**Product Datasheet**

# 12-port 2.5G L2+ Managed Industrial bt PoE Switch
## (ONV-IPS57128PFM-bt)

## OVERVIEW

The ONV-IPS57128PFM-bt is a high-power 2.5G L2+ managed industrial bt PoE fiber switch independently developed by ONV. It has 8*10/100/1000/2500Base-T adaptive RJ45 ports and 4*1/10G SFP+ optical ports. Port 1-8 supports IEEE 802.3 af/at/bt PoE standard, and the single-port PoE power reaches 90W. As a PoE power supply device, it can automatically detect and identify standard-powered devices and supply power to them through network cables. It can supply power for high-power wireless AP, network dome cameras, high-power PoE lighting, industrial sensors, high-power network industrial control equipment, and other PoE terminal equipment through network cables to meet the network environment that requires high-density and high-power PoE power. It is suitable for intelligent transportation and industrial scenarios such as rail transit, electric power, mining, metallurgy, and green energy construction to establish cost-effective, stable, and reliable communication networks.

The ONV-IPS57128PFM-bt has L2+ full network management function, supports IPV4/ IPV6 management, static route forwarding, security protection mechanism, ACL/ QoS policy, and VLAN, and is easy to manage and maintain. Support multiple network

redundancy protocols STP/ RSTP/ MSTP(<50ms) and (ITU-T G.8032) ERPS (<20ms) to improve link backup and network reliability. When a one-way network fails, communication can be quickly restored to ensure important uninterrupted communication for applications. According to the actual application requirements, you can configure multiple application services such as PoE power management, port traffic control, VLAN division, and SNMP through the Web network management mode.

## FEATURE

■ **2.5G access, 10G optical port uplink**

◇ Support non-blocking wire-speed forwarding.

◇ Support full-duplex based on IEEE 802.3x and half-duplex based on Backpressure.

◇ Support 2.5G Ethernet port and 10G SFP+ port combination, which enables users to flexibly build networking to meet the needs of various scenarios.

■ **Intelligent PoE power supply**

◇ PoE network management, realize PoE port on/off , priority setting, port power status viewing, time scheduling, etc.

◇ Comply with IEEE 802.3 af/at/bt PoE standard, automatically identify PoE devices for power supply, and not damage non-PoE devices.

◇ 8*10/100/1000/2500Base-T RJ45 ports can support bt PoE power, meeting the demand for high power PoE power supply in various scenarios.

◇ The PoE port supports the priority mechanism. When the remaining power is insufficient, the power of the high-priority port is given priority to avoid overloading of the device.

■ **Strong business processing capability**

◇ Support ERPS ring network and STP/RSTP/MSTP to eliminate layer 2 loops and realize link backup.

◇ Support IEEE 802.1Q VLAN, Users can flexibly divide VLAN, Voice VLAN, and QinQ configuration according to their needs.

◇ Support static and dynamic aggregation to effectively increase link bandwidth, realize load balancing, link backup, and improve link reliability.

◇ Support QoS, port-based, 802.1P-based and DSCP-based three priority modes and four queue scheduling algorithms: Equ, SP, WRR, and SP+WRR.

◇ Support ACL to filter data packets by configuring matching rule processing operations and time permissions, and provide flexible security access control policies.

◇ Support IGMP Snooping V1/V2/V3 multicast protocol IGMP to meet the multi-terminal high-definition video surveillance and video conference access requirements.

### ■ Security

◇ Port isolation, storm control.

◇ IP+MAC+port+VLAN quadruple flexible combination binding function.

◇ 802.1X authentication provides authentication functions for LAN computers, and controls the authorization status of controlled ports according to the authentication results.

### ■ Stable and reliable

◇ CCC,CE, FCC, and RoHS.

◇ The user-friendly panel can show the device status through the LED indicator of PWR, SYS, Link, L/A, PoE.

◇ Low power consumption, no fan, aluminum alloy shell, excellent heat dissipation to ensure the stable operation of the switch.

### ■ Easy O&M management

◇ HTTPS, SSLV3, SSHV1/V2 and other encryption methods are more secure in management.

◇ RMON, system log, and port traffic statistics are convenient for network optimization and transformation.

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◇ LLDP is convenient for the network management system to query and judge the communication status of the link.

