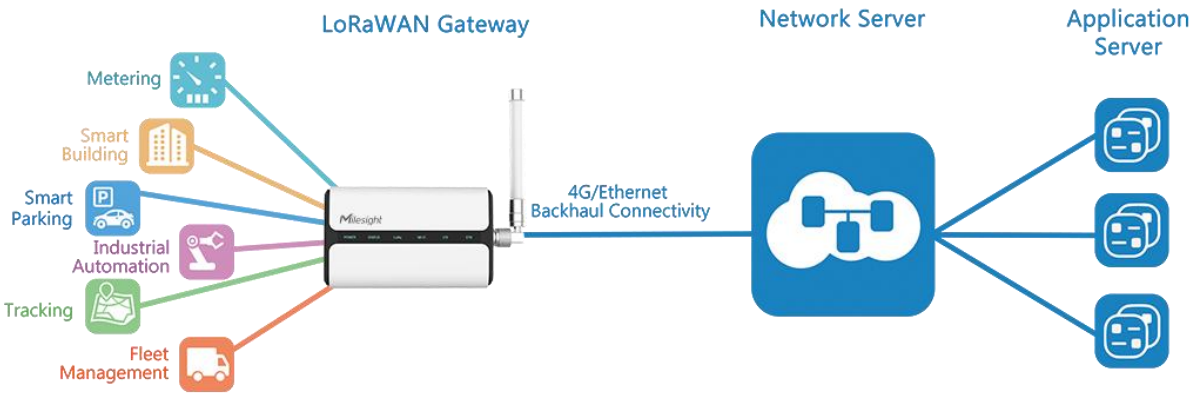
UG65

LoRaWAN® Gateway

UG65 is a robust 8-channel indoor LoRaWAN® gateway. Adopting SX1302 LoRa chip and high-performance quad-core CPU, UG65 supports connection with more than 2000 nodes. UG65 has line of sight up to 15 km and can cover about 2 km in urbanized environment, which is ideally suited to smart office, smart building and many other indoor applications.

UG65 supports not only multiple back-haul backups with Ethernet, Wi-Fi and cellular, but also has integrated mainstream network servers (such as The Things Stack, ChirpStack, etc.) and built-in network server for easy deployment.

◆ Application Example



◆ Features

- Quad-core industrial processor with big memory
- Equip with SX1302 chip, handling a higher amount of traffic with lower consumption
- 8 half/full-duplex channels
- IP65 enclosure and industrial design for parts of outdoor environment applications like eaves
- Desktop, wall or pole mounting
- Multi backhaul backups with Ethernet, cellular (4G) and Wi-Fi
- DeviceHub, Milesight Development Platform and Milesight IoT Cloud provide easy and centralized management of remote devices
- Enable security communication with multiple VPNs like IPsec/OpenVPN/L2TP/PPTP/DMVPN
- Compatible with mainstream network servers like The Things Stack, ChirpStack, Actility, Everynet, etc.
- Detect and analyze the noise level and provide intuitive diagram for deployment
- Built-in network server and MQTT(s)/HTTP(s) API for easily integration
- Support BACnet/IP and Modbus to integrate LoRaWAN® data to BMS/PLC system easily
- Embedded Python SDK for users secondary development
- Fast and user-friendly programming by Node-RED development tool

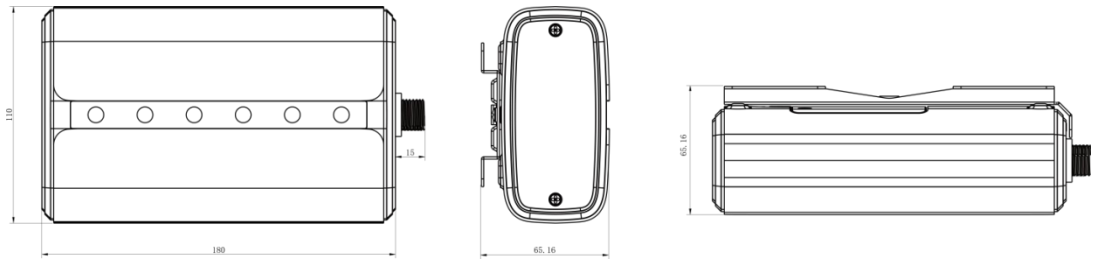
◆ Specifications

Hardware System	
CPU	Quad-core 1.5 GHz, 64-bit ARM Cortex-A53
Memory	512 MB DDR4 RAM
Flash	8 GB eMMC
LoRaWAN®	
Antenna	1 × 50 Ω N-Female External Connector
Channel	8 (Half/Full-duplex)
Frequency Band	CN470/IN865/EU868/RU864/US915/AU915/KR920/AS923-1&2&3&4
Sensitivity	-140dBm Sensitivity @292bps
Output Power	27dBm Max
Protocol	V1.0 Class A/Class B/Class C and V1.0.2 Class A/Class B/Class C
Ethernet Interface	
Port	1 × RJ45 WAN Port (PoE PD supported)
Physical Layer	10/100/1000 Base-T (IEEE 802.3)
Data Rate	10/100/1000 Mbps (Auto-Sensing)
Interface	Auto MDI/MDIX
Mode	Full or Half Duplex (Auto-Sensing)

