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KONA MICRO GEN2 GATEWAY

USER GUIDE

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Table of Contents

List of Tables 3
1 Product Description 4
1.1 Overview 4
1.2 Physical Interfaces 5
1.3 Specifications 6
1.4 Exposed services 6
2 Installation 7
2.1 Overview 7
2.2 Unpacking and Inspection 7
2.3 KONA Micro Gateway Mounting 7
2.4 DC Power Cable Installation 9
2.5 Battery Installation 9
2.6 RF Cable Installation 10
2.7 Copper Ethernet Cable Installation 10
2.8 UART Port 10
2.9 Proposition 65 Statement 11
3 Radio Compliance Statements 12

List of Tables

Table 1: KONA Micro Gateway Models 4
Table 2: KONA Micro Gateway Interface Connector Types 5
Table 3: KONA Micro Gateway Specifications 6

1 Product Description

1.1 Overview

The KONA Micro Gateway is a LoRaWAN IoT gateway that supports the full range of LoRa WAN channels. The Gateway supports one external LoRa antenna, copper Ethernet backhaul, and optional 3G/4G wireless backhaul. All Gateway models may be powered from an AC-DC power adapter or PoE and may optionally have an internal backup battery provisioned.

Table 1 presents the currently available KONA Micro Gateway models. Any model may have a backup battery provisioned.

Table 1: KONA Micro Gateway Models

Model	Order Code	Cellular Modem	Region	Channel Plan
T0007915	MIG21LUS915	Yes	North America	US915
T0007915	MIG21LAU915	Yes	Australia, New-Zealand	AU915
T0007915	MIG21LA9231 MIG21LA9232 MIG21LA9233 MIG21LA9234	Yes	Multiple Regions	AS923 AS923-2 AS923-3 AS923-4
T0007916	MIG21EUS915 MIG2TARGET-J	No	North America	US915
T0007916	MIG21EAU915	No	Australia, New-Zealand	AU915
T0007916	MIG21EA9231 MIG21EA9232 MIG21EA9233 MIG21EA9234	No	Multiple Regions	AS923 AS923-2 AS923-3 AS923-4
T0007917	MIG21LEU868	Yes	Europe	EU868
T0007918	MIG21EEU868	No	Europe	EU868
T0007918	MIG21EIN868	No	India	IN865
T0008054	MIG2TLUS915	Yes	North America	US915
T0008054	MIG2TLAU915	Yes	Australia, New-Zealand	AU915
T0008054	MIG2TLA9231 MIG2TLA9232 MIG2TLA9233 MIG2TLA9234	Yes	Multiple Regions	AS923 AS923-2 AS923-3 AS923-4
T0008054	MIG2TLJP923	Yes	Japan	AS923
T0008055	MIG2TEUS915	No	North America	US915
T0008055	MIG2TEAU915	No	Australia, New-Zealand	AU915
T0008055	MIG2TEA9231 MIG2TEA9232 MIG2TEA9233 MIG2TEA9234	No	Multiple Regions	AS923 AS923-2 AS923-3 AS923-4
T0008055	MIG2TEJP923	No	Japan	AS923
T0008056	MIG2TLEU868	Yes	Europe	EU868
T0008056	MIG2TLIN868	Yes	India	IN865
T0008057	MIG2TEEU868	No	Europe	EU868
T0008057	MIG2TEIN868	No	India	IN865
T0006457	MICI1PBEU868	No	Europe	EU868

Figure 1 illustrates the KONA Micro Gateway external form-factor with the front view on the top and rear view on the bottom. All models share the same mechanical form-factor.

