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InHand Networks


# InHand Edge Intelligence Solution


## 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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# InHand Edge Intelligence Solution

## InHand Edge Intelligence Solution

Designed for industrial IoT, the InHand Edge Intelligent Solution empowers industrial enterprises to rapidly establish an intelligent edge network tailored to their business needs, enabling more flexible, efficient, and secure data processing and transmission.

# Trends and Challenges of Industrial Digitalization

Industrial digitization is the process of transforming traditional industrial production and operations through the adoption of digital technologies and information and communication technologies ( ICTs ). Industrial digitalization can not only improve the efficiency and quality of the manufacturing industry, but also create more business opportunities for enterprises, bring higher competitiveness and sustainability. Hence, it is an inevitable choice for the current development of industrial enterprises

## Trends of Industrial Digitalization

Penetration of the Internet of Things
The widespread application of Internet of Things (IoT) technology enables industrial equipment and sensors to be connected to each other, enabling real-time monitoring and data exchange, improving production efficiency and quality.

Rise of Edge Computing
Edge computing enables data processing capabilities to be closer to the data source, reduces latency, adapts to real-time requirements, and plays a positive role in industrial digitalization.


Application of Artificial Intelligence and Machine Learning Artificial intelligence (AI) and machine learning (ML) algorithms are increasingly used in industrial digitalization for predictive maintenance, quality control, production optimization, etc., improving the intelligence and efficiency of the system. Adaptability.


Application of 5G Technology
5G technology provides higher bandwidth and lower latency, enabling industrial equipment to better communicate in real time, supporting large-scale device connections and high-speed data transmission.

## Challenges Facing Industrial Digitalization

**Security and Privacy Issues**

As digitization expands, industrial systems face more cybersecurity threats. In addition, the collection and sharing of large amounts of data also raises concerns about privacy protection

**Talent Shortage**

Implementing industrial digitalization requires professional technical talents, including Internet of Things experts, data analysts, artificial intelligence engineers, etc. The talent shortage in this area is a challenge

**Technical Standards and Interoperability**

Industrial digitalization involves multiple technical fields. Different equipment and systems use different standards and protocols, and interoperability issues have become a constraint

**Data Governance**

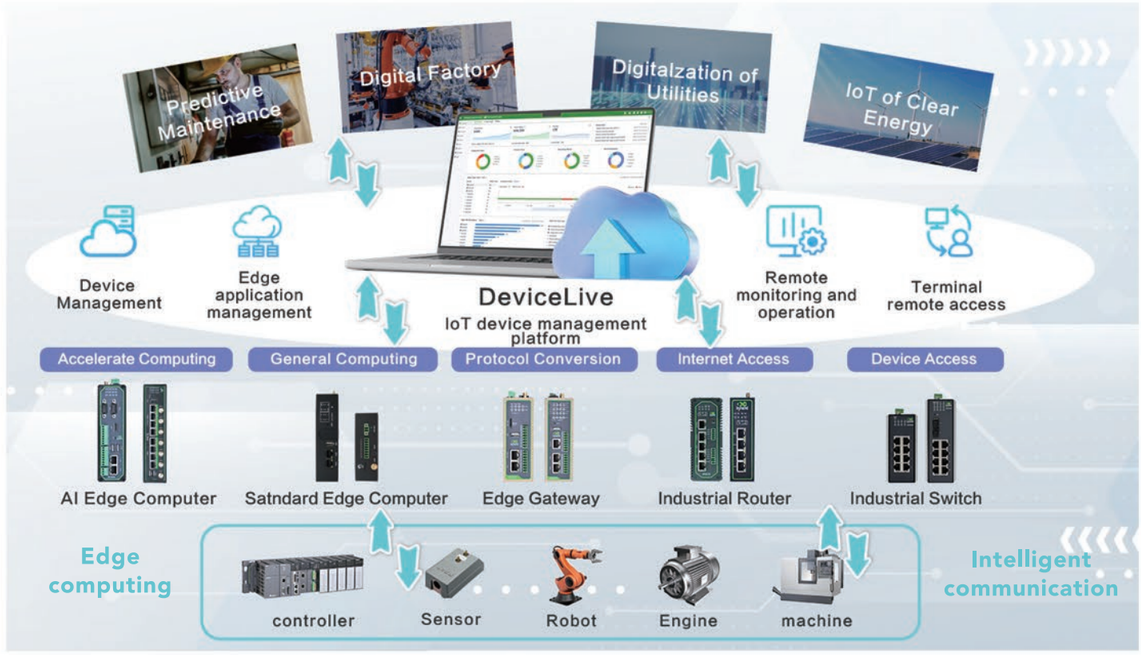
Processing and managing large-scale data, including storage, cleaning, and analysis, requires effective data governance strategies to ensure data quality and consistency