◇ Various management and maintenance methods such as Web network management, CLI command line (Console, Telnet), SNMP (V1/V2/V3), Telnet, etc.

# TECHNICAL SPECIFICATION

| Model | ONV-IPS57128PFM-bt |
|---|---|
| **Interface Characteristics** | |
| Fixed Port | Power off alarm switch port (FAULT) <br><br> 1*RS232 console port (115200, N, 8,1) <br><br> 4*1/10G uplink SFP+ ports (Data) <br><br> 8*10/100/1000/2500Base-T bt PoE ports (Data/ Power) <br><br> 2 set of V+, V- redundant DC power ports (6 Pin Phoenix terminal) |
| Ethernet Port | Port 1-8 support 10/100/1000/2500Base-T auto-sensing, full/ half duplex MDI/ MDI-X self-adaption |
| Twisted Pair Transmission | 10BASE-T: Cat3,4,5 UTP(≤100 meters) <br><br> 100BASE-TX: Cat5 or later UTP(≤100 meters) <br><br> 1000BASE-T: Cat5e or later UTP(≤100 meters) <br><br> 2500BASE-T: Cat6A or later UTP(≤100 meters) |
| Optical Fiber Port | 1/10G SFP+ optical fiber port, default no include optical modules (optional order single-mode / multi-mode, single fiber / dual fiber optical module. LC) |
| Optical Cable/ Distance | Multi-mode: 850nm/ 0-500m <br><br> Single-mode: 1310nm/ 0-40km, 1550nm/ 0-120km |
| **Chip Parameter** | |
| Network Management Type | L2+ |

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| Network Protocol | IEEE802.3 10BASE-T, IEEE802.3i 10Base-T, IEEE802.3u 100Base-TX IEEE802.3ab 1000Base-T, IEEE802.3z 1000Base-X, IEEE802.3be 2.5GBase-T, IEEE802.3ae 10GBase-SR/LR, IEEE802.3x |
|---|---|
| Forwarding Mode | Store and Forward(Full Wire Speed) |
| Switching Capacity | 96Gbps |
| Forwarding Rate@64byte | 89.28Mpps |
| CPU | Dual Core 1GHz |
| DRAM | 2G |
| FLASH | 256Mbit |
| MAC | 32K |
| Buffer Memory | 16Mbit |
| Jumbo Frame | 12Kbytes |
| LED Indicator | Power/ System: SYS (Green), Network: Link (Yellow), PoE: PoE (Green), Fiber port: L/A (Green) |
| Reset Switch | Yes, press and hold the switch for 10 seconds and release it to restore the factory settings |
| **PoE & Power Supply** | |
| PoE Port | Port 1 to 8 IEEE 802.3 af/at/bt PoE |
| PoE Management | Port PoE real-time load power display Port PoE output on/off, PoE work and time scheduling |
| Power Supply Pin | 1/2/4/5(+),3/6/7/8(-) |
| Max Power Per Port | 90W, IEEE 802.3 af/at/bt |
| Power Consumption | Standby<13W, Full load af<120W, at<240W, bt<480W |
| Working Voltage | DC48-57V, 6 Pin industrial Phoenix terminal, support anti-reverse protection. |
| Power Supply | No, optional 48V/120W or 48V/240W or 48V/480W industrial power supply |

## Physical Parameter

| | |
|---|---|
| Operation TEMP / Humidity | -40°C~+75°C, 5%~90% RH Non condensing |
| Storage TEMP / Humidity | -40°C~+85°C, 5%~95% RH Non condensing |
| Dimension (L*W*H) | 165*148*54mm |
| Net /Gross Weight | <1.2kg / <1.5kg |
| Installation | Desktop, 35mm DIN rail |