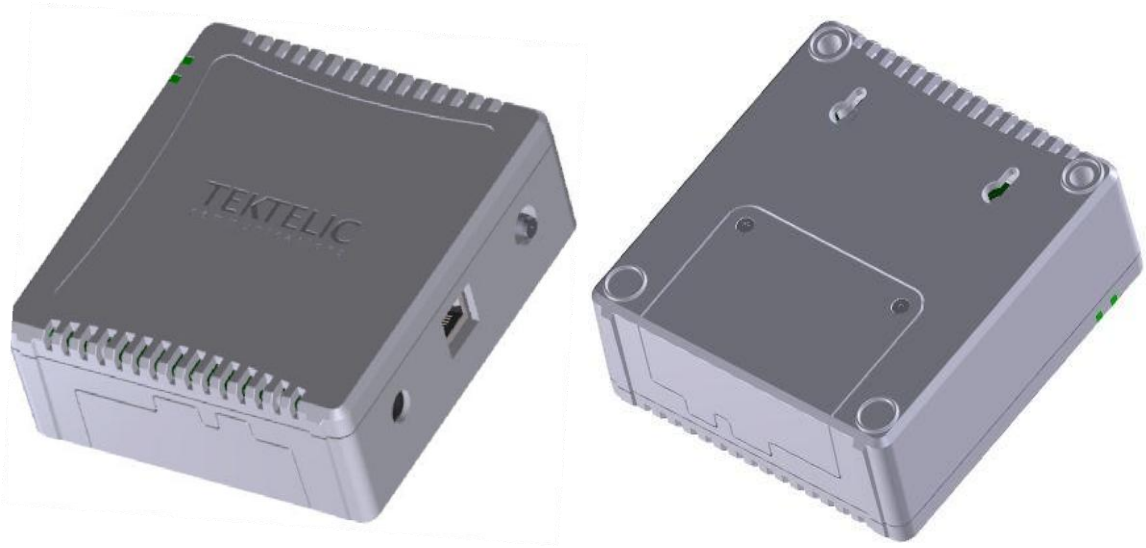


Figure 1: KONA Micro Gateway

1.2 Physical Interfaces

Figure 2 illustrates the connector layout for the KONA Micro Gateway.

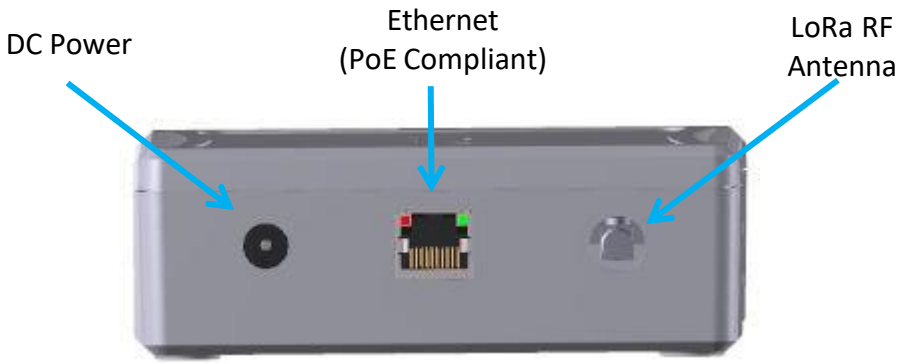
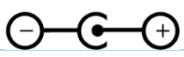


Figure 2: KONA Micro Gateway Bulkhead Layout

The Gateway connectors are listed in Table 2.

Table 2: KONA Micro Gateway Interface Connector Types

Interface	Connector Type	Mating Connector
LoRa Antenna Ports	Reverse SMA female	Industry standard Reverse SMA male
DC Power Input Port	Barrel Jack	DC Barrel plug 2.1 mm (inner), 5.5 mm (outer) Center positive 

Ethernet Port	RJ-45	Industry standard RJ45 plug (PoE compliant)

1.3 Specifications

The KONA Micro Gateway specifications are listed in Table 3.