# InHand Edge Intelligence Solution

In order to better meet the requirements of real-time, privacy and reliability, artificial intelligence applications can be closer to data sources, so as to better adapt to various actual scenarios.InHand edge intelligent solution is designed for the field of industrial Internet of things. InHand edge intelligent hardware and innovative IoT cloud management platform help industrial enterprises to quickly build an intelligent edge network and achieve more flexible, efficient and secure data processing and transmission.

## Solution Architecture




## Why InHand Networks?

**Optimized Network Bandwidth**

By processing data at the edge, you can reduce the need for network bandwidth and improve data transmission efficiencv and cost-eftectiveness

**Real-time Decision-making**

By moving computing tasks to the edge of the network, data transmission latency can be reduced to millisecond level for critical services, such as fault detection and predictive maintenance.

**Enhanced Privacy and Security**

Data localization preprocessing reduces the risk of transferring sensitive data to the cloud and improves data security.
Certified for cybersecurity (IEC 62443)

**Flexible and Scalable**

The solution provides a more flexible and scalable computing mode, and can perform customized computing tasks on different devices according to specific requirements.

## Features of the Solution

### 1. With InHand DeviceLive Platform, Remote Management is Really Worry-free

**Zero-Touch Deployment**

With plug-and-play devices, you can implement remote deployment with DeviceLive

**Alert & Remote Diagnosis**

Multiple alarm rules to monitor business, Remote diagnosis to save effort

DeviceLive Cloud Service

**Easy Configuration**

WEB GUI configuration Intuitive and simple

**Multiple Security Strategy**

Data security encryption Multi-role access control and multi-factor identity authentication

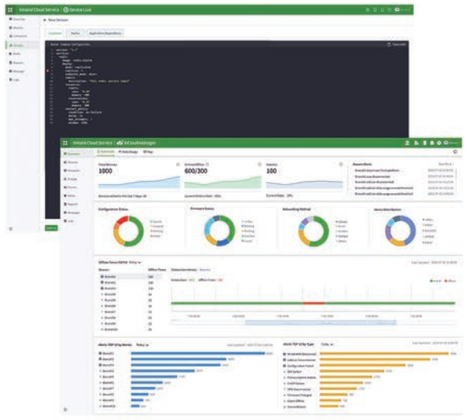
**Unified Management**

Batch device configuration Scheduled firmware upgrade

**Visual Monitoring**

Comprehensive insight into device running status, network quality

### Edge Computing APP Management



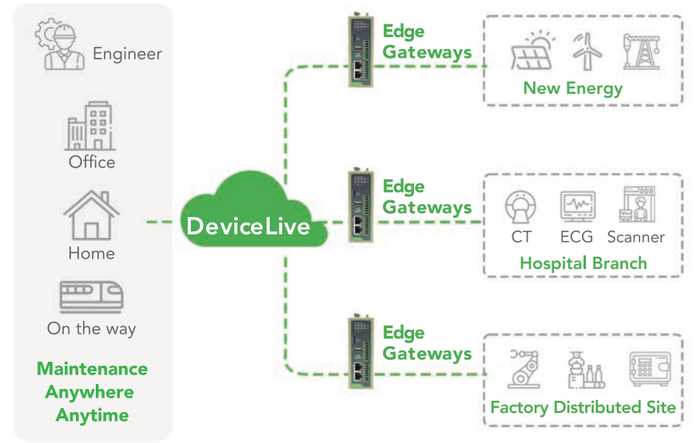
For edge intelligent hardware products,DeviceLive provides management and deployment of edge computing container applications, native applications,etc., without the need for users to build OTA services, providing a one-stop solution.

