

# IoT Gateway

Modular Multi-Interface for  
M2M/IoT and Critical Applications  
with Native Gateway Management



SMART WATER



SMART AGRICULTURE



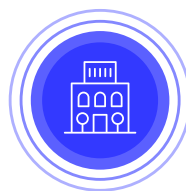
SMART MOBILITY



SMART WASTE



SMART PARKING



SMART BUILDING

**IoT Gateway... for multiple scenarios!**

# WAVECOM - IoT GATEWAY

Wavecom IoT Gateway is an Internet of Things network access solution, designed for a wide range of applications, allowing different types of devices from different technologies, to communicate with applications with very high efficiency, reliability, and scalability.

It is modular allowing multiple wireless interfaces such as LoRaWAN®, Wi-Fi and 4G/5G and provides an over-the-top WAN backbone.

On the other hand, the enclosure of the Wavecom IoT Gateway is built in aluminum providing an electromagnetic isolation between the internal radio modules and temperature's dissipation, which allows its use in various indoor/outdoor application scenarios.

It is always connected to a cloud managed platform (i.e. Wavecom IoT Manager/Multi-Tenant system) responsible for the integrated management of the gateways, providing reports and visualization of the data read from LoRaWAN assets. This platform allows connection with third parties via API.

LoRaWAN SPECIFICATIONS: 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4

## KEY FEATURES

Integrated Management	Cloud managed platform containing a set of services to manage Wavecom IoT Gateways and connected devices - IoT Manager
Modular architecture	Combine different backhaul technologies in one equipment: LoRaWAN®, Cellular, Wi-Fi, Ethernet
Multiple WAN	Intelligent algorithm for load-balancing of multiple cellular 4G/5G with a Single or Dual Modem
GNSS	Embedded GPS for management, tracking, and IoT assets
Storage	Up to 256 GB
Expansion	USB 3.0 Host interface, RS-232/485 Serial Interface, and Analog/Digital IOs

## BASE SPECIFICATIONS

### MANAGEMENT

Local	Serial RS232 (DB9), SSH, and WEB GUI (HTTP/HTTPS)
Remote	-SSH and WEB GUI (HTTP and HTTPS) -Integrated HTTP API, SNMP (v1, v2c, v3) and, Wavecom IoT Manager/Multi-Tenant system
In addition	-Syslog -Embedded GPS -FUOTA (Firmware Update Over The Air) -Linux based -Bulk device configuration

### ENVIRONMENT

Operating temperature	<b>[Indoor]</b> -20°C to 70°C <b>[Outdoor]</b> -40°C to 85°C
Storage temperature	-40°C to 85°C
Humidity	10% to 95%
MTBF	> 250,000 h

### REGULATORY COMPLIANCE

Radio	EN 300 328, EN 301 893
EMC	EN 301 489-1/17
Safety	EN 60950-1

### NETWORK

Wireless Modes	Routing and Bridging - Point-to-Point, Point-to-Multipoint, Mesh, and Wireless Repeater
Wireless Security	- 64-bit and 128-bit WEP encryption - WPA3: TKIP, AES and IEEE 802.1x/RADIUS based authentication
Gateway Features	IPv4/IPv6, TCP/UDP, ARP, ICMP, DDNS, DHCP Server/Client/Relay, DNS Server/Client/Relay, NTP, MQTT
Routing and Switching	-Static and Dynamic: BGP, OSPF v2, RIP v1/v2 -STP (Spanning Tree Protocol)
VPN	GRE, IPSec, OpenVPN, PPTP/L2TP
Firewall	NAT, Port Forwarding, Traffic Rules, MAC filtering
VLAN	-Management VLAN -Access and Trunk Modes; supporting on radio interfaces in any operation mode
In addition	- Layer-2 mesh protocol support on radio interfaces - Cellular load balancing aggregation mechanism - wRing: redundancy protocol to maximize wireless network availability



WIRELESS SPECIFICATIONS

RADIO

MIMO	2x2
Modulation	OFDM: BPSK, QPSK, DBPSK, DQPSK, 16-QAM, 64-QAM, 256-QAM
Frequency	2412 – 2472 MHz / 5180 – 5825 MHz
Channel Size	20, 40 and 80 MHz
Date Rates	- IEEE 802.11a: up to 54 Mbps - IEEE 802.11b: up to 11 Mbps - IEEE 802.11g: up to 54 Mbps - IEEE 802.11n: up to 300 Mbps @ 40 MHz - IEEE 802.11ac: up to 867 Mbps @ 80 MHz - IEEE 802.11ax: up to 9.6 Gbps
Transmission Power	21 dBm @ 2.4 GHz / 20 dBm @ 5 GHz (per chain)
Sensitivity @20MHz	94 dBm @ 2.4 GHz / -93 dBm @ 5 GHz
In addition	- DFS (Dynamic Frequency Selection) - ATPC (Automatic Transmit Power Control) - Embedded radio scanner module

