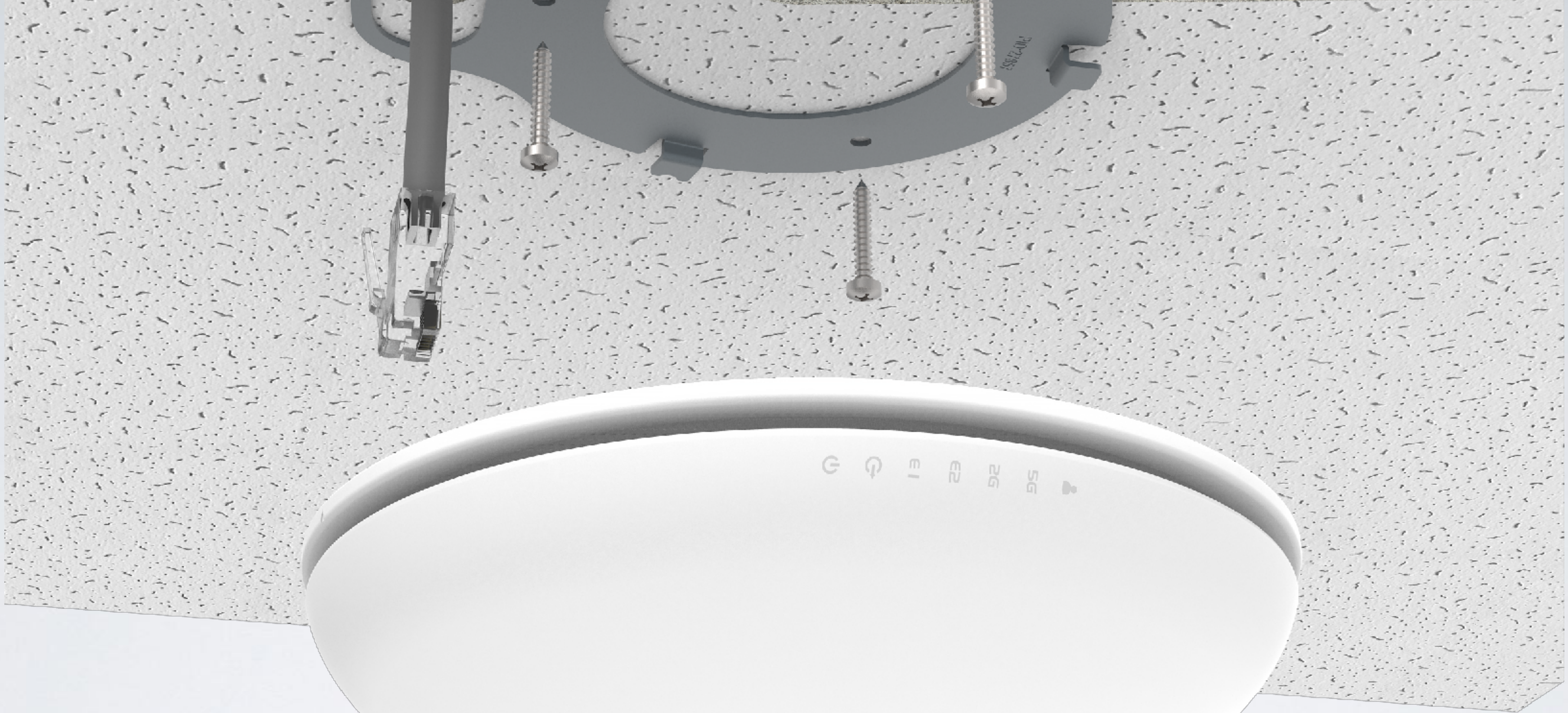
- Quad core 716 MHz
- Gigabit ports
- Dual chain, dual band
- IPsec hardware encryption
- Same small size as "lite" model
- Kit price \$69



# cAP ac

- Quad core 716 MHz
- Dual band, dual chain
- Gigabit port for 802.11ac speeds
- Two Ethernet ports
- PoE out
- Two cases included
- IPsec hardware encryption
- Kit price \$69

