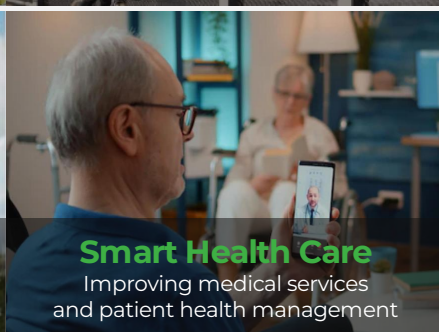Embrace edge computing,

Empower Industrial Digitalization.

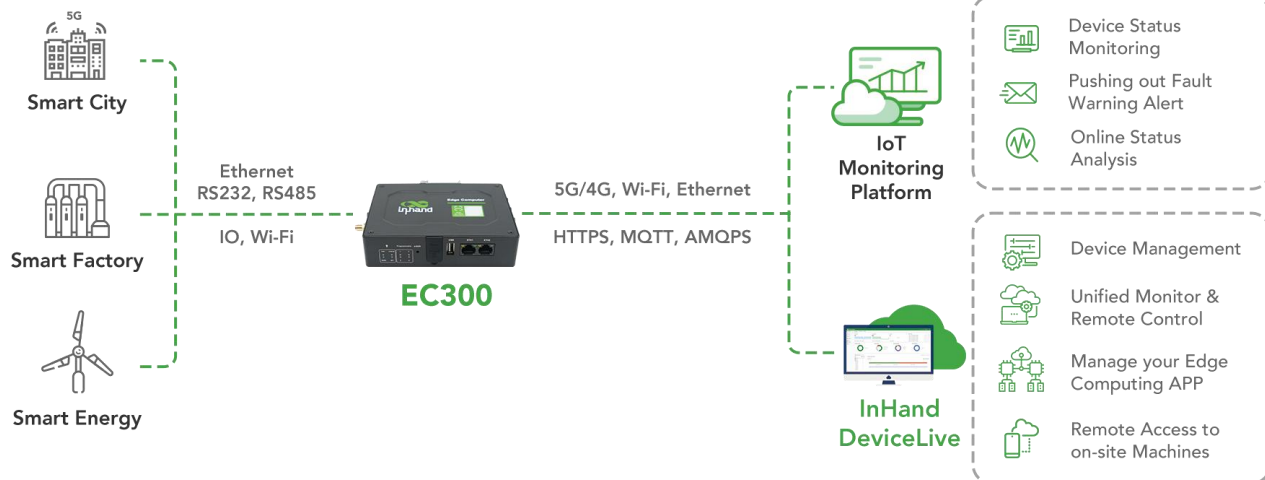# EC312 Series
Secure Edge Computer

- Standard Linux OS
- IEC62443 Certified
- Cloud Management

The EC312 series edge computer is designed for users developing lightweight edge applications. It adopts standard Linux OS, such as Debian, making software development more convenient for users. The EC312 has been certified to IEC62443, effectively ensuring software and data security. The EC312 provides multiple interfaces, including Ethernet, Serial, and USB, and can be flexibly expanded with additional interfaces such as extra serial ports, CAN, and analog inputs. The EC312 supports InHand DeviceLive cloud, facilitating remote device monitoring and user app management.

Predictive Maintenance
Real-time monitoring and predictive maintenance of discrete devices

Smart Energy
Focusing on energy efficiency and sustainable development

Smart City
Improving urban management and public services

Smart Manufacturing
Real-time monitoring and controlling

Public Utility
Improving the efficiency and convenience of public services

Smart Health Care
Improving medical services and patient health management

Solution

5G

Smart City

Smart Factory

Smart Energy

Ethernet
RS232, RS485

IO, Wi-Fi

EC300

5G/4G, Wi-Fi, Ethernet

HTTPS, MQTT, AMQPS

IoT Monitoring Platform

- Device Status Monitoring
- Pushing out Fault Warning Alert
- Online Status Analysis

InHand DeviceLive

- Device Management
- Unified Monitor & Remote Control
- Manage your Edge Computing APP
- Remote Access to on-site Machines

Feature and Advantage

System

- CPU: ARM Cortex-A53@1.4GHz
- 1G SDRAM + 8G eMMC
- Standard Linux OS
  Debian 11, Yocto(Coming soon)

High-level security

- IEC62443 Certified
- Secure Boot
- TPM 2.0
- TrustZone
- Linux system security patches and vulnerability remediation services
- Firewall, VPN