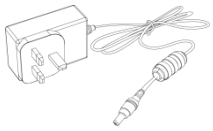
Wi-Fi Interface	
Antenna	Internal Antenna
Standards	IEEE 802.11 b/g/n, 2.4GHz
Mode	AP or Client mode
Security	WPA/WPA2 authentication, WEP/TKIP/AES encryption
Tx Power	802.11b: 18 dBm +/-2.0 dBm (11 Mbps) 802.11g: 15 dBm +/-2.0 dBm (6 Mbps) 802.11g: 15 dBm +/-2.0 dBm (54 Mbps) 802.11n@2.4 GHz: 14 dBm +/-2.0 dBm (MCS0_HT20) 802.11n@2.4 GHz: 14 dBm +/-2.0 dBm (MCS7_HT20) 802.11n@2.4 GHz: 13 dBm +/-2.0 dBm (MCS0_HT40) 802.11n@2.4 GHz: 13 dBm +/-2.0 dBm (MCS7_HT40)
Cellular Interface (Optional)	
Antenna	Internal Antenna or External Antenna (Optional) External Version: 1 × 50 Ω SMA Connector (Center PIN: SMA Female)
SIM Slot	1 (mini SIM-2FF)
Others	
Reset Button	1 × RST
Console Port	1 × Type-C
LED Indicators	1 × POWER, 1 × STATUS, 1 × LoRa, 1 × Wi-Fi, 1 × LTE, 1 × ETH
Built-in	Watchdog, RTC, Timer
Software	
Network Protocols	PPPoE, SNMP v1/v2c/v3, TCP, UDP, DHCP, DDNS, HTTP, HTTPS, DNS, ARP, SNTP, Telnet, SSH, MQTT, MQTTS, BACnet/IP, Modbus RTU over TCP, Modbus TCP, etc.
VPN Tunnel	OpenVPN/IPsec/PPTP/L2TP/GRE/DMVPN/WireGuard
Firewall	ACL/DMZ/Port Mapping/MAC Binding/URL Filter
Management	Web, CLI, SMS, On-demand dial up, DeviceHub, Milesight IoT Cloud, Yeastar Workplace Platform, Milesight Development Platform
Reliability	WAN Failover
App	Python SDK, Node-RED
Power Supply and Consumption	
Power Input	1. 9-24 VDC by DC Male Jack Connector 2. 802.3 af PoE
Power Consumption	Typical 2.9 W, Max 4.2 W

Physical Characteristics	
Ingress Protection	IP65
Material & Color	PC+ABS (UL94 V0), White & Black
Weight	548g
Dimensions	180 x 110 x 56.5 mm (7.09 x 4.33 x 2.22 in)
Installation	Desktop, Wall or Pole Mounting
Environmental	
Operating Temperature	-40°C to +70°C (-40°F to +158°F) Reduced Cellular Performance Above 60°C
Storage Temperature	-40°C to +85°C (-40°F to +185°F)
Ethernet Isolation	1.5 kV RMS
Relative Humidity	0% to 95% (non-condensing) at 25°C/77°F
Approvals	
Regulatory	CE, FCC, IC, Telec, JATE, RCM
Environmental	RoHS, REACH

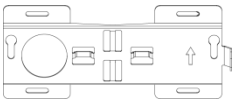
◆ Dimensions(mm)



◆ Accessories



1 × DC Jack Power Adapter

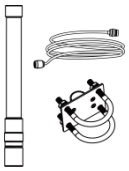


1 × Mounting Bracket

2 × Bracket Fixing Screws

4 × Wall Mounting Kits

1 × 18 cm LoRaWAN® Antenna



1 × 60cm LoRaWAN® Fiber-Glass Antenna Kit **(Optional)**

1 × Magnetic Cellular Antenna **(Cellular External Antenna Version Only)**

***Note:** Contact us if you need any other special accessories or customized accessories.

◆ FCC Statement

Any changes or modifications not expressly approved by the party responsible forcompliance could void the user's authority to operate the equipment. This devicecomplies 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 maycause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class Bdigital device, pursuantto part 15 of the FCC Rules. These limits aredesigned to providereasonable protection against harmful interference in a residential installation. Thisequipment generates, uses and can radiate radio frequency energy and, if not installedand used in accordance with the instructions, may cause harmful interference to radiocommunications. However, there is no guarantee that interference will not occur in aparticular installation. If this equipment does cause harmful interference to radio ortelevision reception, which can be detemmined by tuming the equipment off and on, theuser is encouraged to try to correct the interference by one or more of the followingmeasures:
-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 whichthe receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for anuncontrolled environment. This equipment should be installed and operated withminimum distance 20cm between the radiator& your body. This transmitter must notbe co-located or operating in conjunction with any other antenna or transmitter.

◆ ISED Statement

“ This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada ’ s licence-exempt RSS(s). Operation is subject to the following two conditions:
1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of
the device. ”
“ L ’ émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d ’ Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L ’ exploitation est autorisée aux deux conditions suivantes:
1. L ’ appareil ne doit pas produire de brouillage ;
2. L ’ appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d ’ en compromettre le fonctionnement. ”
“ CAN ICES-3 (B)/NMB-3(B) ”
“ In order to comply with ISED RF Exposure requirements, this device must be installed to provide at least 20 cm separation from the human body at all times.
“ Afin de se conformer aux exigences d'exposition RF ISED, cet appareil doit être installé pour fournir au moins 20 cm de séparation du corps humain en tout temps.
“ （EN） This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.
（FH） Lors de l'installation et du fonctionnement de cet équipement, la distance minimale entre le radiateur et le corps doit être de 20 cm
This radio transmitter (ISED certification number: 27737-UG65CAT1) has been approved by Innovation , Science and Economic Development Canada to operate with the antenna types listed with the
maximum permissible gain 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 thisdevice.
Le présent émetteur radio (ISED certification number: 27737-UG65CAT1)) a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avecles types d' antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclusdans cette liste, et dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.