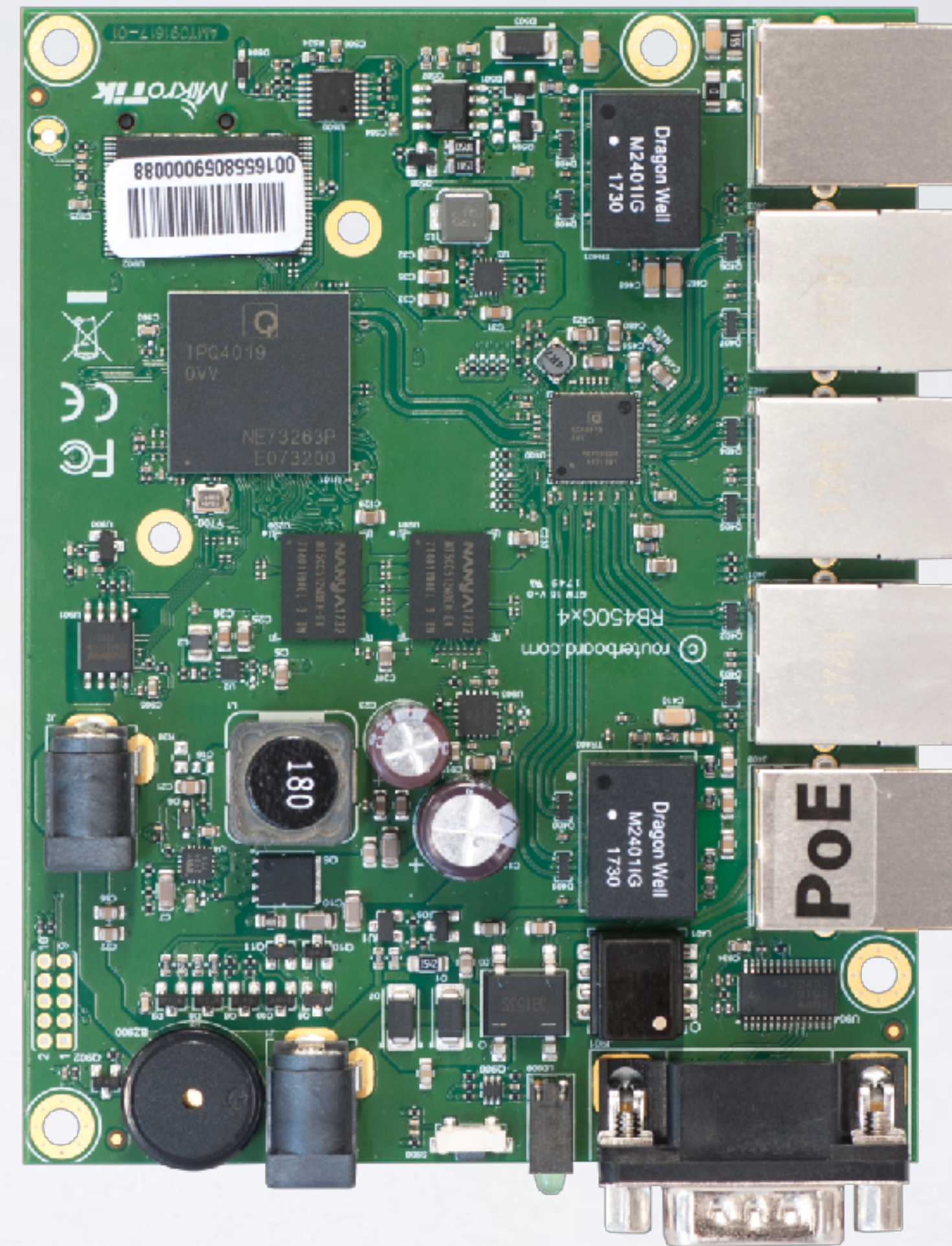






# 450Gx4

- Quad core 716 MHz
- 1 GB of RAM
- IPsec hardware encryption
- PoE out
- microSD
- 10V - 57V dual input
- Price \$99



# hEX S

- Dual-core 880 MHz
- 256 MB of RAM
- Full size USB
- 1.25 Gbps SFP
- 10V - 57V PoE in and out
- IPsec hardware encryption
- Price \$69



# SXTsq Lite 2

- 2 GHz CPE
- Slim design
- Low price
- Price \$39





# LDF 2

- 2 GHz CPE
- Mounts in regular satellite dish
- Ultra long range
- Price \$39



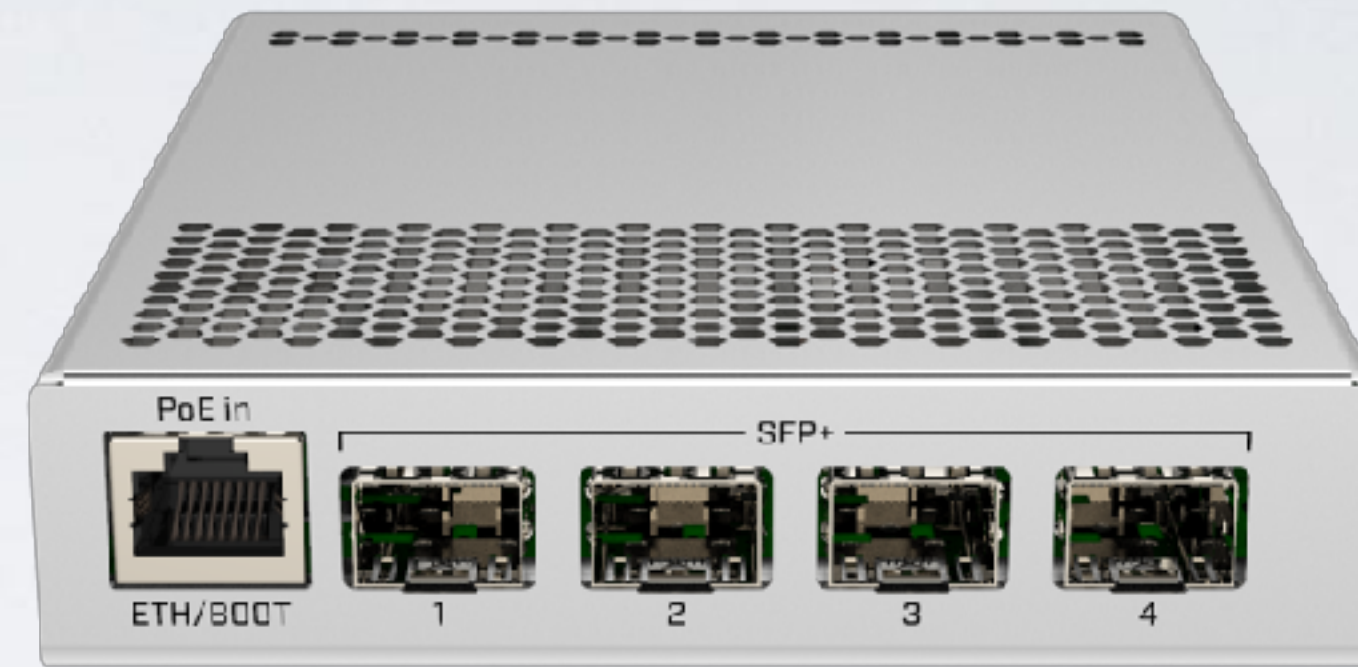
# mANTBox2 12s

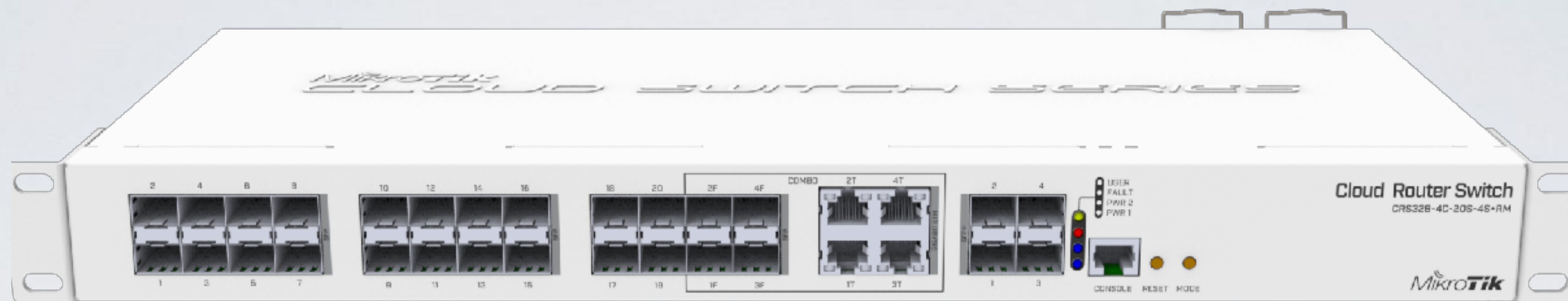
- 2 GHz sector antenna
- 12 dBi
- RouterBOARD built-in
- Price \$99