DeviceLive can centrally configure parameters of edge intelligent hardware, manage containers, upgrade edge computing apps, and support unified deployment package policy setting, define deployment rules, and realize centralized upgrade and control of distributed intelligent onsite.

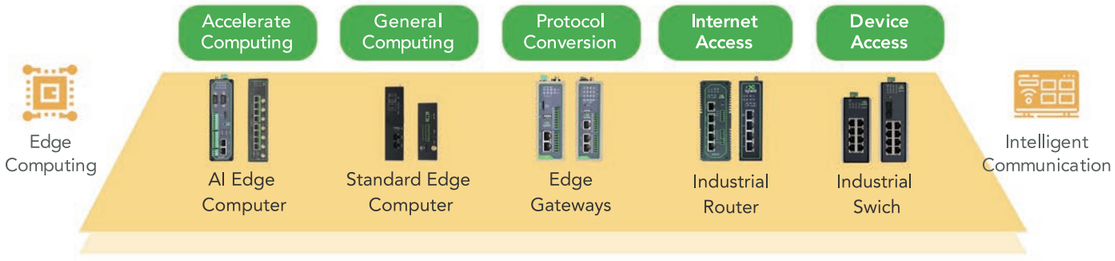


### Remote Control Over Remote Machines

DeviceLive can enable engineers to remotely access the terminal equipment connected to the gateway, achieve remote terminal maintenance,program download, and establish a transmission channel for the terminal data to be continuously reported to the data service center. It is suitable for distributed terminal access in various iot scenarios, and supports the access of industrial computers, servers, cameras, PLCs, HMIs, controllers and other Ethernet terminal devices.




### 2. Multifunctional Edge Intelligence Hardware, Adaptable to Various IIoT Application Scenarios




**Multiple CPU Options**

from single-core to multi-core ARM processors;

**Multiple AI Performance**

from 1 to 100 TOPS, suitable for various edge AI scenarios, such as facial recognition, speech recognition, image recognition, etc.;

**Multiple Protocols**

from simple transparent transmission to industrial protocols to various industry protocols;

**Multiple Interface Options**

Ethernet, serial port, USB, IO, CAN, HDMI, LVDS, GMSL, etc.;

## 3. DevicesSupervisor™ Agent service

DeviceSupervisor Agent is self-developed by InHand and runs in IG&EC to help customers "zero code" to achieve data acquisition, processing and cloud edge intelligence software.

+ "Zero code/low code" easily realizes data collection on the cloud
+ Integrate 100+ mainstream data collection protocols
+ Support data preprocessing
+ Integrated data publishing service, seamless access to public cloud, private cloud, local SCADA, etc.

### Data Acquisition

- 80+ mainstream protocol driver
- Convenient collection configuration
- Concurrent collection from multiple devices
- Massive collection points
- Multiple polling cycles are set

### Edge Computing

- Data visualization preprocessing
- Python data preprocessing
- Data edge storage analysis

### Protocol Conversion

- More than 10 protocol conversions
- Support concurrent conversion

### Data Cloud

- Customize MQTT themes and payloads
- Connect to multiple MQTT pl atforms simultaneously

### Data Collection

**DSA supports more than 80 mainstream protocol drivers**

- **Standard industrial protocols**: Modbus , OPC UA , BACnet , etc.
- **Industrial equipment**: PLC , smart instruments, sensors
- **Energy equipment**: power regulations, meters, inverters, building agreements