Rich interfaces

- 2x 10/100Mbps ethernet interface
- 1x RS-232/RS-485 + 1x RS-485
- 1x USB2.0
- 1x MicroSD
- Supports expansion CAN/DIO/Analog Input/RS-232/485
- GPS, WIFI and Bluetooth optional
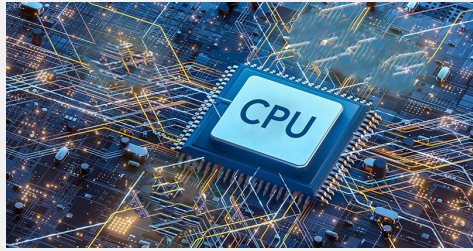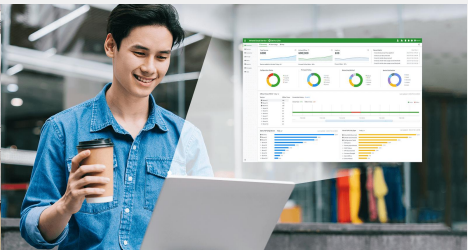
Stable communication

- 4G/Wi-Fi/FE,etc
- Ethernet, cellular, Wi-Fi mutual backup, dual SIM failover
- Multilevel link detection, communication self-healing
- Supercapacitor design, support power off protection
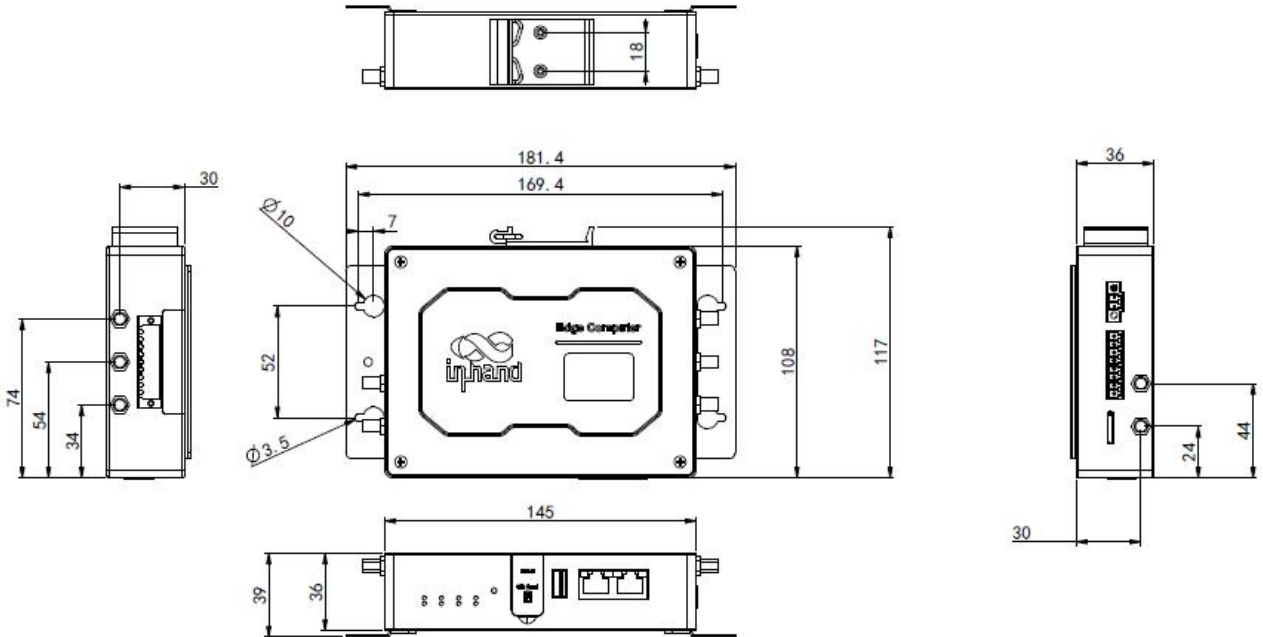
Device Supervisor™ Agent Service

- "Zero code/Low code" easy to achieve data acquisition on the cloud
- Integrate 80+ mainstream data acquisition protocols
- Support data preprocessing
- Integrated data publishing services, public cloud, private cloud, local SCADA and other seamless access

InHand DeviceLive Cloud Service

- Remote device access
- Remote device batch management
- Remote batch management of edge applications
- Remote container management

Dimensions (mm)

