InHand Networks

Standard Edge Computer

Flexible, Secure, Cloud Managed

EC300

Embrace edge computing to empower industrial digitization

EC300 series industrial edge computer is a highly integrated Arm-based Linux platform. It is a compact edge computer, specifically for users who need lightweight application design.

The EC300 provides rich interfaces and flexible extensions. The basic version provides 2 serial ports, 2*10/100M Ethernet, 1*USB 2.0, and can expand to support Wi-Fi, Bluetooth, LORA, I/O, GPS, CAN FD, Serial port and other interfaces. It has 1*Mini-PCIE slot: it can be extended to cellular solutions.

The EC300 has a built-in Linux distribution and provides long-term support for the Linux kernel, including security patches and troubleshooting, to meet the needs of computing systems in industrial automation applications to extend the life cycle and ensure industrial projects are safe and sustainable.

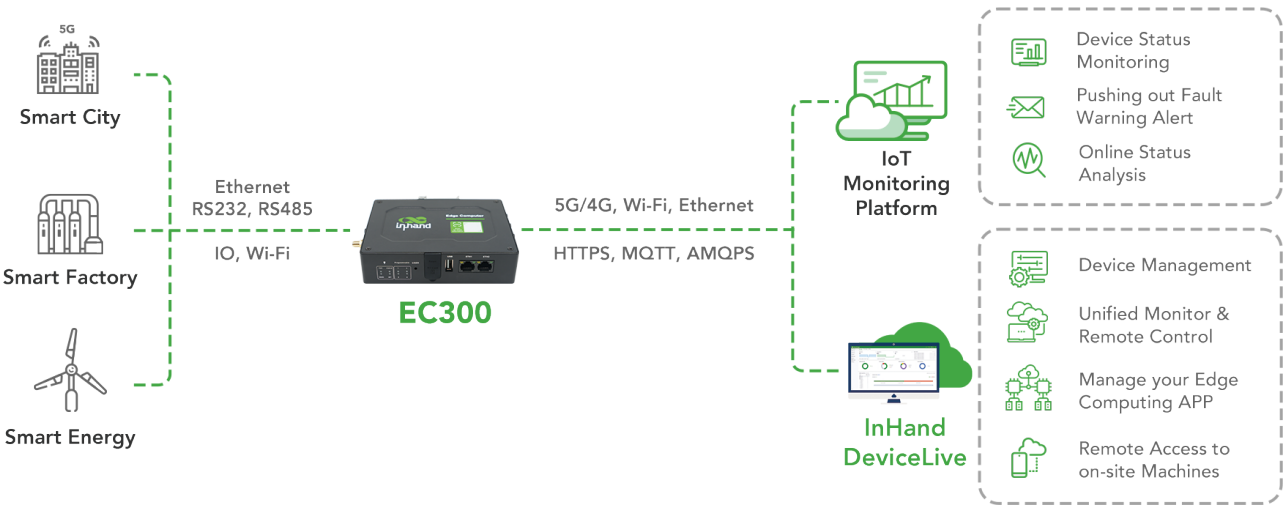
The EC300 supports security features such as Secure Boot and TPM to ensure software and data security. It can be shipped with built-in Device Supervisor™ Agent service, easy to achieve data acquisition, processing and cloud.

EC300 supports InHand DeviceLive, in addition to the realization of conventional computer remote management, it also support computer remote container management, application version control, remote operation and maintenance of user devices.

The EC300 series is particularly suitable for data acquisition and monitoring of distributed unattended field equipment, such as:

Smart Energy	- charging pile, meter - Distribution automation - Wind energy, petroleum and petrochemical, solar energy
Smart City	- heating, water supply, gas supply - Security, traffic, electronic police - Smart parking
Smart Manufacturing	- OEM discrete manufacturing machine networking - Industrial robot networking - Industrial automation factory, production line
Smart Healthcare	- Medical equipment networking and other fields of application

Application



Features and Advantages

Diversified interfaces meet the requirements of various scenarios

- Standard 2*10/100Mbps Ethernet.
- Standard 1*RS232/RS485+1*RS485.
- Standard 1*USB 2.0.
- Support Wi-Fi/BLE/GPS/TPM.
- Interface expansion: Up to 2* RS232/RS485/AI/CAN+1*LORA.
- I/O expansion: Supports up to 4 x DI+4 x DO.

Built -in InHand Device Supervisor ™ Agent service, easy to collect, process and upload data to cloud

- Built-in InHand Device Supervisor ™ Agent service for simple configuration, no programming required.
- Support mainstream industrial protocols, including Modbus RTU/TCP/ASCII, OPC UA, ISO on TCP, etc.
- Support public cloud platforms such as AWS, Azure, and Alibaba, also support connecting with mainstream IoT cloud platforms, and provides you with diversified IoT cloud ecological solutions.