**DSA supports custom collection cycles**

- Can Set different polling cycles for different controllers
- Can set different polling periods for the various data in controller
- Support millisecond collection of key data, with collection frequency up to 100ms
- Properly utilize the performance resources of gateways and controllers

**DSA supports editing and configuring collection strategies**

- Support Excel import / export
- Support device template function to quickly add devices

Standard industrial protocols

Modbus · OPC UA · BACnet · EUROMAP 63

Industrial equipment

SIEMENS · Rockwell Automation · MITSUBISHI ELECTRIC · Schneider Electric · DELTA · INOVANCE · FATEK · ABB · OMRON · KEYENCE · BECKHOFF · GE · YASKAWA · Panasonic · Honeywell

Energy equipment

IEC 60870-5-101 · IEC 60870-5-104 · IEC 61850 · DNP3 · DLT



# Application scenarios

InHand's edge intelligence solution integrates a variety of advanced technologies such as 5G , AI , and the Internet of Things, and can be widely used in multiple fields. The following are some application scenarios for the edge intelligence solution.

**Smart Manufacturing:** In industrial production, edge intelligence solutions can be used to monitor and optimize manufacturing processes in real time, perform equipment health monitoring and predictive maintenance to improve production efficiency and reduce downtime.

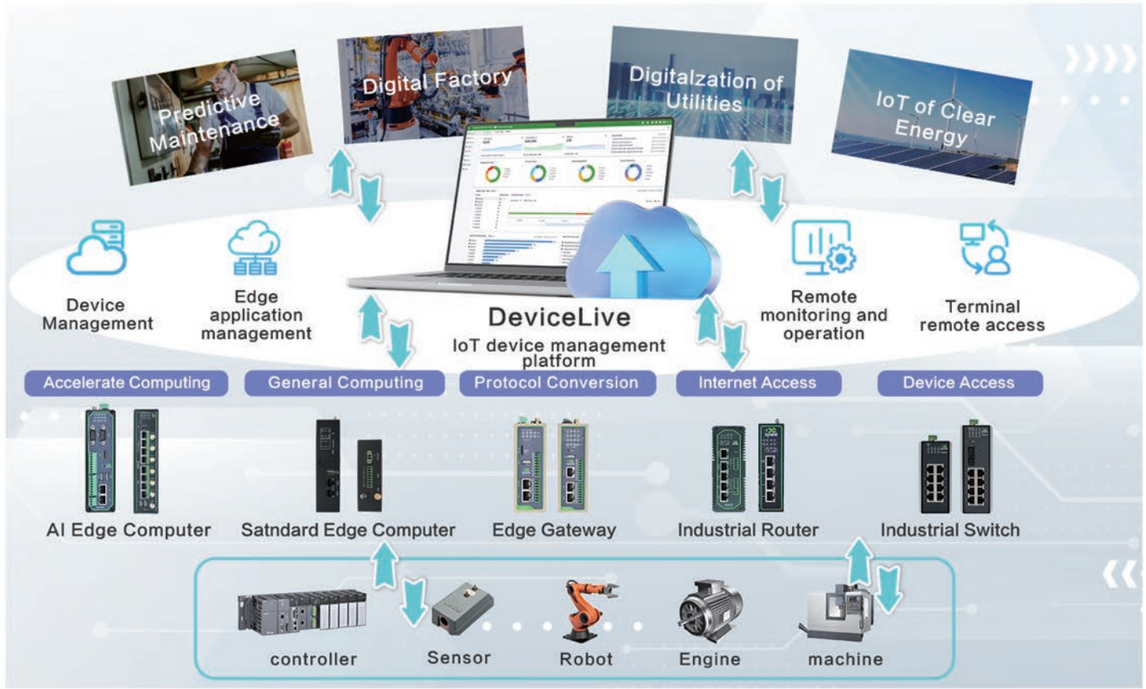
**Smart Retail:** Edge intelligence can be used in the retail industry, such as using cameras and sensors in stores for real-time monitoring, customer analytics, and inventory management to provide a smarter shopping experience.