Product Specifications

Hardware Specifications	
Item	EC312
Hardware Platform	
CPU	ARM Cortex-A53@1.4GHz
RAM	1GB DDR4
FLASH	8GB eMMC
Interfaces	
Ethernet Port	2x 10/100Mbps Ethernet port
Serial Port	1x RS-232/485+1x RS-485, isolation
USB	USB 2.0，1x Type A
SIM Card	Nano SIM x2
Antenna Connector	LTE：SMA x1, Wi-Fi：SMA x1, GPS：SMA x1, LoRa：SMA x1 Note: North America models: 2 x SMA 4G antenna connectors.
Wi-Fi(Optional)	STA/AP，802.11ac/a/b/g/n，2.4GHz/5GHz
Bluetooth (Optional)	BLE 4.2
GPS(Optional)	Satellite location GPS, SMA x1
Button	Pinhole reset button x1；Programmable button x1
TF card	MicroSD support, up to 32GB expansion
Interface extension (Optional, See order list)	Up to 2x RS-232/RS-485/analog input/CAN FD, isolation
	Up to 4x DI+4 x DO, isolation
Security	
TPM(Optional)	Integrated TPM chip, TPM2.0
Others	
RTC	Support (button battery backup)
Hardware watchdog	Support
Power	
Power input	9-48V DC
Power consumption	6W(MAX)
Power failure protection	Hold for 20 seconds after power failure (safe shutdown)
Power failure alarm	Power failure alarms when power failure happens

Mechanical characteristics			
Installation	Panel,Rail	Weight	339g
Dimensions	145x106x36mm	Protection Rating	IP30
Housing	Metal + Plastic	Cooling	Fanless

Ambient Temperature And Humidity			
Storage Temperature	-40 ~ 85℃	Ambient humidity	5~ 95% (non-condensing)
Operation temperature	-20~ 70℃		

Indicator	
LED	PWR, STATUS, WARN, NET，USER * 4

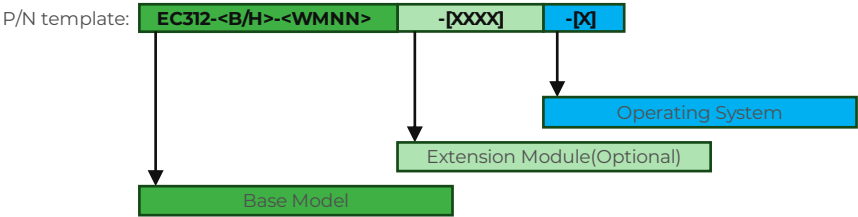| Software Specifications	
Item	EC312
Operating System	
OS	Debian 11，Kernel 5.10.168；Yocto
Internet	
Access authentication	APN, VPDN
Internet access	CHAP,PAP
Network Type	LTE CAT 1
LAN protocol	ARP, Ethernet
WAN protocol	Static IP, DHCP
Network Protocol	
IP Application	ICMP, DNS, TCP/UDP, TCP Server, DHCP
IP Routing	Static routing
Security	
Multilevel user	Multi-level management rights
Data security	Firewall
	Secure Boot, TrustZone
Reliability	
Link Detection	Sends heartbeat packets to detect, auto redials when disconnected
Dual SIM Failover	Supports dual SIM failover
Embedded Watchdog	Device runs self-detection, auto recovers from malfunctions
Open Platform	
Development environment	Multi-programming language development platform
Cloud platform	AWS, Azure, Ali and other cloud platforms
Data Acquisition Protocol(*DSA)	
Industrial Protocol	Modbus RTU Master/Slave, Modbus TCP Master/Slave, EtherNet/IP, ISO on TCP, OPC UA Client/Server, Mitsubishi MC 3C/3E/3C OverTCP, Mitsubishi CPU Port, FINSUDP, HostLink, PPI
Electricity Protocol	DLT645-2007, IEC101/104, DNP3.0
Other Protocol	BACnet, CNC Protocol
Network Management	
Configuration	Web, SSH
Upgrade	Web, FOTA, DFOTA
Log	Support local system logs, remote logs, and important log power-off preservation
Configuration backup	Import and export configuration files
Remote management	InHand DeviceLive or HTTP, HTTPS, SSH, etc
DeviceLive Cloud	Supports cloud-based parameter configuration, container management, application and firmware management

*DSA: The DeviceSupervisor Agent (DSA), developed by InHand Networks, is a cutting-edge intelligence software designed to operate on Edge Computer products. It enables clients to quickly implement data collection, processing, protocol conversion, and cloud connectivity through a "zero code/low code" approach. If you need the DSA application on the EdgeComputer product, please contact us to obtain the DSA software package.