# CRS305-1G-4S+IN

- 4x SFP+ ports
- 1x Gigabit Ethernet
- Metallic enclosure
- Dual DC jacks
- Kit price \$149





# CRS328-4C-20S-4S+RM

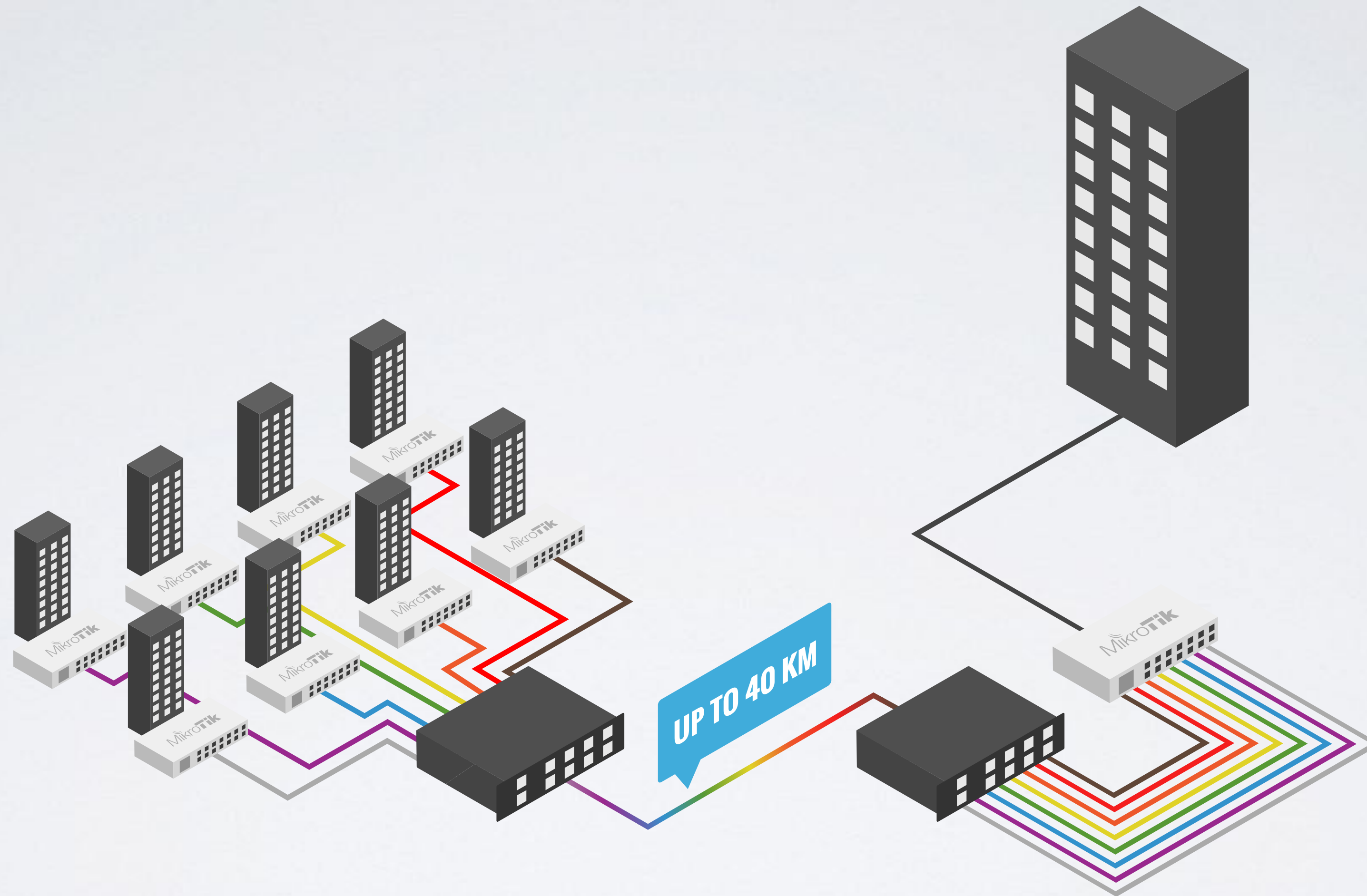
- 20x SFP ports
- 4x ETH/SFP combo ports
- 4x SFP+ ports
- Dual PSU
- Kit price \$369

# CWDM

- Passive MUX/DEMUX unit
- Combine up to eight Fiber links into one
- Supports both SFP and SFP+
- Price \$359



# CWDM



# RouterBOARD 4011



# RouterBOARD 4011

- 4 Core Cortex A15 CPU
- 10 Gigabit SFP+
- IPsec hardware encryption
- 1 GB RAM
- PoE out
- Price \$199





# RouterBOARD 4011

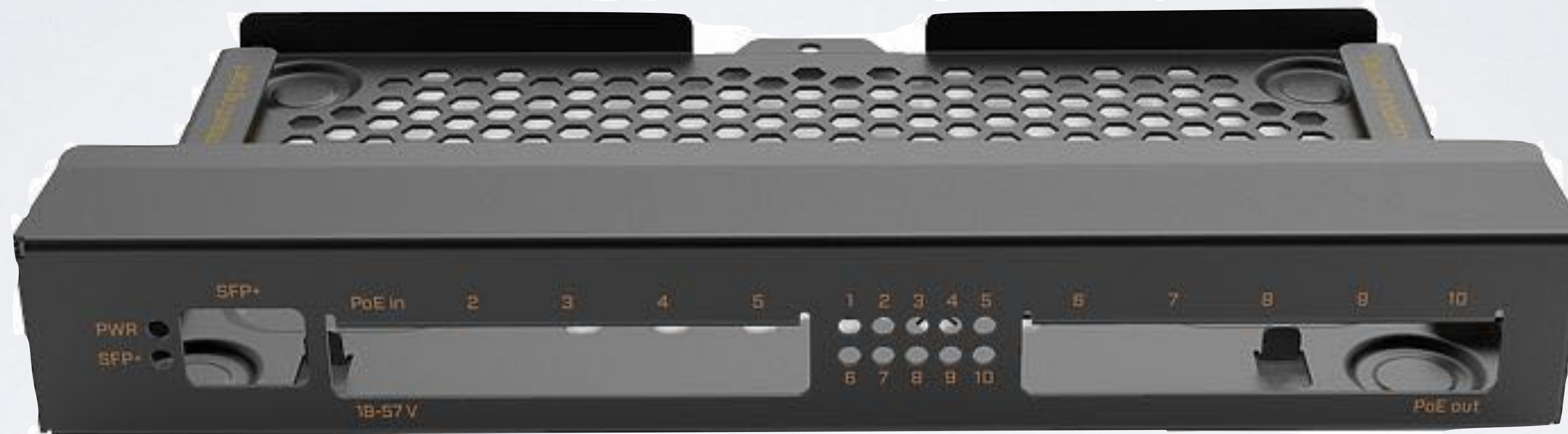


# RouterBOARD 4011

- 2 chains for 2 GHz, 802.11 b/g/n
- 4 chains for 5 GHz, 802.11 a/n/ac
- 160 MHz channel width
- 1733 Mbps + 300 Mbps data rates
- Price \$249