**Public Utilities:** Edge intelligence can be used in public utilities , such as water affairs. Edge intelligence can be used to monitor water quality, water level and pipeline status in real time, improve water resource management efficiency, prevent water quality problems, and reduce water leakage rates.

**Energy Management:** In the energy field, edge intelligence can be used to monitor and optimize energy consumption in real time, such as environmental control in smart buildings, equipment energy efficiency analysis, etc.

# DeviceLive

## IoT Device Management Platform




- **Device Centralized Management**

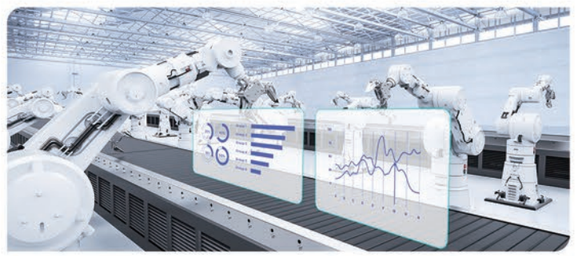
  Zero-touch deployment, remote configuration, predictive alert. Visual monitoring enhances management efficiency

- **Remote Access to On-site Machines**

  Remote maintenance, program downloading, parameter adjustment. Establish transmission channels for continuous reporting of terminal data to the business server

- **Edge Computing Management**

  DSA, container management, edge computing app upgrade. Centralized upgrade and control of distributed edge sites





# Features and Advantages

Designed for industrial IoT, the DeviceLive enables quick building of intelligent edge networks. Collaborating with edge hardware, DeviceLive helps you deploy and upgrade edge APPs, implement edge data collection and pre-processing, and enable status visual monitoring.

| Features | Description |
|---|---|
| Bulk Devices Configuration | Remotely configure devices through GUI |
| Bulk Devices Upgrade | Remotely upgrade device firmware, support setting upgrade schedule flexibly |
| Device management by Group | Support device classification according to business needs, making the management more flexible |
| Remote Control Command | Remote reboot device, factory reset |
| Connection Status Statistics | Monitor device connection status, network type, etc. |
| Network Status Analysis | Monitor device interface connection status, link status, and traffic consumption |
| Network Quality Monitoring | Monitor cellular network signals, monitor network delay, jitter, packet loss, and throughput |
| DSA Management | DSA remote configuration, upgrade, status overview |
| Remote Diagnostic Tool | Diagnostic logs, Ping, Traceroute, packet capture, event analysis |
| Geolocation management | Support GPS/base station positioning/manual positioning, overview device distribution on the map |
| Alert Policy | Support a variety of alarm strategies, such as CPU utilization, link status, and cellular traffic monitoring; support SMS, email, and APP notifications |
| Connector | Quickly establish a remote channel to support engineers to remotely access and control terminal equipment |
| Edge Computing Management | Container and Native Application Management, Edge Computing App Upgrade and Deployment |
| MFA | Account multi-factor authentication, comprehensive security |

Portal Address: device.inhandcloud.com

# AI-accelerated Edge Computer

## Enable Edge Vision AI

InHand provides comprehensive edge AI solutions that support deep learning for AGV robotics, defect detection, retail, medical imaging, traffic monitoring, and a variety of other applications.

TensorFlow Caffe ONNX Keras mxnet PYTORCH

Basic edge AI computer
EC942 series

High performance edge
AI computer EC3320 series

Ultra-high performance edge
AI computer EC5000 series

# Standard Edge Computer

## Enable Edge Computing

Using the ARM architecture, our Standard Edge Computer provides you with a wide range of interface, network, performance and edge application options for seamless edge-to-cloud integration, suitable for today's IoT and edge computing applications.


