Product Datasheet

IoT Comprehensive Intelligent Box

(ONV-IoT9000-ZH)

OVERVIEW

The ONV-IoT9000-ZH series is an IoT comprehensive intelligent box independently developed by ONV. It is an intelligent transmission and power control system with high integration, high functionality, and simple use. It has a modular structure and provides multiple sets of power output and remote monitoring control. The transmission module can be selected according to the application requirements to realize the optical transmission of various topologies. The IoT comprehensive intelligent box consists of project requirements, integrated PoE power supply network transmission module, port lightning protection module, power supply control module, etc. The high-performance, high-stability power supply with an intelligent control unit embedded in the main control board. The control core provides practical and detailed, stable and advanced automatic control functions. The IoT comprehensive intelligent box can realize the detection and centralized monitoring and management of the environment, power supply, temperature, communication link and other equipment in the box. The interface is rich and powerful. It can be used for public security safe city monitoring, communication industry base stations, integrated

computer rooms, and other monitoring needs, to improve the reliability of unattended sites. It is applicable to the construction of smart security IoT, such as safe city, intelligent transportation, country town monitoring, road checkpoint monitoring, infrastructure, and environmental management, natural disaster monitoring and control, water conservancy monitoring, and communication base station monitoring.

FEATURE

◇ Built-in lightning protection module, air switch, input voltage detection, input voltage overload/underload alarm, lightning strike count indication.

◇ Modular design, centralized the power supply, automatic reclosing, voltage short circuit trip, self-recovery power supply. More than 1 set AC220V power output, 3 set DC12V output, 1 set AC24V output, 1 set DC52V output.

◇ Remote PoE power supply and management, multi-channel UTP network connection, fiber connection, link alarm, supporting fiber optic splice trays and fiber optic adapter.

◇ Power failure detection, voltage, current monitoring, on-site recording and remote viewing of device name and model, voltage output, real-time reporting of detection results, positioning of equipment through cloud platform and online map.

◇ The IoT intelligent box related information can be managed by the QR code in the box to record all status information and logs of the device.

◇ The mechanical lock installed in the box provides the function of preventing the box from being disassembled, and when the box door is opened, the operation and maintenance platform actively gives an alarm prompt.(Optional)

◇ The network management data is output through Ethernet, and the key data of operation and maintenance is transmitted through the optical fiber and the IoT transmission module, and transmitted through the 4th generation mobile communication technology and WIFI signals.

◇ Centralize operation and maintenance management cloud platform, through the cloud platform software, User can manage the front-end devices, remotely view the status devices in

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real-time, and operate the power supply status. when the front-end devices are abnormal, it can be notified of sound and light, pop-up windows, etc. The user at the same time forms a QR code to send work orders, maintenance personnel to receive work orders under the application view, timely troubleshooting. The centralize management cloud platform has alarm records, history records, fault statistics analysis reports, and operation log records.

PRODUCT INNOVATION

◇ Automatic reclosing lightning protection, IP55 protection, mobile application operation, and maintenance personnel online operation.

◇ Remote center management platform fault dispatch, equipment online management, safety protection, equipment use location BDS/GPS positioning (optional), open box alarm design, centralized power supply design, efficient early warning mechanism, voltage and current, temperature detection, water leakage detection, remote Poe control, remote network control and restart, etc.

◇ Distinguish whether the power supply, the power supply of the IP camera and fill light is normal. The power of the remote control output power, power off IP camera, power on, and restart.

◇ The IoT intelligent box will be uploaded alarm message to the management center platform in time when the box door is accidentally opened or broken.

◇ According to the requirements of the application environment, customize the working temperature of the IoT intelligent box. When the ambient temperature is higher than the set value, start the fan for heat dissipation. When it is lower than the set temperature, the heating module will automatically start the heating until the temperature returns to the set value, so as to ensure that the equipment in the box works in the best condition and extend the service life of the machine.

◇ The box is with LED lighting for maintenance personnel to operate at night. The data control unit provides an LED display. The installation or inspection personnel can check whether the

various monitoring signals and status of the smart box are working properly through the display.