## Certification & Warranty

| | |
|---|---|
| Lightning Protection | Protection level: IP40<br><br>Lightning protection: 6KV 8/20us<br><br>IEC61000-4-3 (RS):10V/m (80~1000MHz)<br><br>FCC Part 15/CISPR22 (EN55022): Class B<br><br>IEC61000-6-2 (Common Industrial Standard)<br><br>IEC61000-4-9 (Pulsed magnet field):1000A/m<br><br>IEC61000-4-10 (Damped oscillation): 30A/m, 1MHz<br><br>IEC61000-4-12/18 (Shockwave): CM 2.5kV, DM 1kV<br><br>IEC61000-4-4(EFT): Power cable:±4kV, Data cable: ±2kV<br><br>IEC61000-4-16 (Common-mode transmission): 30V, 300V, 1s<br><br>IEC61000-4-2 (ESD): ±8kV contact discharge, ±15kV air discharge<br><br>IEC61000-4-6 (Radio frequency transmission): 10V(150kHz~80MHz)<br><br>IEC61000-4-8 (Power frequency magnetic field):100A/m, 1000A/m,1s to 3s<br><br>IEC61000-4-5 (Surge): Power cable: CM±4kV/ DM±2kV, Data cable:±4kV |
| Mechanical Properties | IEC60068-2-6 (Anti vibration)<br>IEC60068-2-32 (Free fall), IEC60068-2-27 (Anti shock) |
| Certification | CCC, CE mark, commercial, CE/LVD EN62368-1, FCC Part 15 Class B, RoHS |

| Warranty | 5 years, lifelong maintenance. |
|---|---|
| **Network Management Features** | |
| Interface | IEEE802.3x flow control (Full duplex) |
| | Port exception protection mechanism |
| | Port real-time flow management (Flow Interval) |
| | Broadcast storm suppression based on port rate |
| | Optical port SFP module DDMI real-time digital diagnosis |
| | Limit the rate of incoming and outgoing packet traffic, with a minimum granularity of 16Kbps and a maximum of 1Gbps |
| | Port EEE Green Ethernet Energy-Saving configuration and status view |
| | Jumbo frame configuration, the largest 12000byte |
| Layer 3 Features | Static routing, RIPv1/v2, RIPng, OSPFv1/v2, OSPFv3 |
| | The max number of entries in the ARP protocol is 1024 |
| | L2+ network management function, dual-stack IPv4/IPv6 management |
| VLAN | VLAN based on MAC, VLAN based on the protocol |
| | Port configuration of Access, Trunk, Hybrid. GVRP VLAN protocol |
| | (4K) VLAN based on port, IEEE802.1q, Voice VLAN, QinQ configuration |
| Port Aggregation | LACP dynamic aggregation, Static aggregation |
| | Max 6 aggregation groups and maximum 8 ports per group. |
| Spanning Tree | STP BPDU Guard, BPDU filtering and BPDU forwarding |
| | STP (IEEE802.1d), RSTP (IEEE802.1w), MSTP (IEEE802.1s) |
| ERPS Ring Network | Support ERPS ring network, ring network self-healing time is less than 20ms, ITU-T G.8032 |
| Multicast | MLD Snooping, IGMP Snooping, Multicast VLAN |
| | User quick log out, MVR (Multicast VLAN Registration) |
| | IGMP Snooping v1/v2/v3 and 1024 multicast groups at most |
| Mirroring | Bidirectional traffic mirroring for basic ports |
| | one-to-multiple mirroring, supports up to 4 port sessions |
| QoS | Queue Scheduling Algorithm (SP, WRR, SP+WRR) |

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| | |
|---|---|
| | Flow-based Rate Limiting, Stream based redirection |
| | Flow-based Packet Filtering, 8*Output queues of each port |
| | 802.1p/DSCP priority mapping, Diff-Serv QoS, Priority Mark/ Remark |
| ACL | ACL distribution based on port and VLAN |
| | L2-L4 packet filtering function, matching the first 80 bytes message, and provides ACL definitions based on source MAC address, destination MAC address, source IP address, destination IP address, IP protocol type, TCP/UDP port, TCP/UDP port range, VLAN, etc. |
| Security | Port based IEEE802.1X authentication |
| | SSL guarantees data transmission security |
| | Quad binding function of IP+MAC+VLAN+ports |
| | MAC address learning limit, MAC address black hole |
| | Anti DoS attack, Port broadcast message suppression |
| | IP Source Guard function, AAA&RADIUS certification |
| | Hierarchical user management and password protection |
| | SSH 2.0 provides a secure encrypted channel for user login |
| | Host data backup mechanism, ARP intrusion detection function |
| | Port isolation, IP Source Guard, ARP message speed limit function |
| DHCP | DHCP Client, DHCP Snooping, DHCP Server |
| Management | Web network management (https) |
| | Link Layer Discovery Protocol (LLDP) |
| | Viewing CPU Instant Utilization Status |
| | NTP clock, One click restore, SNMP V1/V2/V3 |
| | Cable status check, Ping detection, System work log |
| | ONV NMS platform cluster management (LLDP+SNMP) |
| | Console/ AUX Modem/ Telnet/ CLI command line configuration |
| | FTP, TFTP, Xmodem, SFTP file upload and download management |
| System | Category 5 Ethernet network cable |
| | Web browser: Mozilla Firefox 2.5 or higher, Google browser chrome V42 |