Basic edge computer
EC300 series

## Hot selling product

### EC942

**AI accelerated edge computer**

- RK3568, 4 cores Cortex-A55@2.0GHz
- GPU: Mali G52 2EE
- 1.0 TOPS

### EC3320

**Edge AI Inference Computer**

- RK3588, 8 cores, 4 cores Cortex-A76 and 4 cores Cortex-A55, @2.6Ghz
- GPU: Support expansion of 4-core Mali-G610 MC4 high-performance
- 6.0 TOPS, expansion up to 26 TOPS

### EC954

**AI accelerated edge computer**

- RK3568, 4 cores Cortex-A55@2.0GHz
- GPU: Mali G52 2EE
- 1.0 TOPS, expansion up to 26 TOPS

### EC5350/EC5550

**Edge AI Inference Computer**

- NVIDIA Jetson Orin Nano, 40 TOPS; NVIDIA Jetson Orin NX, 100 TOPS
- GPU: 1024-core NVIDIA Ampere GPU with 32 Tensor Cores
- 40/100 TOPS

## Hot selling product

### EC312

**Basic edge computer**

- TI AM6231, single-core Cortex-A53@1.4GHz
- 1G SDRAM+8G eMMC
- 2 ETH ports + 2 serials , CAN/IO/4-20mA/RS232/RS485 flexible
- IEC62443-4-2

# Edge Gateway

## Intelligent protocol conversion

The InHand Edge Gateway can break the data barrier of industrial field, quickly establish the connection between industrial field equipment and the cloud, and help you achieve more efficient operation, which is widely used in various fields such as manufacturing, energy, agriculture and healthcare.

Entry-level Edge Gateway
IG101 series

Cost-effective Edge Gateway
IG500 series

## Hot selling product

### IG101
**Entry-level Edge Gateway**

- CPU: ARM Cortex-A5
- RAM: 4MB
- Flash: 2MB

### IG502
**Cost-effective Edge Gateway**

- CPU: ARM Cortex-A8 600MHz
- RAM: 512MB
- eMMC: 8GB
- 2*10/100M Ethernet
- IEC62443-4-2

### IG504
**Multi-port Edge Gateway**

- CPU: ARM Cortex-A8 600MHz
- RAM: 512MB
- eMMC: 8GB
- 4*10/100M Ethernet
- IEC62443-4-2



# Industrial Routers

## Highly reliable industrial-grade LTE routers

Equipped with comprehensive and intelligent software functions and all industrial-grade hardware, InHand industrial routers are suitable for various IoT scenarios and capable of providing highly reliable, high-speed and secure networking services to help enterprises improve operational efficiency.

Economical Industrial Router
IR300 series

High-Performance Industrial Router
IR925 series

## Hot selling product

### IR302
**Economical Industrial Router**

- High speed LTE, dual SIM failover
- Single band Wi-Fi, 150Mbps
- Multi-layered security protection
- Cloud-Managed

### IR925
**High-Performance Industrial Router**

- 5G SA/NSA, dual SIM failover
- 2.4GHz and 5GHz Dual band Wi-Fi, 1800Mbps
- Rich Industrial Interfaces
- High EMC rating
- Software plus Hardware Security Protection Strategies
- Cloud-Managed

### IR315
**Multi-port Industrial Router**

- High speed LTE, dual SIM failover
- Single band Wi-Fi, 300Mbps
- Rich Industrial Interfaces
- Multi-layered security protection
- Cloud-Managed

## Quick Response to Market Demands


## 5 R&D Centers



## 2 Manufacturing Centers

### Supply chain: Two Manufacturing Centers

Ensure Production Capacity and Quality

**2 Manufacturing centers**
Jiaxing (China)
Toronto (Canada)

**15** High-efficiency production lines

**11w+** Units produced per month

## Multi-location Inventory & Tech Support


## 4 Storage and Technical Support Centers

## Used worldwide. Proven worldwide.

**Canada**
Management of
Hydropower Station

**Germany**
Smart
EV Charging Kiosks

**China**
Predictive Maintenance
of Air Compressors

**US**
Predictive Maintenance
of Generators

**Switzerland**
Predictive Maintenance
of Textile Machines

**Thailand**
Flood Early Warning

**Australia**
Wireless Water Metering