MAIN FUNCTION MODULE TECHNICAL SPECIFICATION

Model	ONV-IoT9000-ZH
Power Configuration	
220V AC power supply air switch	1 set, 220V/20A
220V AC power supply lightning arrester	1 set power lightning arrester: 220V max: 40kA, In: 10KA Voltage protection Level≤1.1kV Adding 1.2/50us (8-20us) combined wave of L-N, 2KV does not cause to malfunction, 6KV is non-damaged, the upper limit is 10KV.
Auto-reclosing	Working voltage: 175-275VAC 50-60Hz Rated output current: 10A Electric leakage protection / action time: 30mA/≤0.1S Over voltage protection / action time: AC275V/2-5S Under voltage protection / action time: AC145V/2-5S Over current protection / action time: 16A/2-5S Short circuit protection/ action time: 3 times input current/≤0.1S Detection function before closing, with remote control function
AC24V power supply	1 set of AC100-264V input, AC24V/2.5A output, 60W AC power supply
DC52V power supply	1 set of AC100-264V input, DC52V/4.8A output, 250W DC power supply
DC12V power supply	3 set of AC100-264V input, DC12V/8.5A, DC power supply with total power of 90W
Power Consumption	Standby<50W, Full Load<1500W

| Data Control Unit	
Main control board parameters	Flash:4GByte, DDR: 512MByte, CPU: ARM 600MHz
Data port	1ch RS232 data, 1ch RS485 data, 2ch switch interface
Extended Function port	1ch automatic heating control 1ch local storage SD card slot 1ch water leak detection control 1ch fan control, 1ch lighting control 1ch 4G wireless routing expansion slot
Alarm Output port	1ch alarm output, 1ch status indicator output 1ch door status output, 1ch automatic lighting status output
Controlled Power Supply	1ch 24VAC output, 3ch 12VDC output, Support remote control
Ethernet port	1*10/100Base-TX RJ45 port for transmitting control signals
Ethernet Standard	IEEE802.3 10Base-TX, IEEE802.3u 100Base-TX
Screen Display	A status display LCD screen, used to display the address of the device, query the status of various control switches
Door Alarm switch	Unpacking alarm signal output
PoE Power Supply Transmission Unit	
Fixed Port	1*Console RS232 port (115200,N,8,1) 7*10/100/1000Base-T PoE ports (Data/Power) 1*10/100/1000Base-T uplink RJ45 ports (Data) 2*100/1000Base-X uplink SFP fiber slot ports (Data)
Ethernet Port	Port 1-8 can support 10/100/1000Base-T auto-sensing, full/ half duplex MDI/MDI-X self-adaption
Twisted Pair Transmission	10BASE-T: Cat3,4,5 UTP(≤100 meter) 100BASE-TX: Cat5 or later UTP(≤100 meter) 1000BASE-T: Cat5e or later UTP(≤100 meter)
Optical Fiber Port	Gigabit SFP optical fiber port, default matching optical modules

	(optional order single-mode / multi-mode, single fiber / dual fiber optical module. LC)
Optical Cable/ Distance	Multi-mode: 850nm/ 0-500m, Single-mode:1310nm/ 0-40km, 1550nm /0-120km.
Chip Parameter	
Network Management Type	L2+
Network Protocol	IEEE802.3 10BASE-T, IEEE802.3i 10Base-T IEEE802.3u 100Base-TX, IEEE802.3ab 1000Base-T IEEE802.3z 1000Base-X, IEEE802.3x
Forwarding Mode	Store and Forward(Full Wire Speed)
Switching Capacity	192Gbps (non-blocking)
Forwarding Rate@64byte	14.88Mpps
MAC	8K
Buffer Memory	4M
Jumbo Frame	9.6K
LED Indicator	Power: PWR (Green), System: SYS (Yellow), Network: Link (Yellow), PoE: PoE(Green), Fiber port: L/A (Green)
Reset Switch	Yes, support one key to restore factory settings
PoE & Power	
PoE Port	Port 1 to 7
PoE Management	Delay start of power supply Scheduling of PoE operation and time Total power limit of PoE power supply PoE output power allocation, PoE on/off & af /at PoE working status, PoE output priority configuration
Power Supply Pin	1/2 (+) 3/6 (-)