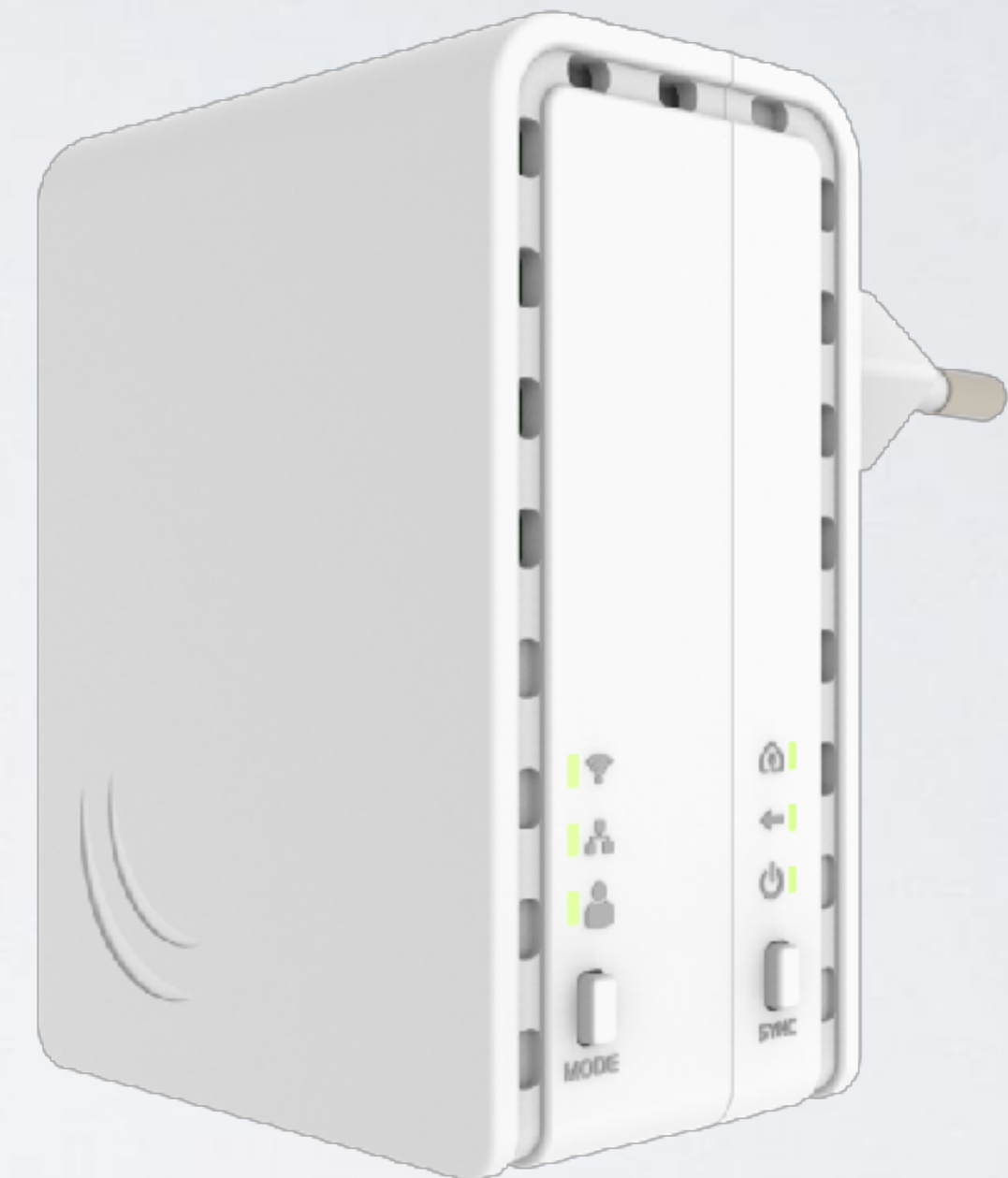
# RouterBOARD 4011

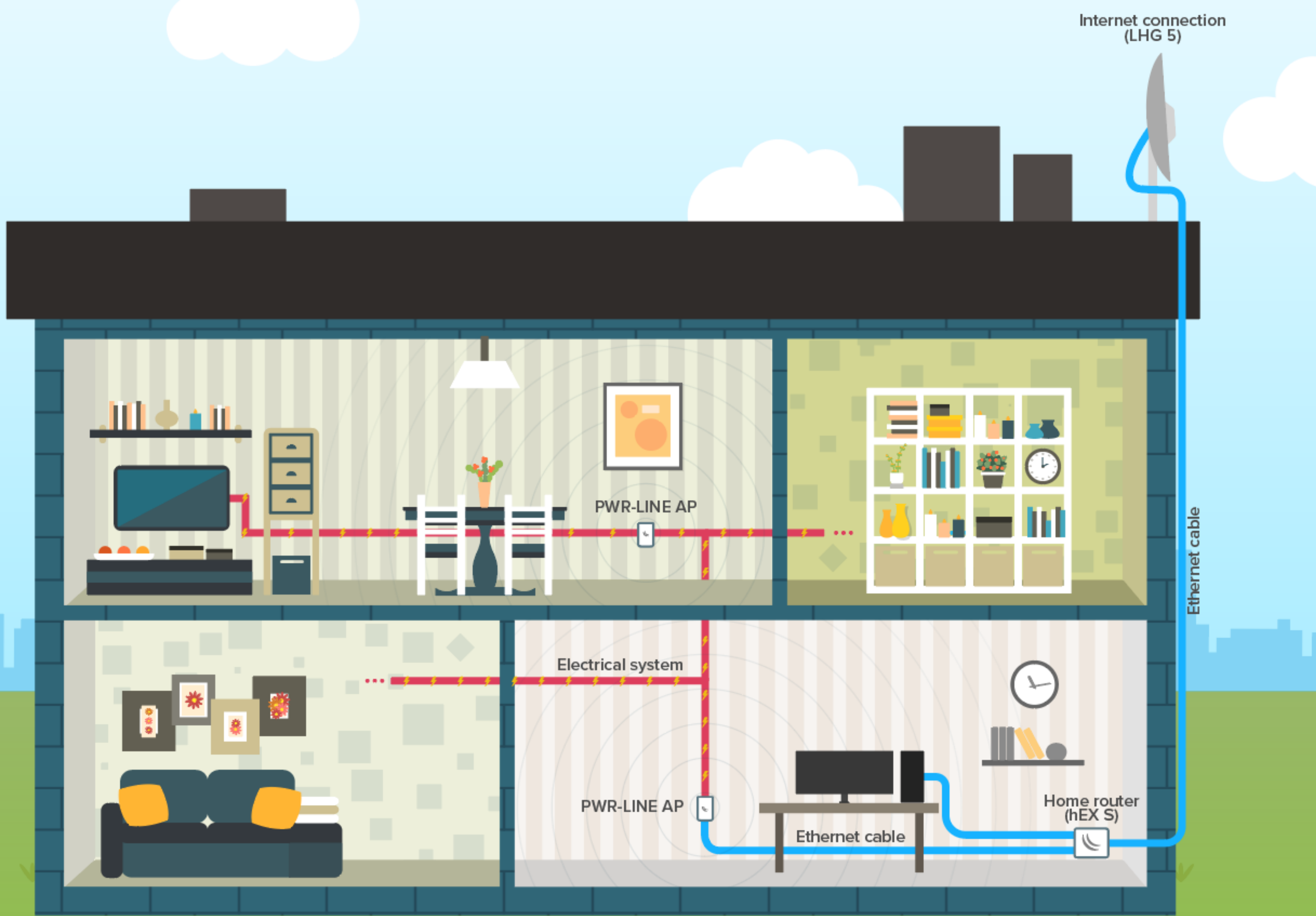


RB4011 wall mount kit - 12\$

# PWR-Line AP

- Small AP that directly plugs into socket
- Makes 100 Mbps links with others like it
- Build WiFi network without special cabling
- Automatically pairs with new devices
- Uses HomePlug AV standard





Some of our upcoming products

# LtAP

- 2.4 GHz AP in a rugged case
- 2x miniPCle for LTE
- Built-in GPS
- Optional external antenna for GPS and LTE
- 1 Gbps Ethernet interface
- Perfect for outdoor and mobile applications

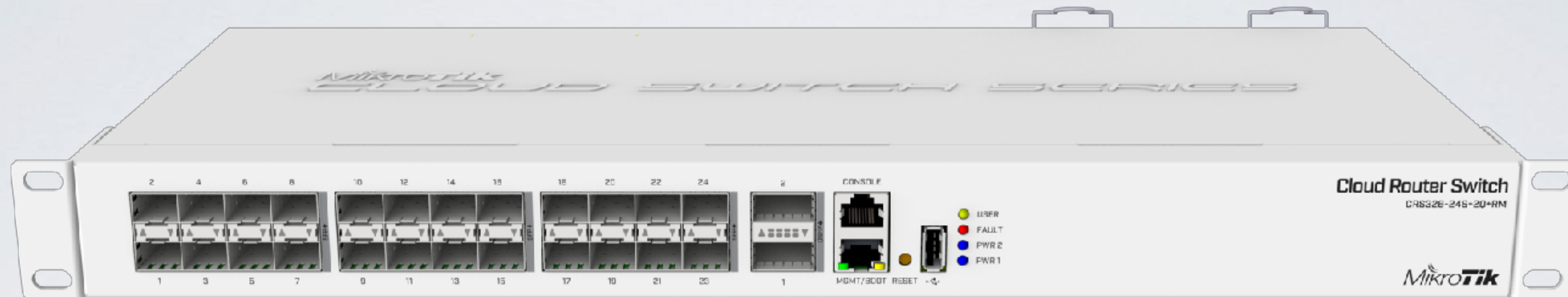


# CRS309-1G-8S+PC

- 8x SFP+ ports
- 1x Gigabit Ethernet
- Dual boot: RouterOS / SwOS
- Silent case

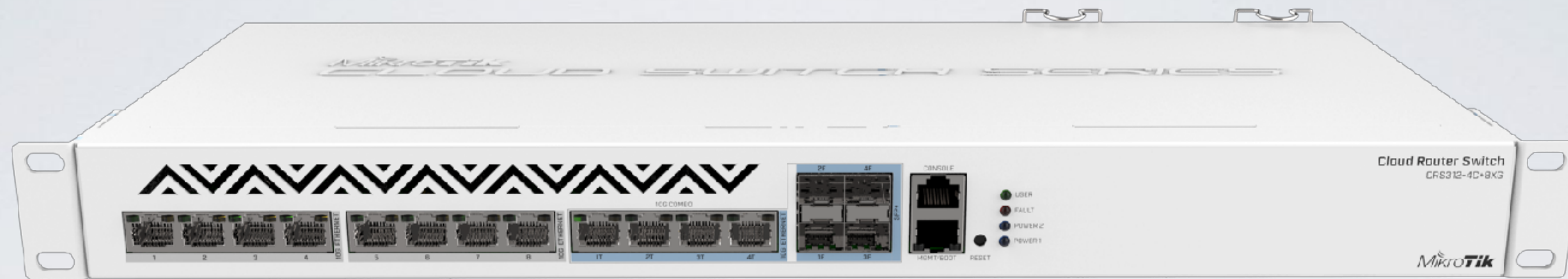






# CRS326-24S+2Q+RM

- 24x SFP+ for 10 Gbit connections
- 2x QSFP+ ports for 40 Gbit connections
- RJ45 console and Ethernet ports for management
- USB port, Dual PSU



