IKS-6728-8PoE Series

24+4G-port Gigabit modular managed PoE+ Ethernet switches

Introduction

The Moxa IKS-6728-8PoE series of Gigabit modular managed PoE+ Ethernet switches are designed to meet the demands of mission critical applications for business and industry. The IKS-6728-8PoE comes standard with up to 24 10/100BaseT(X), or PoE/PoE+, and 4 combo Gigabit Ethernet ports. The IKS-6728-8PoE Ethernet switches provide up to 30 watts of power per PoE+ port in standard mode, and also support high power output of up to 36 watts for heavy-duty industrial PoE devices, such as weather-proof IP surveillance cameras with wipers/heaters, high-performance wireless access points, and rugged IP phones. IKS-6728-8PoE Ethernet switches support two types of power input sources: 48VDC for PoE+ ports and system power, and 110/220 VAC for system power. These Ethernet switches also support a variety of management functions, including STP/RSTP, TurboRing, Turbo Chain, PoE power management, PoE device auto-checking, PoE power scheduling, PoE diagnostic, IGMP, VLAN, QoS, RMON, bandwidth management, and port mirroring. The IKS-6728-8PoE series is designed especially for harsh outdoor applications with 3KV surge protection to ensure the uninterrupted reliability of PoE systems.

Features and Benefits

- 8 built-in PoE+ ports compliant with IEEE 802.3af/at
- Up to 36 W output per PoE+ port
- 3 KV LAN surge protection for extreme outdoor environments
- PoE diagnostics for powered-device mode analysis
- 4 Gigabit combo ports for high bandwidth communication
- -40 to 75°C operating temperature range at 720 W full loading
- 8 built-in PoE+ ports compliant with IEEE 802.3af/at
- Up to 36 W output per PoE+ port
- 3 KV LAN surge protection for extreme outdoor environments
- PoE diagnostics for powered-device mode analysis
- 4 Gigabit combo ports for high bandwidth communication
- -40 to 75°C operating temperature range at 720 W full loading

- Advanced PoE management functions: PoE output setting, PD failure check, PoE scheduling, and PoE diagnostics
- Command Line Interface (CLI) for quickly configuring major managed functions
- IEEE 1588 PTP V2 (Precision Time Protocol) for precise time synchronization of networks
- DHCP Option 82 for IP address assignment with different policies
- Support EtherNet/IP and Modbus/TCP protocols for device management and monitoring
- Compatible with EtherNet/IP and PROFINET protocols for transparent data transmission
- Turbo Ring and Turbo Chain (recovery time < 20 ms @ 250 switches), RSTP/STP, and MSTP for network redundancy
- IGMP snooping and GMRP for filtering multicast traffic
- Port-based VLAN, IEEE 802.1Q VLAN, and GVRP to ease network planning
- QoS (IEEE 802.1p/1Q) and TOS/DiffServ to increase determinism
- IEEE 802.3ad, LACP for optimum bandwidth utilization
- TACACS+, IEEE 802.1X, SNMPv3, HTTPS, and SSH to enhance network security
- SNMPv1/v2c/v3 for different levels of network management
- RMON for efficient network monitoring and proactive capability
- Bandwidth management prevents unpredictable network status with “Lock port” to restrict access to authorized MAC addresses
- Port mirroring for online debugging
- Automatic warning by exception through email, relay output
- Automatic recovery of connected device’s IP addresses
- Line-swap fast recovery
- Configurable by web browser, Telnet/serial console, CLI, Windows utility, and ABC-02-USB-T automatic backup configurator

www.moxa.com
Industrial Ethernet Solutions

Modular Rackmount Ethernet Switch System, IKS-6728-8PoE series

**Technology**

**Standards:**
- IEEE 802.3af/at for PoE/PoE+ output
- IEEE 802.3 for 10BaseT
- IEEE 802.3u for 100BaseT(X) and 100BaseFX
- IEEE 802.3ab for 1000BaseT(X)
- IEEE 802.3z for 1000BaseX
- IEEE 802.3x for Flow Control
- IEEE 802.1D-2004 for Spanning Tree Protocol
- IEEE 802.1w for Rapid STP
- IEEE 802.1s for Multiple Spanning Tree Protocol
- IEEE 802.1Q for VLAN Tagging
- IEEE 802.1p for Class of Service
- IEEE 802.1X for Authentication
- IEEE 802.3ad for Port Trunk with LACP