Table 3: KONA Micro Gateway Specifications

Attribute	Specification
Dimensions	120 (L) x 118 (W) x 41.5 (H) mm
Weight	336 g (0.74 lbs) with battery, 245 g (0.54 lbs) without battery
Operating Temperature	0°C to 40°C without battery 0°C to 38°C with battery
Relative Humidity	5 to 95 %RH (Condensing)
Operating Altitude	-60 m to 4,000 m (-197 ft to 13,123 ft)
Power Input, DC barrel connector	12 VDC +/-10% , 1 A maximum
Power Input, PoE	IEEE 802.3bt Class 3 (IEEE 802.3af compatible) Mode A or Mode B or 4-pair Mode 48 VDC nominal, 37 to 57 VDC operating range
Power Consumption[1]	2.3 W (Ethernet Backhaul) 2.6 W (Cellular Backhaul)
Battery	7.4 V Lithium Ion
UART port[2]	Micro-B USB receptacle
Ingress Protection	IP30
Regulatory Compliance	UL/ CSA/ EN /IEC 62368-1 FCC : 15.247, 15.109, 15.209 ISED : RSS-247, RSS-Gen CE : RED 2014/53/EU

1.4 Exposed services

The following services are exposed in factory default state:

- SSH (TCP port 22) – Provides secure command-line access to the equipment.
- SNMPv3 (UDP port 161) – Secure management and monitoring with encryption and authentication.
- mDNS (UDP port 5353) – Enables local service discovery, allowing the use of user-friendly domain names when addressing the equipment, limited to the local network scope.
- ICMP (Ping) – Basic connectivity and availability check.
- HTTPS (TCP port 443) – Provides secure access to the web management interface using TLS encryption.

[1] Without battery charging.
[2] UART port is for debug use only, as directed by TEKTELIC support personnel.

2 Installation

2.1 Overview

- The KONA Micro Gateway is intended for indoor use only.
- The KONA Micro Gateway has no internal field serviceable parts other than the battery. Other than installing or replacing the battery, the Gateway module must only be opened by an approved TEKTELIC service center.
- All installation practices must be in accordance with the local and national electrical codes.
- Ensure that the KONA Micro Gateway is located to eliminate any physical hazard to people or property.
- The KONA Micro Gateway shall be powered from the supplied AC-DC power adaptor or PoE. Simultaneous powering from both the DC barrel connector and PoE input is not supported; no damage can occur but unexpected operation may result.
- Do not cover the Gateway or in any way obstruct airflow through the enclosure openings.
- The KONA Micro Gateway may as an option contain a built-in battery. The Gateway may continue to operate after the external DC power connection is removed. To completely power down the Gateway when battery backup is present, both the external DC power source and the battery must be disconnected.
- If the battery needs replacement, use only a replacement battery provided by Tektelic Communications Inc. After battery installation, ensure that the battery cover is secured using the supplied battery cover securement screws. Dispose of old batteries in accordance with regulatory requirements.

2.2 Unpacking and Inspection

The following should be considered during the unpacking of a new KONA Micro Gateway.

1. Inspect the shipping carton and report any significant damage to TEKTELIC.
2. Unpacking should be conducted in a clean and dry location when possible.
3. Do not discard the shipping box or foam inserts as they will be required if a unit is returned for repair or re-configuration.

2.3 KONA Micro Gateway Mounting

KONA Micro Gateway can be placed on a flat surface or can be mounted to a wall with M3 screws to the locations on the back of the module illustrated in Figure 3.