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Max Power Per Port	30W, IEEE802.3af/at
Total PWR / Input Voltage	250W/52VDC
Power Consumption	Standby<8W, Full Load<240W
Network Management Features	
Interface	IEEE802.3X (Full-duplex)
	Port temperature protection setting
	Port green Ethernet Energy-saving setting
	Broadcast storm control based on port speed
	The speed limit of the message flow in the access port.
	The minimum particle size is 64Kbps.
Layer 3 Features	Static route, Default route @ 128 pcs
	L3 soft routing forwarding, APR @ 1024 pcs
	L2+ network management , IPV4/IPV6 management
VLAN	VLAN based on MAC, VLAN based on the protocol
	Port configuration of Access, Trunk, Hybrid, Voice VLAN
	4K VLAN based on port, IEEE802.1q, QinQ configuration
Port Aggregation	LACP(IEEE802.3ad), Static aggregation
	Max 5 aggregation groups and 8 ports per group.
Spanning Tree	STP (IEEE802.1d), RSTP (IEEE802.1w), MSTP (IEEE802.1s)
Industrial Ring Network Protocol	G.8032 (ERPS), Recovery time less than 20ms
	250 Ring at most, Max 250 devices per ring.
Multicast	IGMP Snooping v1/v2, Max 1024 multicast groups
	MLD Snooping v1/v2, Multicast VLAN, Fast log out
Port Mirroring	Bidirectional data mirroring based on port
QoS	Flow-based Rate Limiting
	Flow-based Packet Filtering
	8*Output queues of each port
	802.1p/DSCP priority mapping
	Diff-Serv QoS,Priority Mark/Remark

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	Queue Scheduling Algorithm (SP, WRR, SP+WRR)
ACL	Port-based Issuing ACL,ACL based on port and VLAN L2 to L4 packet filtering, matching first 80 bytes message. Provide ACL based on MAC, Destination MAC address, IP Source, Destination IP, IP Protocol Type, TCP/UDP Port, TCP/UDP Port Range, and VLAN, etc.
Security	IP-MAC-VLAN-Port binding ARP inspection, Anti-DoS attack AAA & RADIUS, MAC learning limit Mac black holes, IP source protection IEEE802.1X & MAC address authentication Broadcast storm control, Backup for host datum SSH 2.0, SSL, Port isolation, ARP message speed limit User hierarchical management and password protection
DHCP	DHCP Client, DHCP Snooping, DHCP Server, DHCP Relay
Management	One-key recovery, Cable Diagnose, LLDP SNMP V1/V2C/V3, CPU instant utilization status NTP, System work log, Web Management (HTTPS) viewConsole/AUX Modem/Telnet/SSH2.0 CLI, Ping Test Download & Management on FTP, TFTP, Xmodem, SFTP ONV NMS- smart network management system platform(LLDP+SNMP)
Physical Parameter	
Operation TEMP / Humidity	-40~+75°C, 5%~90% RH Non condensing
Storage TEMP / Humidity	-40~+80°C,5%~95% RH Non condensing
MTBF	>100000 hours
Dimension (L*W*H)	542*440* 280mm
Net /Gross Weight	<26kg / <28kg

Installation	Pole hoop mount
Certification & Warranty	
Lightning Protection	Lightning protection: 6KV 8/20us, Protection level: IP55
Certification	CCC, CE mark, commercial, CE/LVD EN60950, FCC Part 15 Class B, RoHS
Warranty	3 years, lifelong maintenance.