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Product Specifications

Hardware Specifications			
Item	EC312		
EMC			
Static	EN61000-4-2, level 3		
Radiation Electric Field	EN61000-4-3, level 3		
Pulsed Electric Field	EN61000-4-4, level 3		
Surge	EN61000-4-5, level 3		
Conducted Disturbance Immunity	EN61000-4-6 ,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, UL, Verizon, AT&T, T-Mobile, IEC62443-4-2			

InHand **Networks**

▌ Ordering Guide

Description of selection

P/N template: **EC312-<B/H>-<WMNN>**   **-[XXXX]**   **-[X]**

Operating System

Extension Module(Optional)

Base Model

Base Model

Base Model	<B/H>: GPS&Wi-Fi &BT&TPM	<WMNN>: Cellular Type & Module	Memory	FLASH	Ethernet Port	Serial Port
EC312-B-LQA3	NO	China Cat1 FDD:B1/B3/B5/B8 TDD:B34/B38/B39/B40/B41	1GB	8GB	2*10/100M	1*RS232/485 +1*RS485
EC312-H-LQA3	YES	China Cat1 FDD:B1/B3/B5/B8 TDD:B34/B38/B39/B40/B41	1GB	8GB	2*10/100M	1*RS232/485 +1*RS485
EC312-B-FQ53	NO	EMEA&APAC Cat1 FDD:B1/B3/B7/B8/B20/B28 TDD:B38/B40/B41 GSM:B2/B3/B5/B8	1GB	8GB	2*10/100M	1*RS232/485 +1*RS485
EC312-H-FQ53	YES	EMEA&APAC Cat1 FDD:B1/B3/B7/B8/B20/B28 TDD:B38/B40/B41 GSM:B2/B3/B5/B8	1GB	8GB	2*10/100M	1*RS232/485 +1*RS485
EC312-B-FQ33	NO	North America Cat1 FDD:B2/B4/B5/B12/B13/B25/B26 WCDMA:B2/B4/B5	1GB	8GB	2*10/100M	1*RS232/485 +1*RS485
EC312-H-FQ33	YES	North America Cat1 FDD:B2/B4/B5/B12/B13/B25/B26 WCDMA:B2/B4/B5	1GB	8GB	2*10/100M	1*RS232/485 +1*RS485
EC312-B-FQ39	NO	North America CAT6 FDD:B2/B4/B5/B7/B12/B13/B14/B17 /B25/B26/B29/B30/B66/B71 TDD:B41/B48	1GB	8GB	2*10/100M	1*RS232/485 +1*RS485
EC312-H-FQ39	YES	North America CAT6 FDD:B2/B4/B5/B7/B12/B13/B14/B17 /B25/B26/B29/B30/B66/B71 TDD:B41/B48	1GB	8GB	2*10/100M	1*RS232/485 +1*RS485
EC312-B-FQ73	NO	Australia & Latin America Cat1 FDD: B1/B2/B3/B4/B5/B7/B8/B28/B66 TDD: B38/B40/B41 GSM: B2/B3/B5/B8	1GB	8GB	2*10/100M	1*RS232/485 +1*RS485
EC312-H-FQ73	YES	Australia & Latin America Cat1 FDD: B1/B2/B3/B4/B5/B7/B8/B28/B66 TDD: B38/B40/B41 GSM: B2/B3/B5/B8	1GB	8GB	2*10/100M	1*RS232/485 +1*RS485

InHand Networks

Extension Module(Optional)

[XXXX]	
P/N Code	Feature
NAAD	2x 4-20mA analog input+4x DI+4x DO
N44C	2x RS-485+1x CAN FD
N4CC	1x RS-485+2x CAN FD
N44D	2x RS-485+4x DI+4x DO
—	NONE

• The Optional Module interface definition is given in the user manual.

Operating System(Optional)

[X]	
P/N Code	Feature
—	*IEOS
D	*Debian Linux OS

• **IEOS(InHand Edge Operating System)** is InHand Networks' operating system based on standard Linux OS for IoT ARM platform edge computers , helping customers achieve safe and stable industrial edge intelligent applications. IEOS contains InHand applications such as web configuration, Cellular dialing, routing, firewall, VPN, cloud management, etc.

• **Debian Linux OS:** Debian OS without InHand applications.

Example

Model:EC312-B-LQA3-N44D.

"EC312-B-LQA3" means Base Model.

"-N44D" means a optional module includes 2xRS-485, 4x DI and 4x DO.

Factory pre-installed IEOS.

For more information, please visit https://www.inhand.com

About Us

InHand 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.

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