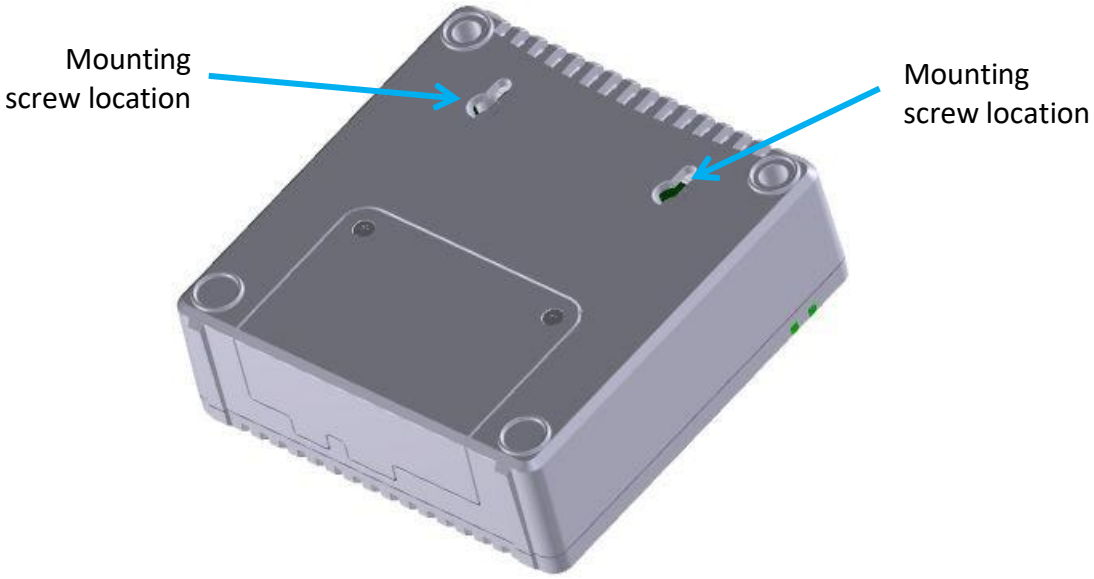


Figure 3: KONA Micro Gateway Mounting Screw Locations

While wall mounted, the Gateway module must be oriented with the TEKTELIC logo horizontal, parallel to the earth as shown in Figure 4.

Figure 4: KONA Micro Gateway Module Wall Mounting Orientation

Ensure that the wall on which the Gateway is being mounted is secure, flat and able to support a load of at least 0.5 kg (1.1 lbs).

The KONA Micro Gateway wall mounting procedure is as follows:

1. Install the M3 screws into the wall.
2. Install 2 site supplied M3 screws into the wall at 60 mm (2.4”) center spacing, leaving the screw heads protruding with a 3 mm gap from the wall surface.
3. Hang the KONA Micro Gateway by mounting the two to keyhole slots onto the screws.

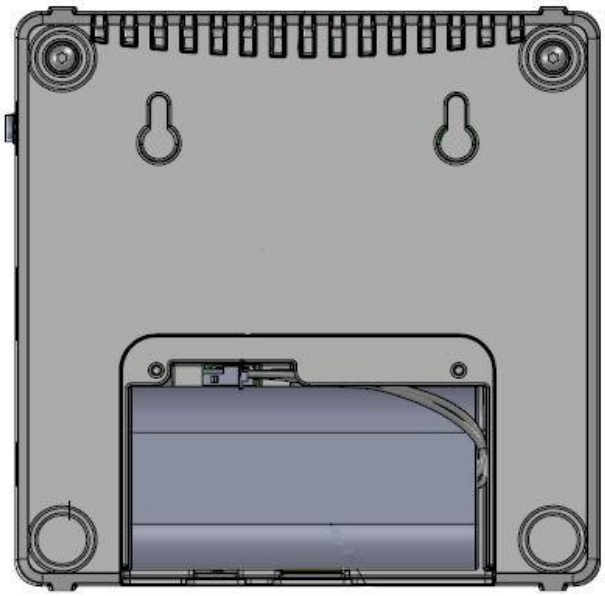
2.4 DC Power Cable Installation

The KONA Micro Gateway may be powered from the supplied AC-DC power adaptor. The adaptor provides 12 VDC with positive inner tip as shown below in Figure 5. The connector tip is a standard DC Barrel connector-straight plug with 2.1 mm (inner), 5.5 mm (outer) diameters.

Figure 5: DC Power Connection Polarity

2.5 Battery Installation

Use only a battery provided by Tektelic Communications Inc. Dispose of old batteries in accordance with regulatory requirements. Remove the battery cover by removing the two Torx-drive battery cover securement screws. Connect the 3-pin battery connector to the connector at the bottom of the battery compartment and then insert the battery into the battery compartment as illustrated in Figure 6. After the battery is connected and inserted, reinstall the battery cover and secure it in place using the two battery cover securement screws.