**Protocols:**
- IGMP v1/v2, GMRP, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, BootP, TFTP, SMTP, RARP, RMON, HTTP, HTTPS, Telnet, SSH, Syslog, DHCP Option 86/67/82, EtherNet/IP, Modbus/TCP, LLDP, IEEE 1588 PTP v2, IPv6, NTP Server/Client

**MIB:**
- MIB-II, Ethernet-like MIB, P-BRIDGE MIB, Q-BRIDGE MIB, Bridge MIB, RSTP MIB, RMON MIB Group 1, 2, 3, 9

**Flow Control:**
- IEEE 802.3x flow control, back pressure flow control

**Switch Properties**

**Priority Queues:** 4

**Max. Number of Available VLANs:** 64

**VLAN ID Range:** VID 1 to 4094

**IGMP Groups:** 256

**MAC Table Size:** 16 K

**Packet Buffer Size:** 12 Mbit

**Jumbo Frame Size:** 9.6 KB

**Interface**

**Fast Ethernet:**
- 8-port 10/100BaseT(X) or PoE+ 10/100BaseT(X) 2 modular slots for any 8- or 6-port Interface Modules with 10/100BaseT(X), 100BaseFX (SC/ST connector), 100Base SFP, or PoE+ 10/100BaseT(X)

**Note:** See below for IM-6700 Fast Ethernet module and PoE+ module product information

**Gigabit Ethernet:**
- 4-port 10/100/1000BaseT(X) or 100/1000Base SFP

**Console Port:** USB-serial console (Type B connector)

**Storage Port:** USB 2.0 (Type A connector for ABC-02-USB-T)

**System LED Indicators:**
- PWR1, PWR2, EPS1, EPS2, STATE, FAULT, MSTR/HEAD, CPLR/TAIL

**Alarm Contact:** 1 relay output with current carrying capacity of 3 A @ 30 VDC

**Power Requirements**

**Input Voltage:**
- HV models:
  - 110/220 VAC (85 to 264 VAC) for switch system
  - 48 VDC (46 to 57 VDC) for PoE system (53–57 VDC is recommended for PoE devices)

**48 VDC models:**
- 48 VDC (46–57 VDC) for switch and PoE system

**Input Current:**
- HV models:
  - PWR input current (switch system):
    - Max. 0.33 A @ 110 VAC
    - Max. 0.24 A @ 230 VAC
  - EPS input current (PoE system):
    - Max. 0.29 A @ 48 VDC (excluding power consumption of PoE devices)

**48 VDC models:**
- PWR/EPS input current (switch and PoE systems):
  - Max. 0.53 A @ 48 VDC (excluding power consumption of PoE devices)

**Modular Rackmount Ethernet Switch System, IKS-6728-8PoE series**

**Protocols:**
- IGMP v1/v2, GMRP, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, BootP, TFTP, SMTP, RARP, RMON, HTTP, HTTPS, Telnet, SSH, Syslog, DHCP Option 86/67/82, EtherNet/IP, Modbus/TCP, LLDP, IEEE 1588 PTP v2, IPv6, NTP Server/Client

**MIB:**
- MIB-II, Ethernet-like MIB, P-BRIDGE MIB, Q-BRIDGE MIB, Bridge MIB, RSTP MIB, RMON MIB Group 1, 2, 3, 9

**Flow Control:**
- IEEE 802.3x flow control, back pressure flow control

**Switch Properties**

**Priority Queues:** 4

**Max. Number of Available VLANs:** 64

**VLAN ID Range:** VID 1 to 4094

**IGMP Groups:** 256

**MAC Table Size:** 16 K

**Packet Buffer Size:** 12 Mbit

**Jumbo Frame Size:** 9.6 KB

**Interface**

**Fast Ethernet:**
- 8-port 10/100BaseT(X) or PoE+ 10/100BaseT(X) 2 modular slots for any 8- or 6-port Interface Modules with 10/100BaseT(X), 100BaseFX (SC/ST connector), 100Base SFP, or PoE+ 10/100BaseT(X)