DIMENSION

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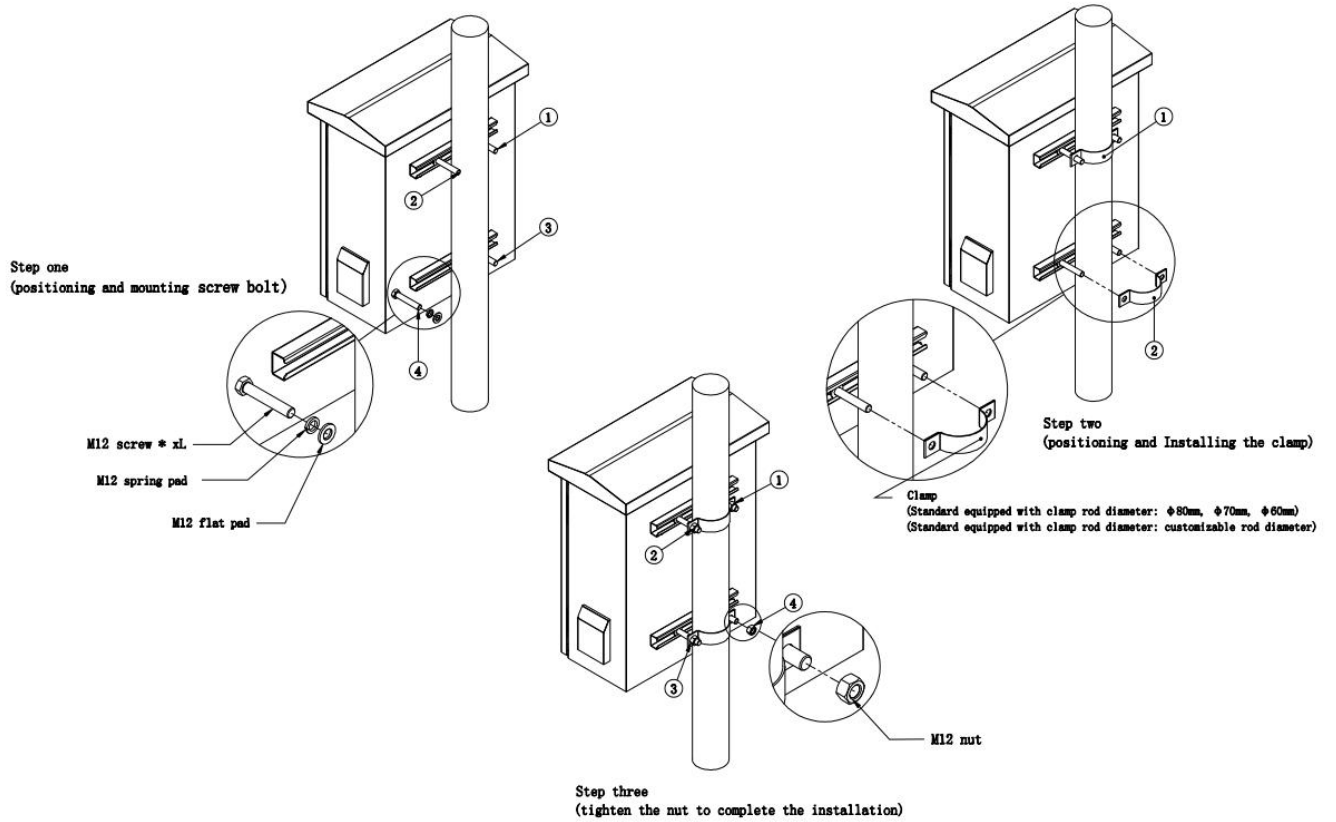**Optical