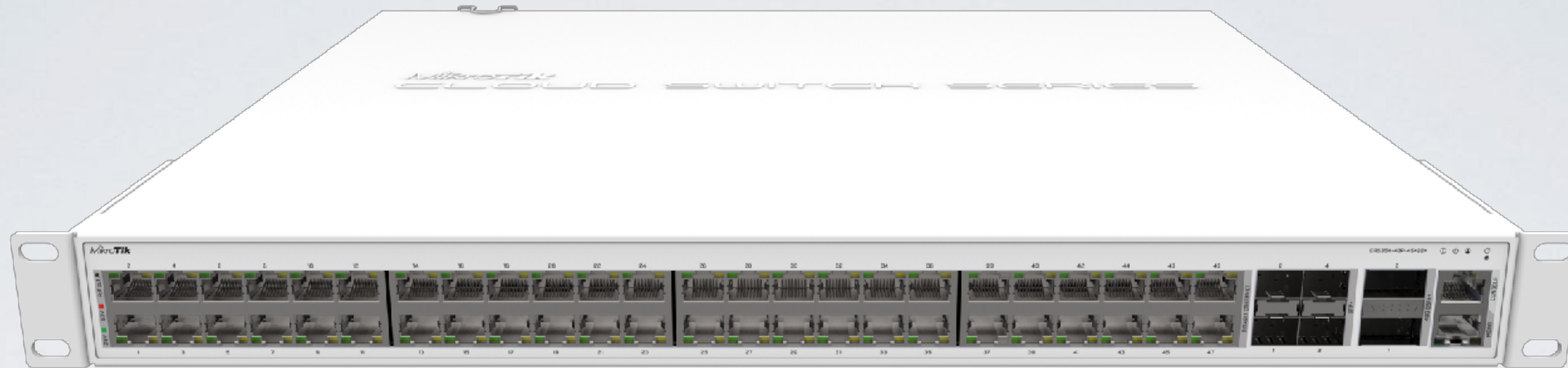
# CRS312-4C+8XG

- 8x 10G Ethernet ports
- 4x 10G Ethernet / 10G SFP+ combo ports
- Console and management ports
- Dual PSU



# CRS354-48G-4S+2Q+

- 48x Gigabit ports
- 4x SFP+ for 10 Gbit connections
- 2x QSFP+ ports for 40 Gbit connections
- Dual PSU



# CRS354-48P-4S+2Q+

- 48x Gigabit ports with PoE out
- 4x SFP+ for 10 Gbit connections
- 2x QSFP+ ports for 40 Gbit connections

**Software related news**

# 60 GHz Improvements

- Major received signal sensitivity improvements
- Maximum reachable distance improvements (up to 4 KM at full speed)
- Decreased re-connection time on lost connection
- PtMP performance improvements
- Added hardware stats [`/interface w60g print stats`]
- Other improvements

# Security updates



**<https://blog.mikrotik.com>**

- Fixed within 24 hours (in April)
- Affects only devices with no firewall for Winbox services
- MikroTik routers **have** default firewall
- Versions that include fix - v6.40.8 (long-term), v6.42.1 (stable)



# MikroTik App iOS / Android

- Auto-Configuration
- Simplified interface
- Questions and suggestions:  
[support@mikrotik.com](mailto:support@mikrotik.com)