MODEM

Bands	- LTE FDD: B1/B2/B3/B4/B5/B7/B8/B20 - WCDMA/HSDPA/HSUPA/HSPA+: B1/B2/B5/B8 - GSM/GPRS/EDGE: 850/900/1800/1900 MHz
Transmit Power	- LTE: +23dBm (3GPP TS 36.101 R8 Class 3) - WCDMA/HSPA+: +24 dBm (Power Class 3) EDGE 1900/1800 MHz: +26 dBm (Power Class E2) - EDGE 900/850MHz: +27 dBm (Power Class E2) - GSM/GPRS 1900/1800MHz: +30 dBm (Power Class 1) - GSM/GPRS 900/850MHz: +33 dBm (Power Class 4)
Data Rates	- LTE Cat4: 50/150 Mbps (UL/DL) - DC-HSPA+: 5.76/43.2 Mbps (UL/DL) - WCDMA PS: 384/384 kbps (UL/DL) - EDGE: 236.8/236.8 kbps (UL/DL) - GPRS: 85.6/85.6 kbps (UL/DL)

WIRELESS SPECIFICATIONS

LoRaWAN

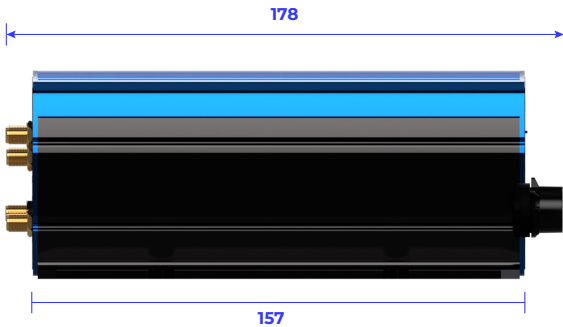
Band	EU868 (863-870 MHz)
Transmit Power	Up to 27 dBm
Modulation	CSS (Chirp Spread Spectrum)
Sensitivity	Up to -140 dBm @ SF12, BW 125 kHz
In addition	- LoRa Alliance architecture compliance - Semtech Packet Forwarder - Based on Semtech SX1303 - 8/16 UL channels   1/2 DL channel - LoRaWAN <1.0.4/1.1 compatible - Device Classes: A, B, C - NetID and JoinEUI LoRaWAN - Fine time stamp - LBT (Listen Before Talk) - LoRaWAN Backend Communication's TLS/SSL encryption



PHYSICAL SPECIFICATIONS

PHYSICAL

Dimensions	<div>[Indoor] 178 mm x 82 mm x 174 mm</div> <div>[Outdoor] 272 mm x 276 mm x 96 mm</div>
Weight	<div>[Indoor] 1600 g</div> <div>[Outdoor] 2500 g</div>
Enclosure	<div>[Indoor] Aluminum</div> <div>[Outdoor] UV Resistant and IP67</div>
Connectors	<div>[Indoor]</div> <div>- Lockable DC Plug</div> <div>- Up to 9 RP/SMA-Female connectors</div> <div>- Up to 3 10/100/1000Base-T interfaces</div> <div>- 1 DB9 for RS 232 management console, 1 DB9 for RS 232 and a 12-Pin terminal block for RS485, and 6 Analog/Digital IOs (2 Analog + 4 Digital)</div> <div>[Outdoor]</div> <div>- 10/100/1000 Base-T interface with PoE support</div>
Installation	<div>[Indoor] DIN-rail mounting and Wall mounting</div> <div>[Outdoor] Mounting kit</div>
In addition	<div>- Hardware Monitor Status (e.g., Temperature, CPU, RAM, Statistics [Network, LoRaWAN and Cellular], Geolocation and Operational Status)</div> <div>- Surge protection</div> <div>- Internal RF Filtering</div> <div>- Modular architecture (x86 architecture, 2 GB RAM and up to 256 GB SSD storage)</div>



ORDERING INFORMATION

As the Wavecom IoT Gateway offers a modular architecture, custom configurations can be provided to suit your application's communication needs.

For the provision of a configuration suitable for your application, do not hesitate to [contact us](#).



## About Us

Wavecom has been active in the field of wireless and IP-based systems for 20 years and has solid know-how and expertise.

We understand the challenges integrators face and our goal is to provide you with the essential technologies, insights, advice and tools to help you achieve your most important goals.

With our ability to innovate and our knowledge of what integrators do, we can improve people's quality of life through the products we manufacture.

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NP 4457: 2021, ISO 9001, ISO 14001, ISO 45001: 2018, ISO 27001