

Embrace LPWAN,

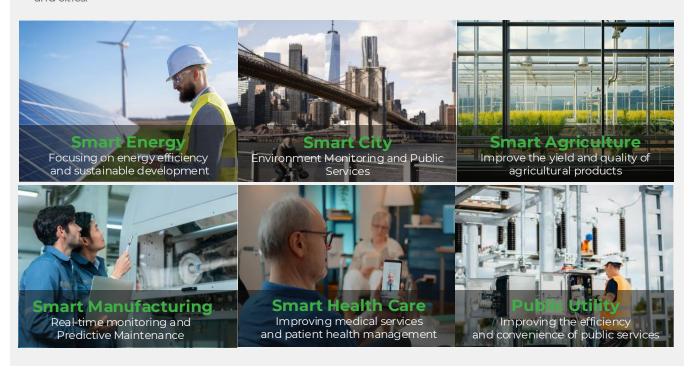
Empower Industrial Digitalization.

EC312 Series **LoRaWAN Gateway**

- · High-security · Programmable

- High-performance
 DeviceLive Cloud-Managed

The EC312 LoRaWAN Gateway is an industrial-grade device with the SX1302 chip, supporting 2,000 nodes and 15 km LOS / 2 km NLOS coverage. With embedded LNS, ChirpStack compatibility, multi-link redundancy, dual SIM failover, and security features like Secure Boot and TPM, it ensures reliable, secure connectivity for smart buildings, industries, and cities.



Solution



FC312

Built-in LoRaWAN network server



DeviceLive

- (i) Unified management
- Real-time remote monitoring
- Manage Edge Computing APP
- Safe&reliable data transmission





MORE.....



Feature and Advantage

High Performance & Programmable Platform

- CPU: ARM Cortex-A53 @1.4GHz, 1G SDRAM + 8G eMMC
- Runs standard Linux (Debian 11)
- Supports customer-developed edge applications
- Integrated Docker for application containerization
- Provides a reliable and flexible software environment for diverse industrial scenarios

• Secure and Reliable Operation

- Security features: Secure Boot, TPM 2.0, TrustZone, firewall, VPN
- System protection: Linux system security patching and vulnerability remediation
- Power loss resilience: Supercapacitor design for power-off protection
- Hardware/software watchdog for system monitoring

Robust and Flexible Communication

- Multi-network support: 4G, Wi-Fi, Fast Ethernet
- Redundancy: Wired/cellular/Wi-Fi mutual backup, dual SIM failover
- Resilience: Multilevel link detection, communication self-healing
- Ensures stable, uninterrupted connectivity in complex industrial environments



LoRaWAN Connectivity & Performance

- Powered by Semtech SX1302, supporting up to 2000 nodes
- Low power, up to 15 km range (depending on environment and antenna)
- Built-in LoRaWAN server for quick local deployment, compatible with mainstream servers

Efficient Data Acquisition with DeviceSupervisor™

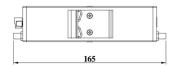
- "Zero code/Low code" cloud integration for fast deployment
- Supports 80+ industrial protocols: Modbus/TCP, OPC UA, BACnet, etc.
- Integrated data publishing services for public/private cloud and local SCADA

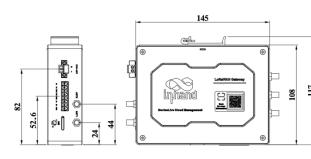
Intelligent Remote Management via DeviceLive

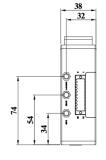
- Remote batch management of devices and edge Al applications
- Containerized application remote deployment and lifecycle management
- Secure remote access and maintenance

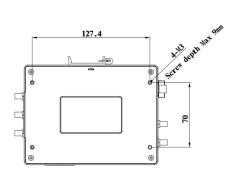


Dimensions (mm)













Product Specifications

Hardware Specific	ations	Hardware Specifications						
Item	EC312							
System								
CPU	ARM Cortex-A53 @1.4GHz							
RAM	1GBDDR4							
FLASH	8GBeMMC							
LoRaWAN								
Baseband Chip	Semtech SX1302							
Channel	8, Half-duplex							
Frequency	RU8 64/IN 865/EU 868/ US915/AU 915/KR920/AS923/ CN 470							
Maximum EIRP	27 dBm							
Receiver Sensitivity	-140dBm (125KHz/SFI2)							
Node Capacity	2000							
Communication Range	2 km NLOS coverage in urban areas, 15 km LOS coverage (depending on the environment and antenna installation method)							
Interfaces								
Ethernet Port	2 *10/100 Mbps Ethernet port							
Serial Port	1*RS-232/485+1*RS-485, is olation							
USB	USB2.0,1*Type A							
SIM Card	Nano SIM x 2							
Antenna Connector	LTE: SMA* 1, Wi-Fi: SMA* 1, GPS: SMA* 1, LoRaWAN: SMA* 1 Note: LTE antenna connector for North American models: SMA* 2							
Wi-Fi	STA, 802.11ac/a/b/g/n, 2.4G/5G							
Bluetooth	BLE 42							
GNSS	Satellite location GPS,1*SMA							
Button	Pinhole reset button *1; Programmable button *1							
TF card	MicroSD support, up to 32G Bexpansion							
Safety								
Secure Boot	Support							
TrustZone	Support							
ТРМ	Integrated TPM chip, TPM v2.0							
Others								
RTC	Support (button battery backup)							
Hardware watchdog	Support							
Power								
Powerinput	9-48V DC							
Power failure protection	Hold for 20 seconds after power failure (safe shutdown)							
Power failure alarm								
Mechanical charac	cteristics							
Installation	Panel, Rail	Weight	339g					
Dimensions	145*106*36mm	Protection Rating IP30						
Housing	Metal + Plastic	Cooling	Fanless					
Ambient Tempera	ture And Humidity							
Storage Temperature	-40 ~ 85°C	Ambient humidity 5~95% (non- condensing)						
Operation temperature	-20~ 70°C							
Indicator								
LED PWR, STATUS, WARN, NET, US ER * 4								