Tele2 15:21 74%

**MikroTik**  
Tik-App iOS 0.16

LOG IN SAVED DISCOVERED

192.168.88.1

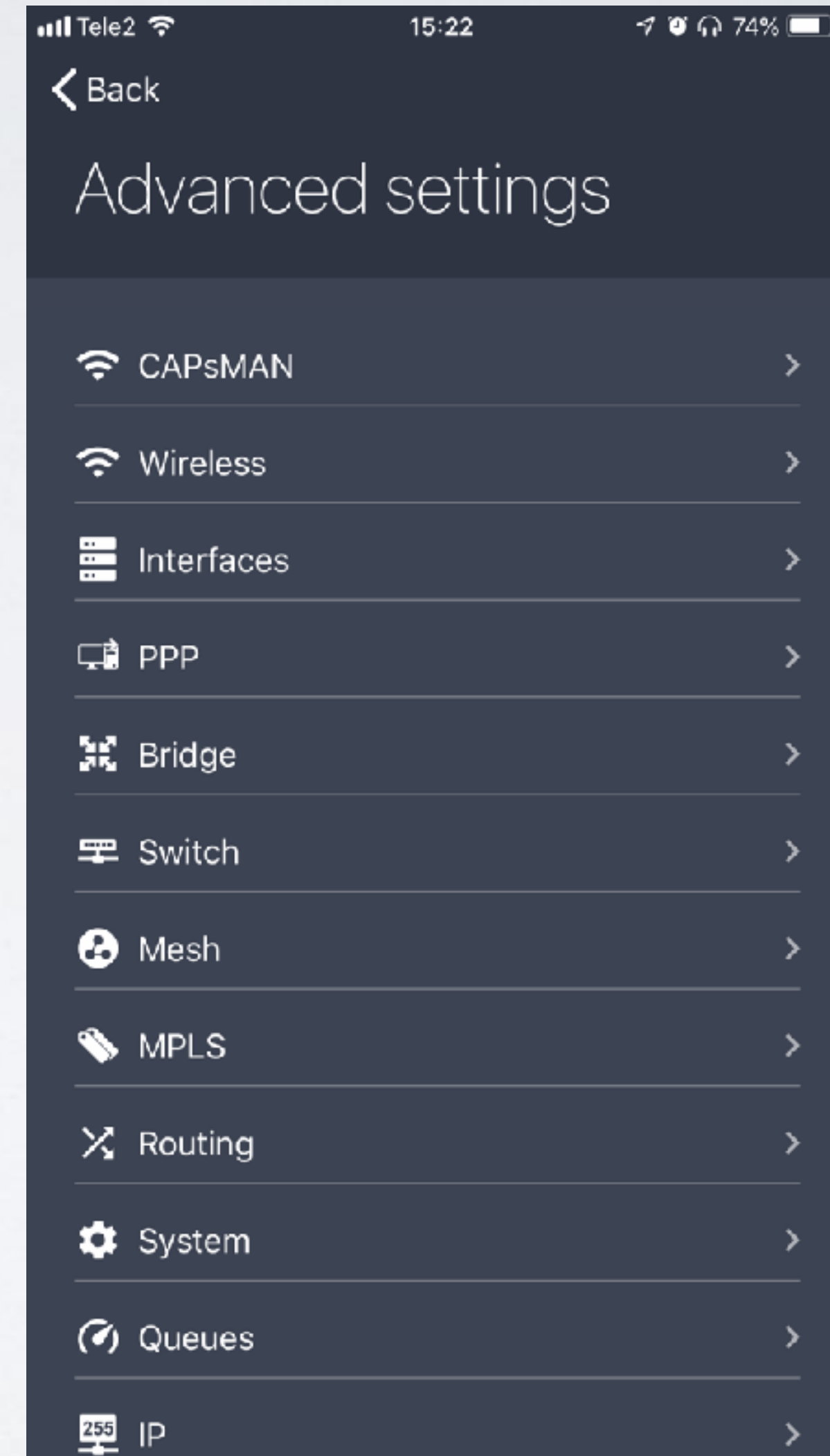