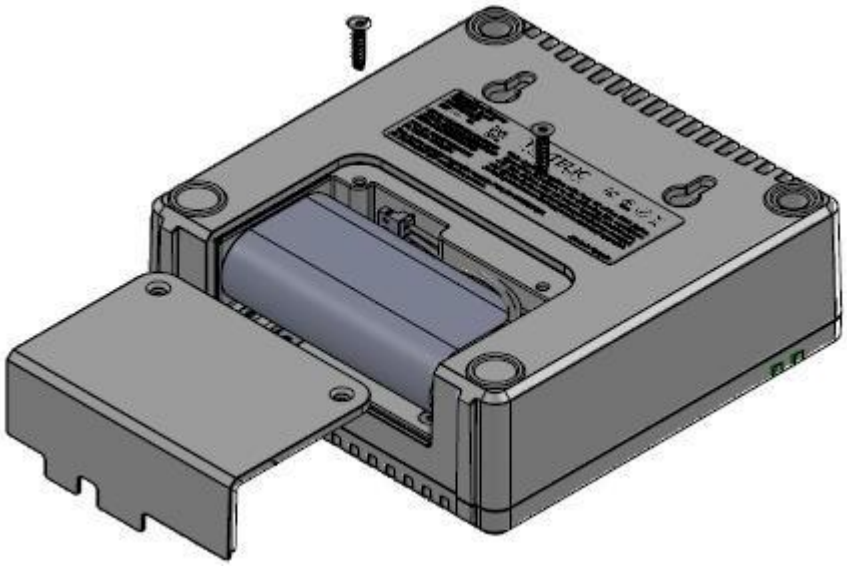


Figure 6: Battery Installation

2.6 RF Cable Installation

The KONA Micro Gateway installation requires connection to a LoRa RF antenna. The antenna attaches to the reverse SMA connector located on the side of the Gateway. Torque the connector to 5 in·lbs. The KONA Micro Gateway is not protected from lighting surge as it is intended for Indoor use. Do not connect directly to an outdoor antenna.

Note that the 3G/4G modem antenna is internal to the KONA Micro Gateway.

2.7 Copper Ethernet Cable Installation

The KONA Micro Gateway Ethernet port may be used on a temporary basis for commissioning and maintenance or may be permanently connected for backhaul and/or optional PoE.

The Ethernet cable must have minimum 24 AWG conductors and shall be rated for indoor application according to local and national electrical codes.

2.8 UART Port

The KONA Micro Gateway is equipped with a UART port for factory use only, or when directed by TEKTELIC support personnel to facilitate debugging. The UART port is accessible by the removal of the battery cover.