	E-0712				
Item	EC312				
Operating Systen					
OS	Debian 11, Kernel 5.10.168				
LoRaWAN					
LNS	Built-in LoRaWAN network server Compatible with mainstream network servers such as The				
	ThingsStack, ChirpStack, etc.				
Protocol	LoRaWAN 1.0/1.0.2, Class A/B/C				
Internet					
Access authentication	APN, VPDN				
Internet access	CHAP, PAP				
Network format	LTE CAT1				
LAN protocol	ARP, Ethernet				
WAN protocol	Static IP, DHCP				
Network Protocol					
IP Application	ICMP, DNS, TCP/UDP, TCP Server, DHCP				
IP Routing	Static routing				
Security					
Multileveluser	Multi-level management rights				
Data security	Firewall				
Daw Security	Open VPN, IPSec VPN				
Reliability					
Link Detection	Sends heart beat packets to detect, auto redials when disconnec				
Dual SIM Failover	Supports dual SIM failover				
Embedded Watchdog	Device runs self-detection, auto recovers from malfunctions				
Open Platform					
Secondary development environment	Multi-programming language development platform				
Access cloud platform	AWS, Azure, Ali and other cloud platforms				
Data Collection P	rotocol				
Industrial Protocol	Modbus RTU Master/Slave, Modbus TCP Master/Slave, EtherNet/IP, ISO on TCP, OPC UA Client/Server, Mitsubishi MC 3C/3E/3C Over TCP, Mitsubishi CPU Port, FINSUDP, HOstLink, PPI, DLT645-2007, IEC1045erver				
Network Manage					
Configuration	Web, Telnet, SSH				
Upgrade	Web, FOTA DFOTA				
Log	Support local system log, remote log and important log power-c autosave				
Configuration backup	Import and export configuration files				
Remote management	In Hand DeviceLive or HTTP, HTTPS, Telnet, SSH, etc.				
Platform Feature	Supports cloud-based parameter configuration, container management application and firmware management				



Product Specifications

Hardware Specifications						
Item	EC312					
EMC						
Static	EN61000-4-2, level 3					
Radiation Electric Field	EN610 00-4-3, level 3					
Pulsed Electric Field	EN61000-4-4, level 3					
Surge	EN61000-4-5, level 3					
Conducted Disturbance Immunity	ENG1000-4-6, level 3					
Shock Wave Resistance	EN61000-4-12, level 3					
Power Frequency Magnetic Field Resistance	EN61000-4-8, horizontal / vertical 400A/m (>level 2)					
Physical Specs						
Shockproof	IEC60068-2-27	Vibration Resistance	IEC60068-2-6			
Free Fall	IEC60068-2-32					
Certification						
CE, FCC, IC, PTCRB						



Ordering Guide

Minimum Model	<wmnn>: Cellular Type & Module</wmnn>	LoRaWAN	RAM	FLASH	Ethernet Port	Serial Port	GNSS/ Wi-Fi/ BT/TPM
EC312-H-FQ53-L868	EMEA CATI FDD: B1/B3/B7/B8/B20/B28 TDD: B38/B40/B41 GSM: B2/B3/B5/B8	EU868	1GB	8GB	2*10/100M	1*RS232/485 +1*RS485	YES
EC312-H-FQ33-L915	North America CATI FDD: B2/B4/B5/B12/B13/B25/B26 WCDMA: B2/B4/B5	US915/ AS923	1GB	8GB	2*10/100M	1* RS232/485 +1* RS485	YES
EC312-H-FQ53-L915	EMEA CATI FDD: B1/B3/B7/B8/B20/B28 TDD: B38/B40/B41 GSM: B2/B3/B5/B8	US915/ AS923	1GB	8GB	2 * 10/100M	1 * RS232/485 +1 * RS485	YES
EC312-H-LQA3-L470	China CATI LTE-FDD BVB3/B5/B8 LTE-TDD B34/B38/B39/B40/B41	CN470	1GB	8GB	2*10/100M	1* RS232/485 +1* RS485	YES

About Us

In Hand Networks is a leading IoT solutions provider founded in 2001, dedicated to driving digital transformation across industries and empowering customers to unlock their full potential and achieve accelerated growth.

We specialize in delivering industrial-grade connectivity solutions for diverse sectors, such as enterprise networks, industrial and building IoT, digital energy, smart commerce, and mobility. Our comprehensive product portfolio and services cater to various applications worldwide, including smart manufacturing, smart grid, intelligent transportation, smart retail, etc. With a global footprint spanning over 60 countries, we serve customers in China, the United States, France, Germany, the United Kingdom, Italy, and beyond.



3650 Concorde Pkwy, Suite 200 Chantilly, VA 20151, USA T: +1 (703) 348-2988 E: info @inhand.com www.inhand.com