

Embrace edge computing, Empower Industrial Digitalization



EC312 Series Secure Edge Computer

· IEC62443 Certified

· Standard Linux OS

· Cloud Management

· Rich Interfaces

1. Product Overview

EC312 is a secure industrial edge computer designed for lightweight edge applications with reliable connectivity, flexible expansion, and cloud-native operations.

Key features:

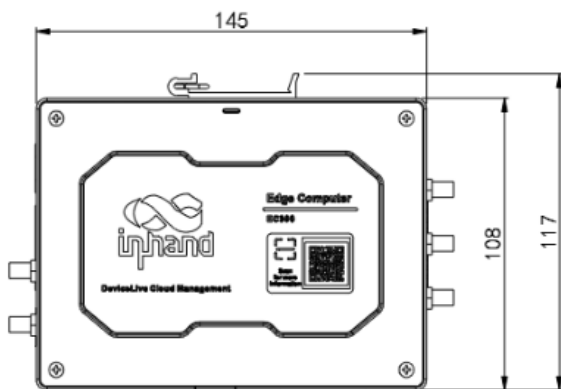
- **Industrial security:** IEC62443 certified, Secure Boot, TPM2.0, TrustZone
- **Reliable connectivity:** Ethernet/cellular/Wi-Fi backup with dual SIM failover
- **Flexible expansion:** Supports CAN, DIO, analog input, and extra serial options
- **Open software stack:** Debian 11 and Yocto options, Docker-ready platform
- **Remote operations:** DeviceLive for remote monitoring and app/container management

Core Technical Specifications

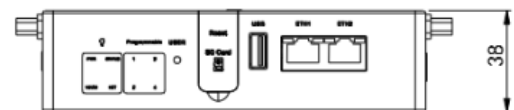
Technical Indicator	Specification
Cellular Network	LTE Cat1 / Cat6 (model-dependent)
Network Features	APN, VPDN, CHAP/PAP, ARP, DHCP, ICMP, DNS, TCP/UDP, static routing
Security	IEC62443 certification, Secure Boot, TrustZone, firewall
Cloud Management	DeviceLive, HTTP/HTTPS/SSH remote management
Data Acquisition	Modbus RTU/TCP, EtherNet/IP, OPC UA, DNP3.0, BACnet, CNC
Open Platform	Debian 11 / Yocto, Docker-ready, multi-language development
CPU	ARM Cortex-A53 @1.4GHz
Memory / Storage	1GB DDR4 / 8GB eMMC

Technical Indicator	Specification
Interfaces	2×FE, 1×RS-232/485 + 1×RS-485, USB2.0 Type-A, Nano SIM×2, MicroSD
Power Input	9~48V DC (max 6W)
Dimensions (W × D × H)	145 × 106 × 36 mm
Protection Rating	IP30

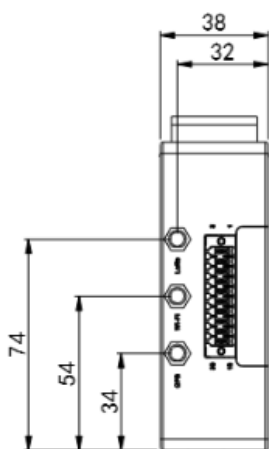
2. Product Dimensions



Front View



Interface Diagram



Side View

Note:

1. All dimensions are in millimeters (mm).
2. All dimensions are approximate and for reference only.
3. Dimensioned drawings are not intended for machining.
4. Dimensions are subject to part and manufacturing tolerances.
5. Specifications may change without prior notice.

3. Hardware Specifications

Category/Parameter	Specification
Hardware Platform	
CPU	ARM Cortex-A53 @1.4GHz
RAM	1GB DDR4
FLASH	8GB eMMC
Connectivity & Interfaces	
Ethernet Ports	2x 10/100Mbps Ethernet port
Serial Ports	1×RS-232/485 + 1×RS-485 (isolated)
CAN	Up to 2×CAN FD (isolated, via expansion module)
SIM Card Holders	Nano SIM×2
Antenna Connectors	LTE: SMA×1, Wi-Fi: SMA×1, GPS: SMA×1, LoRa: SMA×1 (North America models: 2×SMA 4G antenna connectors)
USB	USB2.0 Type-A
TF	MicroSD (up to 32GB)
Buttons	Pinhole reset button ×1; programmable button ×1
WiFi(Optional)	Wi-Fi STA/AP (802.11ac/a/b/g/n, 2.4/5GHz)
Bluetooth(Optional)	BLE4.2
GPS(Optional)	Satellite location GPS
Expansion Interfaces	Up to 2×RS-232/485/analog input/CAN FD, isolation up to 4×DI + 4×DO, isolation
Power & Power Consumption	