or higher, Microsoft Internet Explorer10 or later

TCP/IP, network adapter, and network operating system (such as

Microsoft Windows, Linux, or Mac OS X) installed on each computer in a

network

## DIMENSION

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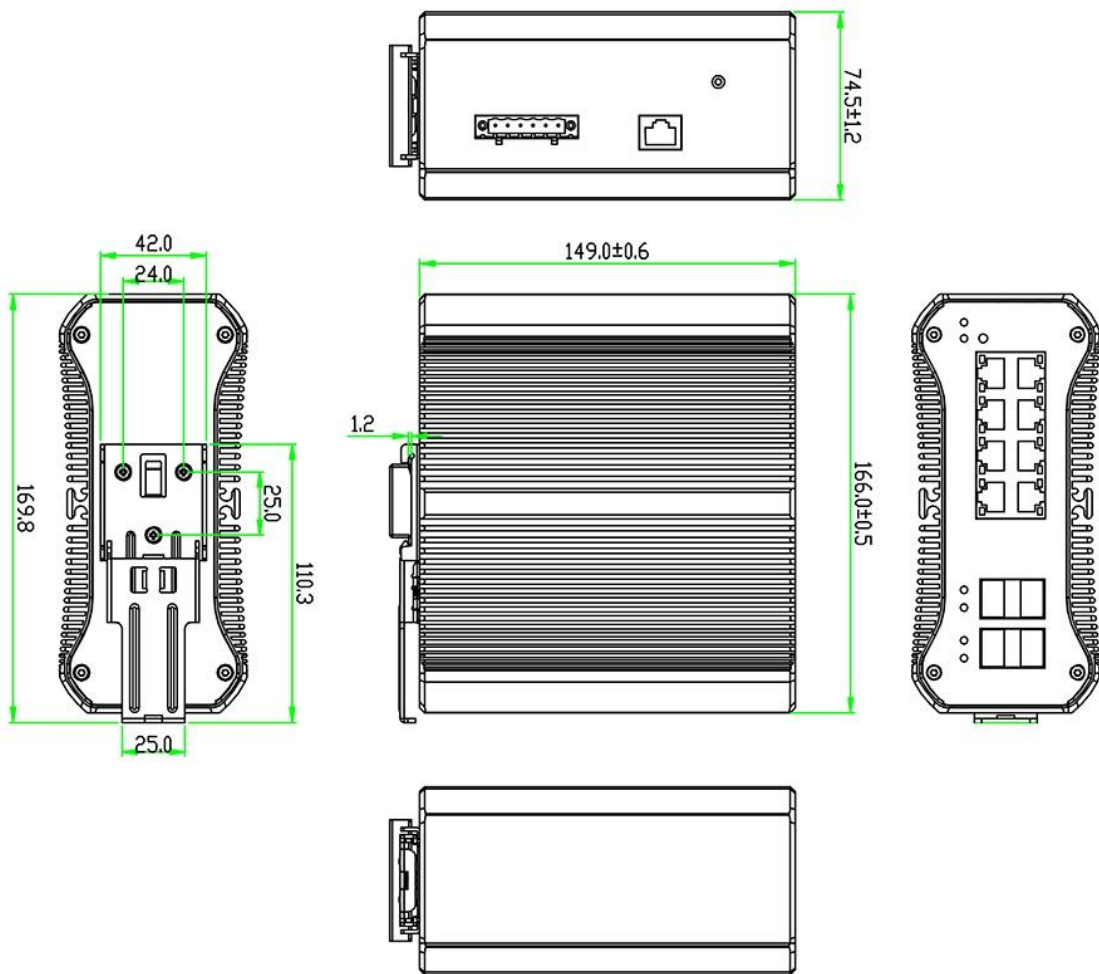
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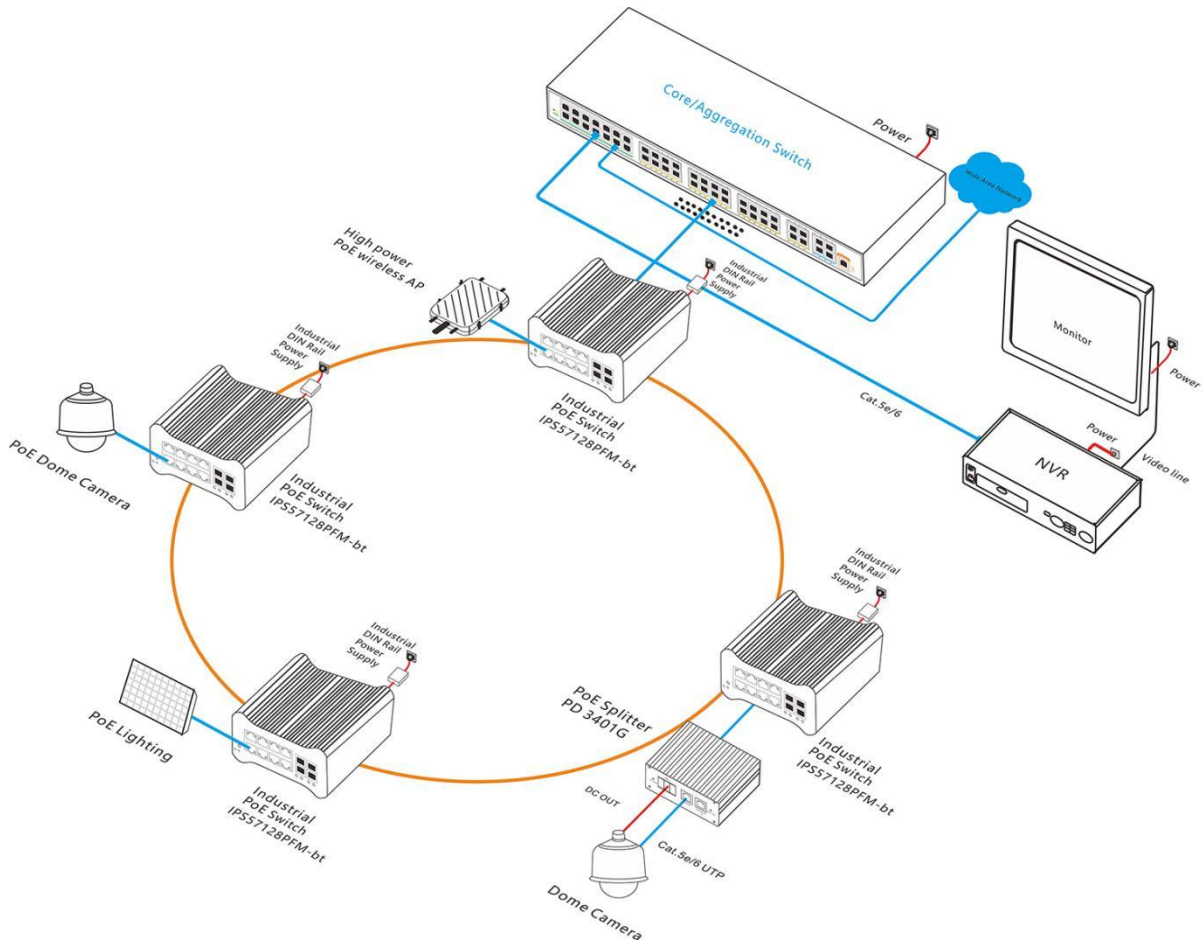


# ORDERING INFORMATION

| Model | Description | Recommended Power Supply |
|---|---|---|
| ONV-IPS57128PFM-bt | L2+ managed industrial bt PoE fiber switch with 8*10/100/1000/2500M RJ45 ports and 4*1/10G uplink SFP+ ports. Port 1-8 can support IEEE 802.3 af/at/bt PoE standard. It supports dual DC power supply input and DIN rail mounting. | 120W/240W/480W |