Network Video Technologies (Shenzhen) Co., Ltd.** ONV
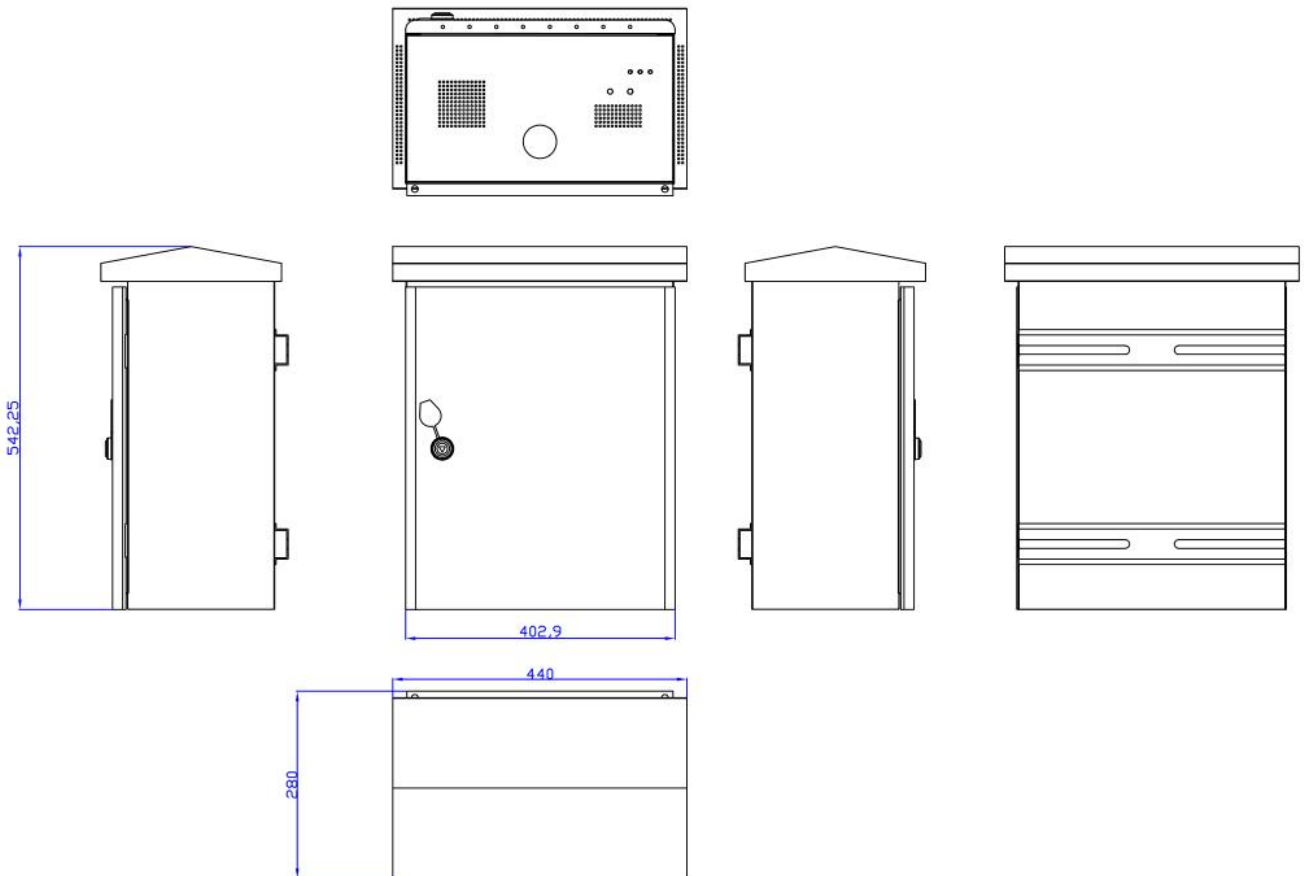