Category/Parameter	Specification
Input Voltage	9~48V DC
Power Interface	DC terminal input
Maximum Value (Full Load)	Max 6W
Power Failure Protection	Hold for 20 seconds after power failure (safe shutdown)
Power Failure Alarm	Power failure alarms when power failure happens
Mechanical Specifications	
Product Dimensions	145×106×36mm
Product Weight	339g
Mounting Method	Panel / DIN-rail mounting
Protection Rating	IP30
Enclosure & Heat Dissipation	Metal + plastic enclosure, fanless industrial design
RTC	RTC backup supported
Hardware Watchdog	Supported
TPM(optional)	TPM2.0
LED Indicators	PWR, STATUS, WARN, NET, USER ×4
Environment & Certifications	
Storage Temperature	-40~85°C
Operating Temperature	-20~70°C

Category/Parameter	Specification
Environmental Humidity	5~95% RH (non-condensing)
Physical Characteristics	IEC60068-2-27 shock resistance IEC60068-2-6 vibration resistance IEC60068-2-32 drop resistance
EMC Standard	EN61000-4-2, level 3, Static EN61000-4-3, level 3, Radiation Electric Field EN61000-4-4, level 3, Pulsed Electric Field EN61000-4-5, level 3, Surge EN61000-4-6, level 3, Conducted Disturbance Immunity EN61000-4-8, Power Frequency Field Resistance, horizontal / vertical 400A/m (>level 2) EN61000-4-12, level 3, Shock Wave Resistance
Certifications	CE, FCC, IC, PTCRB, UL, Verizon, AT&T, T-Mobile, IEC62443-4-2

4. Software Specifications

Category/Parameter	Specification
Operating System	
Operating System	Debian 11 (Kernel 5.10.168) / Yocto
Network Features	
Network Type	LTE Cat1 / LTE Cat6 (North America region), Ethernet
Network Access	APN, VPDN
Access Authentication	CHAP/PAP
WAN Protocols	Static IP, DHCP

Category/Parameter	Specification
LAN Protocols	ARP, Ethernet
IP Applications	ICMP, DNS, TCP/UDP, TCP Server, DHCP
IP Routing	Static routing
Security	
Secure Boot	Supported
Trust Zone	Supported
User Management	Multi-level management rights
Network Security	Firewall
Data Security	VPN
Other Technologies	IEC62443 security architecture
Reliability	
Link Detection	Sends heartbeat packets to detect, auto redials when disconnected
Built-in Watchdog	Embedded watchdog
Dual SIM Switchover	Supported
Open platform & Data Acquisition Protocols (DSA)	
Secondary Development Environment	Multi-language development environment
Access Cloud Platform	AWS, Azure, Ali and other cloud platforms
Docker	Supported

Category/Parameter	Specification
Industrial Protocols	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
Power Protocols	DLT645-2007, IEC101/104, DNP3.0
Other Protocols	BACnet, CNC
Network Management	
Configuration Method	Web / SSH
Upgrade Method	Web / FOTA / DFOTA
Log Functions	Local and remote logs with important log power-off preservation
Configuration Backup	Import/export configuration
Remote Management	DeviceLive / HTTP / HTTPS / SSH
DeviceLive Cloud	supports cloud-based parameter configuration, container management, application and firmware management

5. Ordering Information

Model Rule

Model code: EC312-<B/H>-<WMNN>-[XXXX]-[X]

<B/H>: GPS/Wi-Fi/BT/TPM support (B=No, H=Yes)

<WMNN>: Cellular Type & Module

[XXXX]: Extension module option (optional)

[X]: Operating system option (optional)

Base Models

Model	<B/H>	Region	Cellular Bands	Ethernet/Seria
EC312-B-LQA3	NO	China	Cat1, FDD: B1/B3/B5/B8, TDD: B34/B38/B39/B40/B41	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	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	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	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	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	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/B 66, TDD: B38/B40/B41, GSM: B2/B3/B5/B8	2×10/100M, 1×RS232/485 + 1×RS485
EC312-H-EN00	YES	No Cellular	No cellular	2×10/100M, 1×RS232/485 + 1×RS485

Extension Module (Optional)

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

Operating System (Optional)

[X] P/N Code	Feature
—	IEOS (default)
D	Debian Linux OS