Security reinforcement to protect the digital economy

- Continuously provide Linux system security patches and vulnerability repair services.
- Support Secure Boot to prevent malware injection attacks.
- Integrated TPM 2.0 security chip, which greatly protects equipment and data security.

Distribution Linux system, secondary development is more convenient

- Adopt InHand IEOS (based on Debian OS) to provide you with flexible and diverse secondary development environment;.
- Support free programming in a variety of high-level languages.

Highly reliable design for harsh industrial environments

- EMC3, wide temperature -20~70℃, wide voltage power supply +9~48VDC.
- Support power failure protection, abnormal power failure when the system automatically shut down safely, worry-free operation.

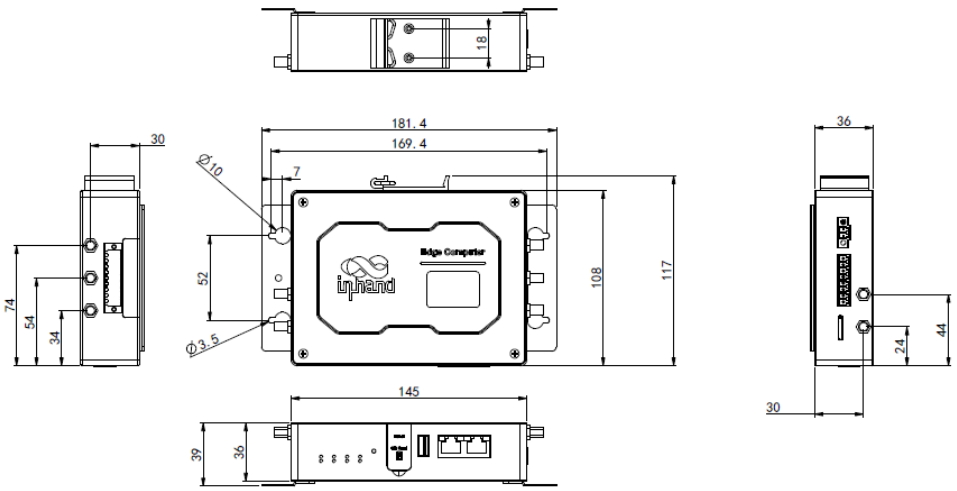
Multiple network access, reliable data transmission

- Support global 5G/4G cellular network. InHand 20 years of experience in cellular network communication allows you to obtain high-availability Internet access even in sites without wired networks.
- Support Gigabit Ethernet and Wi-Fi, and support mutual backup of wired, cellular and Wi-Fi networks, also support dual SIM card. The redundant design of these WAN links provides you with reliable uninterrupted Internet access.

InHand DeviceLive Cloud services help you easily achieve batch deployment and maintenance

- Cloud-based parameter configuration, container management, application and firmware management.
- Provide cloud-based status monitoring, online status, signal strength, traffic consumption and other information at a glance.
- Provide remote access services for PLC and other user equipment to provide a safe and reliable remote access channel.

Dimensions (mm)



Product Specifications

Hardware Specifications			
Item	EC302	EC312	
Hardware Platform			
CPU	ARM Cortex-A53@800MHz	ARM Cortex-A53@1.4GHz	
RAM	1GB DDR4		
FLASH	8GB eMMC		
Interfaces			
Ethernet Port	2*10/100Mbps Ethernet port		
Serial Port	1*RS-232/485, 1*RS-485, expandable up to 4 serial ports , isolation		
USB	USB 2.0，1*TypeA		
SIM Card	Nano SIM x 2		
Antenna Connector	LTE：SMA *1,Wi-Fi：SMA * 1,GPS：SMA* 1,LORA：SMA* 1 Note: North America models: 2 x SMA 4G antenna connectors.		
Wi-Fi(Optional)	STA，802.11ac/a/b/g/n，2.4G/5G		
Bluetooth (Optional)	BLE 4.2		
GPS(Optional)	Satellite location GPS, 1*SMA		
Button	Pinhole reset button *1；Programmable button*1		
TF card	MicroSD support, up to 32GB expansion		
Interface extension	LORA		
	Up to 2* RS232/RS485/4-20mA/CAN FD, isolation		
	Up to 4 x DI+4 x DO, isolation		
Safety			
TPM(Optional)	Integrated TPM chip, TPM v2.0		
Others			
RTC	Support (button battery backup)		
Hardware watchdog	Support		
Power			
Power input	9-48V DC		
Power failure protection	Hold for 20 seconds after power failure (safe shutdown)		
Power failure alarm	After a power failure, you can send a power failure alarm		
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		
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			