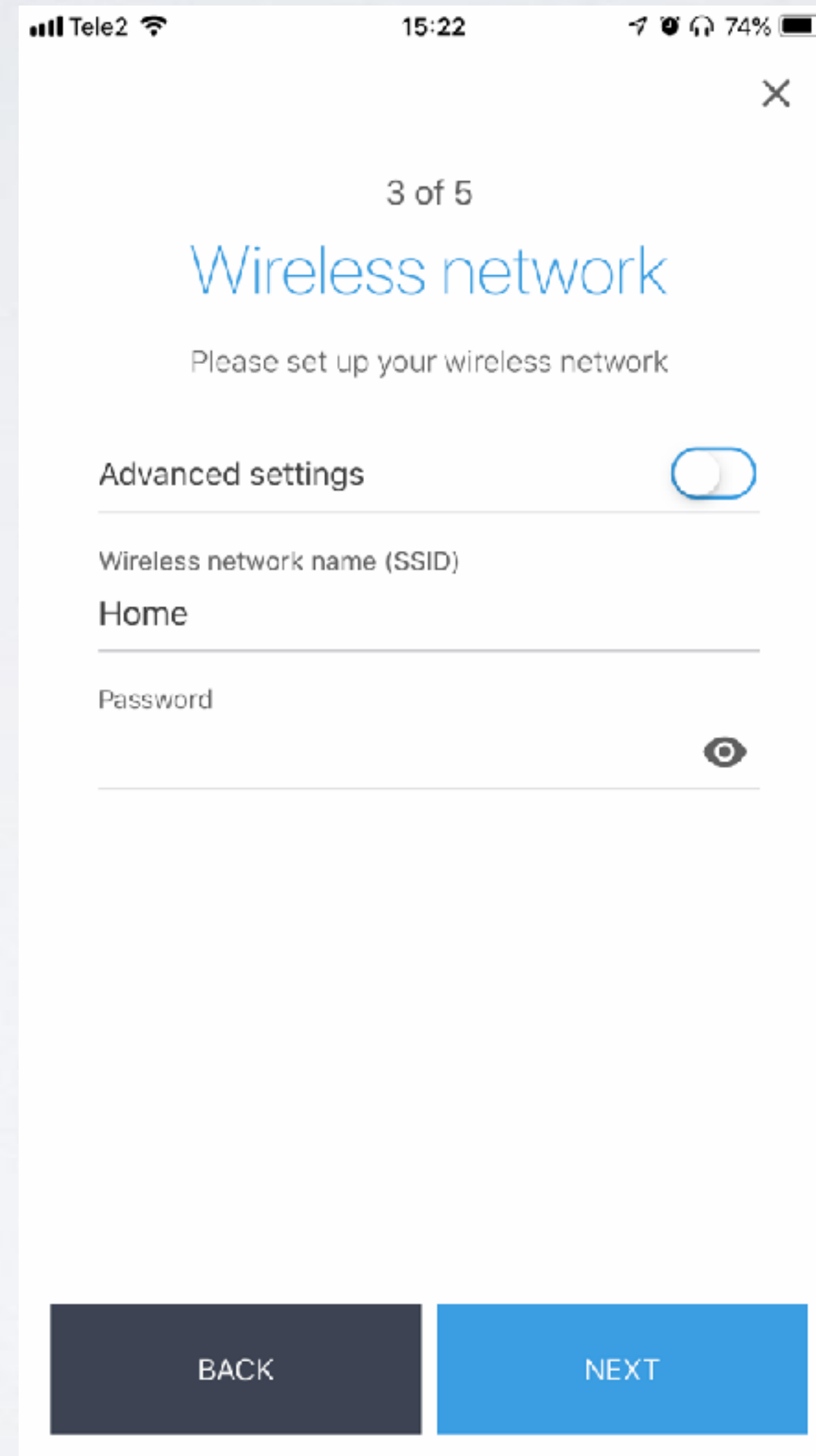
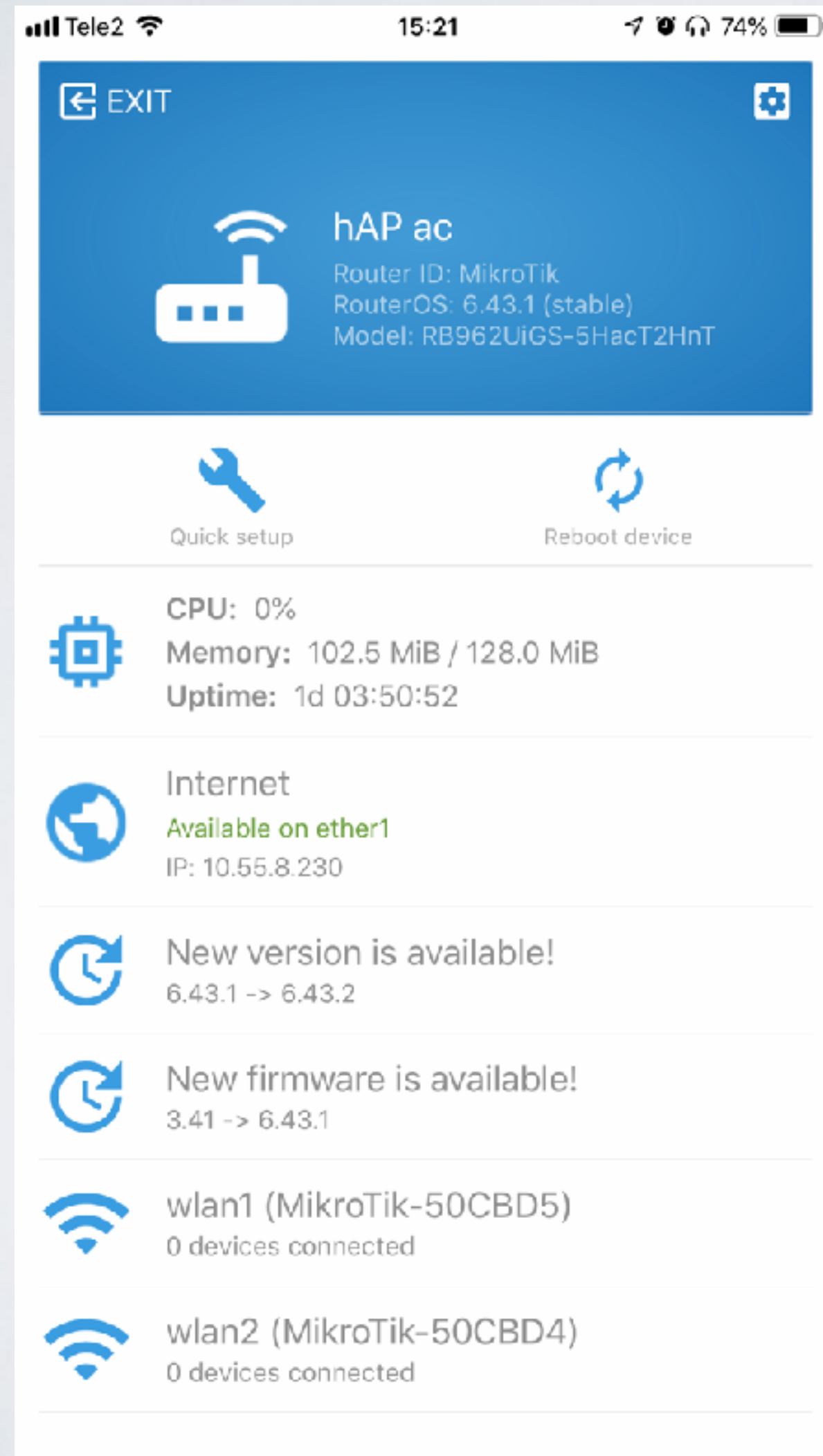
admin