**Note:** The optical module and power supply are not included. need to be purchased separately.

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# PACKING LIST

| Packing List | Content | Qty | Unit |
|---|---|---|---|
| | 12-port 2.5G L2+ managed industrial bt PoE switch | 1 | SET |
| | RJ45-DB9 Line | 1 | PC |
| | User Guide | 1 | PC |
| | Warranty Card | 1 | PC |

# OPTICAL MODULE

| Product | Model | Description | Unit |
|---|---|---|---|
| 1.25G Optical Module | 2630-G | Industrial SFP optical module, 1.25G, multi-mode dual fiber 850nm, transmission distance: 550m, LC interface, support DDM function, support hot plug and pull. | PC |
| | 2632-G | Industrial SFP optical module, 1.25G, single-mode dual fiber 1310nm, transmission distance: 20km, LC interface, support DDM function, support hot plug and pull. | PC |
| | 2612-T-G | Industrial SFP optical module, 1.25G, single-mode single fiber TX1310nm/ RX1550nm, transmission distance: 20km, LC interface, support DDM function, support hot plug and pull. | PC |
| | 2613-R-G | Industrial SFP optical module, 1.25G, single-mode single fiber TX1550nm/ RX1310nm, transmission distance: 20km, LC interface, support DDM function, support hot plug and pull. | PC |
| | 2612-T-G-SC | Industrial SFP optical module, 1.25G, single-mode single fiber TX1310nm/ RX1550nm, transmission distance: 20km, SC interface, support DDM function, support hot plug and pull. | PC |
| | 2613-R-G-SC | Industrial SFP optical module, 1.25G, single-mode single fiber TX1550nm/ RX1310nm, transmission distance: 20km, SC interface, support DDM function, support hot plug and pull. | PC |
| 10G | 6630-G | Industrial SFP+ optical module, 10G, multi-mode dual fiber | PC |

| Optical Module | | 850nm, transmission distance: 300m, LC interface, support DDM function, support hot plug and pull. | |
|---|---|---|---|
| | 7832-G | Industrial SFP+ optical module, 10G, single-mode dual fiber 1310nm, transmission distance: 20km, LC interface, support DDM function, support hot plug and pull. | PC |
| | 7832-33-G | Industrial SFP+ optical module, 10G, single-mode single fiber TX1330nm/ RX1270nm, transmission distance: 20km, LC interface, support DDM function, support hot plug and pull. | PC |
| | 7832-27-G | Industrial SFP+ optical module, 10G, single-mode single fiber TX1270nm/ RX13300nm, transmission distance: 20km, LC interface, support DDM function, support hot plug and pull. | PC |

# POWER SUPPLY

| Product | Model | Description | Unit |
|---|---|---|---|
| 130W Desktop Power Adapter | GWS-AP130-52 | Desktop 130W single set of output power adapter<br>Input Voltage: AC100V-240V 50-60Hz,2.3A<br>Output Voltage: DC52V 2.5A<br>Operation Temperature: -20℃ to +65℃ | PC |
| 250W Desktop Power Adapter | GWS-AP250-52 | Desktop 250W single set of output power adapter<br>Input Voltage: AC100V-240V 50-60Hz,4.1A<br>Output Voltage: DC52V 4.8A<br>Operation Temperature: -20℃ to +65℃ | PC |
| 120W DIN Rail Industrial Power Supply | GWS-DP120-48 | Din Rail 120W single set of output power supply<br>Input Voltage: AC100V-240V 50-60Hz, 2.3A<br>Output Voltage: DC48V 2.5A<br>Operation Temperature: -40℃ to +70℃ | PC |

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| 240W DIN Rail Industrial Power Supply | GWS-DP240-48 | Din Rail 240W single set of output power supply<br><br>Input Voltage: AC100V-240V 50-60Hz, 4.3A<br><br>Output Voltage: DC48V 5.0A<br><br>Operation Temperature: -40℃ to +70℃ | PC |
|---|---|---|---|
| 480W DIN Rail Industrial Power Supply | GWS-DP480-48 | Din Rail 480W single set of output power supply<br><br>Input Voltage: AC100V-240V 50-60Hz,5.0A<br><br>Output Voltage: DC48V 10A<br><br>Operation Temperature: -40℃ to +70℃ | |

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