**Note:** See below for IM-6700 Fast Ethernet module and PoE+ module product information

**Gigabit Ethernet:**
- 4-port 10/100/1000BaseT(X) or 100/1000Base SFP

**Console Port:** USB-serial console (Type B connector)

**Storage Port:** USB 2.0 (Type A connector for ABC-02-USB-T)

**System LED Indicators:**
- PWR1, PWR2, EPS1, EPS2, STATE, FAULT, MSTR/HEAD, CPLR/TAIL

**Alarm Contact:** 1 relay output with current carrying capacity of 3 A @ 30 VDC

**Power Requirements**

**Input Voltage:**
- HV models:
  - 110/220 VAC (85 to 264 VAC) for switch system
  - 48 VDC (46 to 57 VDC) for PoE system (53–57 VDC is recommended for PoE devices)

**48 VDC models:**
- 48 VDC (46–57 VDC) for switch and PoE system

**Input Current:**
- HV models:
  - PWR input current (switch system):
    - Max. 0.33 A @ 110 VAC
    - Max. 0.24 A @ 230 VAC
  - EPS input current (PoE system):
    - Max. 0.29 A @ 48 VDC (excluding power consumption of PoE devices)

**48 VDC models:**
- PWR/EPS input current (switch and PoE systems):
  - Max. 0.53 A @ 48 VDC (excluding power consumption of PoE devices)

**Environmental Limits**

**Operating Temperature:**
- -40°C to +75°C (-40°F to 167°F)

**Storage Temperature:**
- -40°C to +85°C (-40°F to 185°F)

**Ambient Relative Humidity:**
- 5% to 95% (non-condensing)

**Standards and Certifications**

**Safety:**
- UL 60950-1, EN 60950-1

**EMI:**
- FCC Part 15 Subpart B Class A, EN 55022 Class A

**EMS:**
- EN 61000-4-2 (ESD) Level 3, EN 61000-4-3 (RF) Level 3, EN 61000-4-4 (EFT) Level 3, EN 61000-4-5 (Surge) Level 3, EN 61000-4-6 (CS) Level 3, EN 61000-4-8, EN 61000-4-11

**Shock:**
- IEC 60068-2-27

**Freefall:**
- IEC 60068-2-32

**Vibration:**
- IEC 60068-2-6

**Note:** Please check Moxa’s website for the most up-to-date certification status.

**MTBF**
- Mean time between failures: 214,975 hrs

**Database:**
- Telcordia (Bellcore), GB

**Warranty**

**Warranty Period:** 5 years

**Details:** See www.moxa.com/warranty
**Dimensions**

**IKS-6728-8PoE-4GTXSFP Series**

**Ordering Information**

**Step 1: Select Ethernet switch system**

**IKS-6728-8PoE with power supply**

**Step 2: Select interface modules**

**IM-6700 modules (PoE+/Fast Ethernet)**

Note: The IKS-6728-PoE Ethernet switch system is delivered without interface modules. See below to find IM-6700 interface modules suitable for your application.

**IKS-6728-8PoE Modular Rackmount Ethernet PoE+ Switch System**

Modular managed rackmount Ethernet PoE+ switch with 8 built-in 10/100BaseT(X) PoE+ ports, 4 Gigabit Copper/SFP combo ports, and 2 slots for Fast Ethernet PoE+ modules. Support up to 24+4G ports with 8 built-in PoE+ ports and up to 24 PoE+ ports, -40 to 75°C operating temperature.