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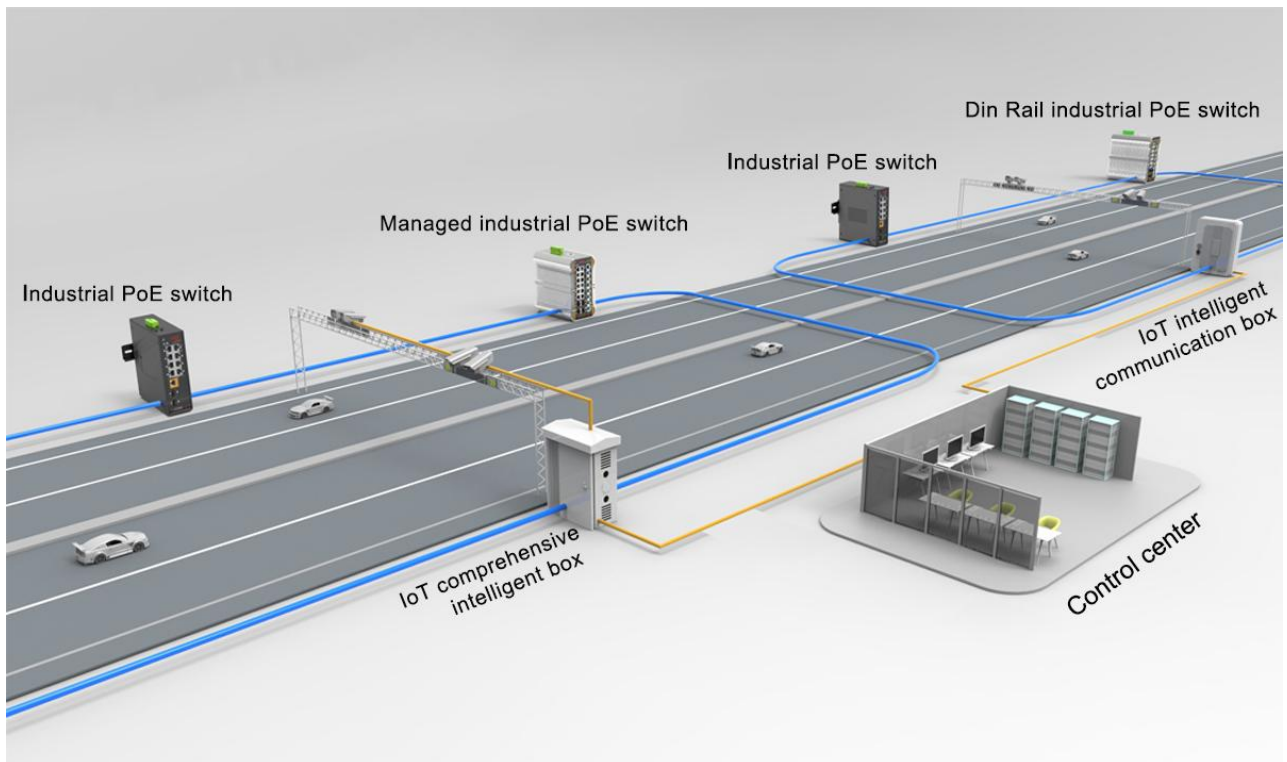
NOTES FOR INSTALLATION