Password

Keep password

SAVE CONNECT

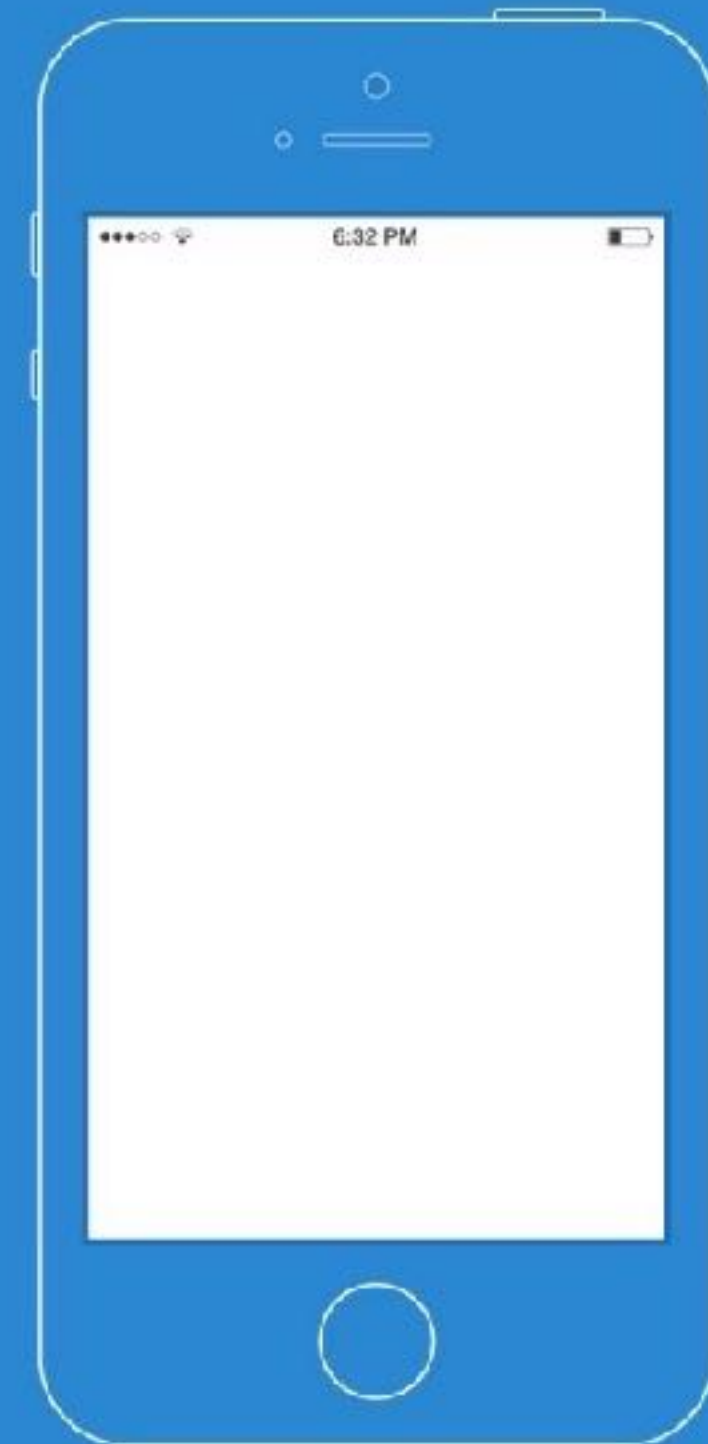
# MikroTik App iOS / Android



# MikroTik Tik-App iOS beta invite



TestFlight



# RouterOS releases

<b>Version</b>	<b>Number of changes</b>
6.43.8	31*
6.43.7	36
6.43.4	25
6.43.2	1
6.43.1	20
6.43	258*
* version with security updates	

# Need help?

- Ask a local distributor
- Hire MikroTik consultant
- Read the manual [wiki.mikrotik.com](http://wiki.mikrotik.com)
- Email [support@mikrotik.com](mailto:support@mikrotik.com)
- Attend a training class or join an Academy class in a University

# After the MUM

- All presentations - [mum.mikrotik.com](http://mum.mikrotik.com)
- Videos - [youtube.com/mikrotik](http://youtube.com/mikrotik)
- License for paid and voucher registrations will be sent by an e-mail

The logo for MikroTik, featuring the word "MikroTik" in a stylized font. The "Mikro" part is in a regular weight, and the "Tik" part is in a bold weight. A small, stylized icon of two curved lines is positioned above the "o" in "Mikro". The text is rendered in a dark gray color and is reflected on a light gray surface below it.

*Mikro***Tik**