Software Specifications	
Item	EC302/312
Operating System	
OS	Debian 11，Kernel 5.10.168
Internet	
Access authentication	APN、VPDN
Internet access	CHAP/PAP
Network format	5G SA/NSA、LTE Cat1
LAN protocol	ARP、Ethernet
WAN protocol	Static IP、DHCP
Network Protocol	
IP Application	ICMP、DNS、TCP/UDP、TCPServer、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	
Secondary development environment	Multi-programming language development platform
Access cloud platform	AWS, Azure, Ali and other cloud platforms
Industrial Protocol	
Industrial Protocol	ModbusRTU Master/Slave、ModbusTCP Master/Slave、EtherNet/IP、ISOonTCP、OPCUAClient/Server、MitsubishiMC 3C/3E/3COverTCP、MitsubishiCPUPort、FINSUDP、HostLink、PPI、DLT645-2007、IEC104Server
Network Management	
Configuration	Web,Telnet,SSH
Upgrade	Web,FOTA,DFOTA
Log	Support local system log, remote log export and important log power-off save
Configuration backup	Import and export configuration files
Remote management	InHand DeviceLive or HTTP, HTTPS, Telnet, SSH, etc.
DeviceLive Cloud	Supports cloud-based parameter configuration, container management, application and firmware management

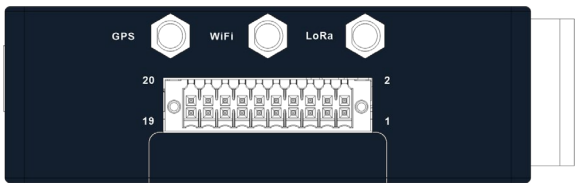
Extended specification

EC300 enables flexible interface expansion, which is freely combined by four independent expansion modules (LORA module, Expansion module A, expansion module B and expansion module C) according to requirements, allowing different combinations of isolated CAN, RS485, RS232, analog input and DI/DO. The expansion module is installed on the expansion socket inside the device, and the overall structure is small and compact. The following table shows the supported extension combinations and ordering codes.

Expansion Module	Functional	P/N Code
LORA	NONE	N
	LORA	L
ModuleA	NONE	N
	RS232	2
	RS485	4
	CAN FD	C
	4-20mA	A
ModuleB	NONE	N
	RS232	2
	RS485	4
	CAN FD	C
	4-20mA	A
ModuleC	4DI+4DO	D
	CAN FD	C

*If you need to expand the module, please add the PN code of the optional function after the smallest model listed in the selection table, such as EC302-B-LQA3-L22D, indicating that the product additional support LORA+RS232*1+RS232*1+4DI+4DO

Extended Interface Definition



Expansion Module	PIN	Interface Definition
ModuleA	1	A_232_TX/485_A/CAN1_H/AIN1+
	2	A_232_RX/485_B/CAN1_L
	3	AIN1-
	4	GND
ModuleB	5	B_232_TX/485_A/CAN2_H/AIN2+
	6	B_232_RX/485_B/CAN2_L
	7	AIN2-
	8	GND
ModuleC	9	CAN3_H
	10	CAN3_L
	11	DO0
	12	DO1
	13	DO2
	14	DO3
	15	DI0
	16	DI1
	17	DI2
	18	DI3
	19	DI_COM
	20	GND

Ordering Guide

Minimum Model	<WMNN>: Cellular Type & Module	Memory	FLASH	Ethernet Port	Serial Port	GPS&Wi-Fi&BT&TPM
EC312-B-LQA3	China CAT1 LTE-FDD B1/B3/B5/B8 LTE-TDD B34/B38/B39/B40/B41	1GB	8GB	2*10/100M	1*RS232/485+1*RS485	NONE
EC312-H-LQA3	China CAT1 LTE-FDD B1/B3/B5/B8 LTE-TDD B34/B38/B39/B40/B41	1GB	8GB	2*10/100M	1*RS232/485+1*RS485	YES
EC312-B-FQ53	EMEA 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	NONE
EC312-H-FQ53	EMEA 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	YES
EC312-B-FQ33	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	NONE
EC312-H-FQ33	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	YES
EC312-B-FQ73	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	NONE
EC312-H-FQ73	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	YES

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.

InHand Networks

43671 Trade Center Place, Suite 100, Dulles,
VA 20166, USA
T: +1 (703) 348-2988
E: info@inhandnetworks.com
www.inhandnetworks.com