◇　Hold pole installation only supports vertical round pole installation.

◇　When installing the machine, you need to use the matching sheet metal mounting parts and screws.

◇　Wear protective gloves when installing.

◇　It is forbidden to install the intelligent box under power.

◇　The exterior paint of the intelligent box should be kept intact. If the paint is lost, the paint needs to be replenished immediately to prevent corrosion.

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INSTALLATION STEPS

Step one
(positioning and mounting screw bolt)

M12 screw * xL.
M12 spring pad
M12 flat pad

Step two
(positioning and Installing the clamp)

Clamp
(Standard equipped with clamp rod diameter: φ80mm, φ70mm, φ60mm)
(Standard equipped with clamp rod diameter: customizable rod diameter)

Step three
(tighten the nut to complete the installation)

M12 nut

PACKING LIST

	Content	Qty	Unit
Packing List	Comprehensive IoT intelligent box	1	SET
	User guide	1	PC
	Warranty card	1	PC
	Note: Comprehensive IoT intelligent box does not match the SFP module.		

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IoT Comprehensive Intelligent Box Series Configuration Details

No.	Model	Product Name	Description
	ONV-IoT9000-ZH-HI-P		
1	IoT90-Box-ZHX	Seiko chassis	1.2mm thickness Seiko chassis Dimension: 541*440*240mm
2	IoT90-CZ250-10A	AC220 5-hole socket	National standard 5-hole socket, 10A/250V, DIN rail installation
3	IoT90-KK2P250-16A	2P air switch	2P bipolar air switch 16A/400V, rated short circuit: 6KA
4	IoT90-CH175275-16A	Auto-reclosing	working voltage: 175-275VAC 50-60Hz, 16A
5	IoT90-SPD-220AC	AC power supply lightning arrester	1 set power lightning arrester 220V max: 40kA
6	IoT90-7PoE-10	PoE network transmission unit (7*PoE ports)	L2+ managed PoE switch with 7*10/100 /1000Base-T PoE ports and 2*100 /1000Base-X SFP fiber ports
7	IoT90-Data-ZH-S224	Data acquisition control unit A	Realize status control, switch control, remote management functions
8	IoT90-LED	LED lighting	LED lighting inside the case
9	IoT90-PWR60-AC24	AC24V power supply unit	AC24V / 2.5A, 60W AC power supply
10	IoT90-PWR250-DC52	DC52V power supply unit	DC52V / 4.8A, 250W DC power supply
11	IoT90-PWR80-DC12	DC12V power supply unit	DC12V / 8.5A isolated power supply, 90W DC power supply unit
12	IoT90-ODF2	2ch fiber optic terminal box and	fiber optic terminal box and adapter

13		adapter	
13	IoT90-OMS	Operation and maintenance management software	Cloud platform integrated management platform, consisting of personal computer and application operation and maintenance

ONV-IoT9000-ZH-HI-P			
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2	IoT90-CZ250-10A	AC220 5-hole socket	National standard 5-hole socket, 10A/250V, DIN rail installation
3	IoT90-KK2P250-16A	2P air switch	2P bipolar air switch 16A/400V, rated short circuit: 6KA
4	IoT90-CH175275-16A	Auto-reclosing	working voltage: 175-275VAC 50-60Hz, 16A
5	IoT90-SPD-220AC	AC power supply lightning arrester	1 set power lightning arrester 220V max: 40kA
6	IoT70-SW8G2F	Network communication transmission unit (8*RJ45 and 2*SFP ports)	L2+ managed Ethernet switch with 8*10/100 /1000M RJ45 ports and 2*100 /1000M SFP fiber ports
7	IoT90-Data-ZH-S224	Data acquisition control unit A	Realize status control, switch control, remote management functions
8	IoT90-LED	LED lighting	LED lighting inside the case
9	IoT90-PWR60-AC24	AC24V power supply unit	AC24V / 2.5A, 60W AC power supply

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10	IoT90-PWR80-DC12	DC12V power supply unit	DC12V / 8.5A isolated power supply, 90W DC power supply unit
11	IoT90-ODF2	2ch fiber optic terminal box and adapter	fiber optic terminal box and adapter
12	IoT90-OMS	Operation and maintenance management software	Cloud platform integrated management platform, consisting of personal computer and application operation and maintenance

OPTICAL MODULE

Product	Model	Description	Unit
1.25G Optical Module	2630	SFP optical module, 1.25G, multi-mode dual fiber 850nm, transmission distance: 550m, LC interface, support DDM, hot plug and pull.	PC
	2632	SFP optical module, 1.25G, single-mode dual fiber 1310nm, transmission distance: 20km, LC interface, support DDM, hot plug and pull.	PC
	2612-T	SFP optical module, 1.25G, single-mode single fiber TX1310nm/RX1550nm, transmission distance: 20km, LC interface,support DDM, hot plug and pull.	PC
	2613-R	SFP optical module, 1.25G, single-mode single fiber TX1550nm/RX1310nm, transmission distance: 20km, LC interface,support DDM, hot plug and pull.	PC
	2612-T-SC	SFP optical module, 1.25G, single-mode single fiber TX1310nm/RX1550nm, transmission distance: 20km,	PC

		SC interface,support DDM, hot plug and pull.	
	2613-R-SC	SFP optical module, 1.25G, single-mode single fiber TX1550nm/RX1310nm, transmission distance: 20km, SC interface,support DDM, hot plug and pull.	PC
Power Module	2633	1.25G SFP optical module transfers to 10/100/1000M RJ45 port.	PC

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