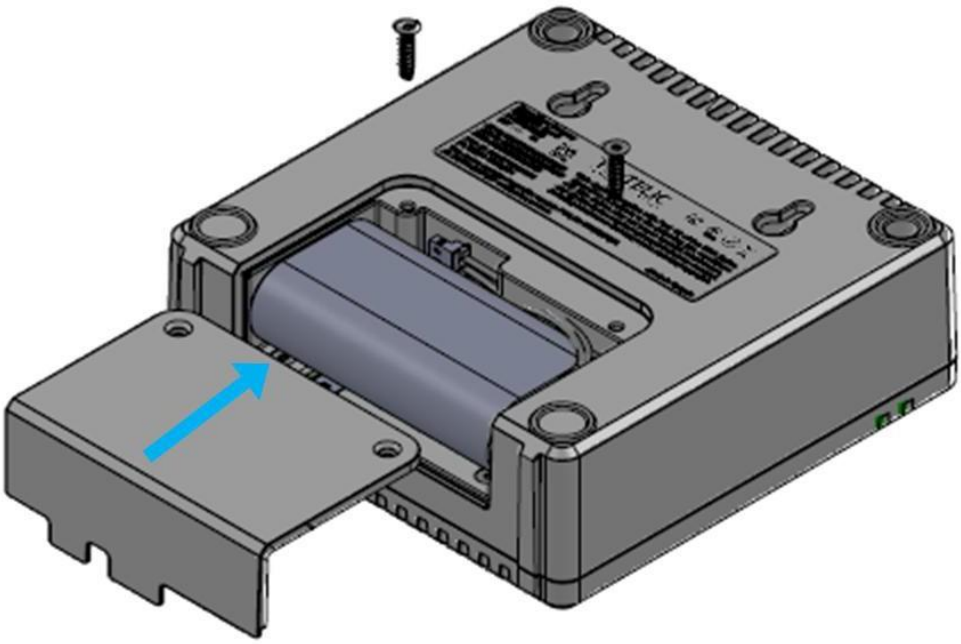


Figure 7: UART port

2.9 Proposition 65 Statement

WARNING: This product can expose you to chemicals including lead, beryllium, cobalt oxide, nickel oxide, carbon black and lithium nickelate & nickel, which is known to the State of California to cause cancer, birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

3 Radio Compliance Statements

Federal Communications Commission

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.

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 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.

To comply with FCC/IC RF exposure limits for general population / uncontrolled exposure, the antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Industry Canada

This Device complies with Industry Canada License-exempt RSS standard(s). Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

This radio transmitter 22504-T0008073 has been approved by Industry Canada to operate with the antenna listed below with the maximum permissible gain or lesser and required antenna impedance for the antenna indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

This device complies with IC radiation exposure limits set forth for an uncontrolled environment. This device should be installed and operated with minimum distance 0.2 m between the radiator and your body.

This device has been designed to operate with an omni-directional antenna having a maximum gain of 0.4 dBi in the 902-928MHz transmit band. Antennas having a gain greater than 0.4 dBi are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.

During product operation, always keep a separation distance of at least 0.2m from any connected antenna(s). Before servicing the product, the antenna(s) or cables, turn off the transmission function or the unit power if you have to get closer than the minimum separation distance.

Industrie Canada

Cet appareil est conforme aux normes RSS exemptes de licence d'Industrie Canada. Le fonctionnement est soumis aux deux conditions suivantes:

1. Cet appareil ne peut pas causer d'interférences, et
2. Cet appareil doit accepter toute interférence, y compris les interférences susceptibles de provoquer un fonctionnement indésirable de l'appareil.

Cet émetteur radio 22504-T0008073 a été approuvé par Industrie Canada pour fonctionner avec l'antenne énumérée ci-dessous avec le gain maximal admissible ou l'impédance d'antenne moindre et requise pour l'antenne indiquée. Les types d'antennes non inclus dans cette liste, ayant un gain supérieur au gain maximal indiqué pour ce type, sont strictement interdits pour une utilisation avec cet appareil.

Cet appareil est conforme aux limites d'exposition aux radiations IC définies pour un environnement non contrôlé. Cet appareil doit être installé et utilisé avec une distance minimale de 0.2 m entre le radiateur et votre corps.

Cet appareil a été conçu pour fonctionner avec une antenne omnidirectionnelle ayant un gain maximal de 0,4 dBi dans la bande d'émission 902-928MHz. Les antennes ayant un gain supérieur à 0,4 dBi sont strictement interdites pour une utilisation avec cet appareil. L'impédance d'antenne requise est de 50 ohms.

Pendant le fonctionnement du produit, gardez toujours une distance de séparation d'au moins 0,2 m de toute antenne connectée. Avant d'entretenir le produit, l'antenne ou les câbles, éteignez la fonction de transmission ou l'alimentation de l'unité si vous devez vous rapprocher de la distance de séparation minimale.

Document Revision

Revision	Issue Date	Status	Editor	Comments
1.0	Feb 24, 2022	Obsolete	T.D.	Also including S.M. comments
1.1	July 27, 2022	Obsolete	K.M.	Updated document formatting and added EU variants to Table 1
1.2	October 15, 2025	Obsolete	A.K.	UART port information added New section added: Exposed Services
1.3	January 16, 2026	Released	A.K.	Updated Title, added Gen2 Updated Table 1 included Order codes Updated power consumption in Table 3