<table>
<thead>
<tr>
<th>Available Models</th>
<th>Port Interface</th>
<th>Power Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>IKS-6728-8PoE Series</td>
<td>Front Cabling, Wide Temperature (-40 to 75 °C)</td>
<td>Gigabit Ethernet, Fast Ethernet, Isolated Power Supply 1, Isolated Power Supply 2</td>
</tr>
<tr>
<td>IKS-6728-8PoE-4GTXSFP-HV-T</td>
<td>10/100/1000BaseT(X) or 100/1000BaseSFP* (or PoE+ ports)</td>
<td>Up to 24, Up to 12, Up to 20</td>
</tr>
<tr>
<td>IKS-6728-8PoE-4GTXSFP-HV-HV-T</td>
<td>100BaseSFP*</td>
<td>Up to 24, Up to 12, Up to 20</td>
</tr>
<tr>
<td>IKS-6728-8PoE-4GTXSFP-48-T</td>
<td>100BaseFX</td>
<td>Up to 24, Up to 12, Up to 20</td>
</tr>
<tr>
<td>IKS-6728-8PoE-4GTXSFP-48-48-T</td>
<td>48VDC (46 to 57 VDC)</td>
<td>24VDC (26 to 36 VDC)</td>
</tr>
</tbody>
</table>

Notes:
- The IKS 6728-8PoE series needs an external 48 VDC (46 to 57 VDC) power supply for PoE+ output.
- The IKS 6728-8PoE series supports up to 24 PoE+ ports. 8 PoE+ ports are built in. Two IM-6700-8PoE modules can add up to 16 more PoE+ ports.
- The IKS 6728-8PoE series supports 100BaseSFP and 100/1000BaseSFP slots. See below for SFP-1G/1FE series SFP module product information.

**Optional Accessories** (can be purchased separately)
- **MXview**: Moxa industrial network management software with 50, 100, 250, 500, 1000, or 2000 nodes
- **EDS-SNMP OPC Server Pro**: OPC server software that works with all SNMP devices
- **ABC-02-USB-T**: Configuration backup and restoration tool for managed Ethernet switches, -40 to 75°C operating temperature
- **Power Cords**: See Appendix A for details

**Package Checklist**
- IKS-6728-8PoE switch
- USB cable (Type A male to Type B male)
- AC power cord (US type x1, EU type x1, HV model only)
- Protective caps for unused ports
- 2 rackmount ears
- Documentation and software CD
- Hardware installation guide (printed)
- Warranty card
**IM-6700 Series**

*Fast Ethernet modules for IKS-6726-2GTXSFP/IKS-6728-4GTXSFP /IKS-6728-8PoE-4GTXSFP series switches*

## Specifications

### Fast Ethernet Interface Modules, IM-6700 series

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IM-6700-8TX</td>
<td>Fast Ethernet module for IKS-6726-2GTXSFP</td>
</tr>
<tr>
<td>IM-6700-8SFP*</td>
<td>Fast Ethernet module for IKS-6728-4GTXSFP</td>
</tr>
<tr>
<td>IM-6700-8PoE**</td>
<td>Fast Ethernet module for IKS-6728-8PoE-4GTXSFP</td>
</tr>
<tr>
<td>IM-6700-2MSC4TX</td>
<td>Fast Ethernet module, Mode A</td>
</tr>
<tr>
<td>IM-6700-2MST4TX</td>
<td>Fast Ethernet module, Mode A</td>
</tr>
<tr>
<td>IM-6700-6MSC</td>
<td>Fast Ethernet module, Mode A</td>
</tr>
<tr>
<td>IM-6700-6MST</td>
<td>Fast Ethernet module, Mode A</td>
</tr>
<tr>
<td>IM-6700-6SSC</td>
<td>Fast Ethernet module, Mode A</td>
</tr>
<tr>
<td>IM-6700-4MSC2TX</td>
<td>Fast Ethernet module, Mode A</td>
</tr>
<tr>
<td>IM-6700-4MST2TX</td>
<td>Fast Ethernet module, Mode A</td>
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<tr>
<td>IM-6700-4SSC2TX</td>
<td>Fast Ethernet module, Mode A</td>
</tr>
<tr>
<td>IM-6700-4MSC</td>
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<td>IM-6700-4MST</td>
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</tr>
<tr>
<td>IM-6700-6MSC</td>
<td>Fast Ethernet module, Mode A</td>
</tr>
<tr>
<td>IM-6700-6MST</td>
<td>Fast Ethernet module, Mode A</td>
</tr>
</tbody>
</table>

*See below for SFP-1FE Fast Ethernet module product information.

**IM-6700-8PoE is supported by the IKS-6728-8PoE series**

### Interface

- **RJ45 Ports:** 10/100BaseT(X) auto negotiation speed, Full/Half duplex mode, and auto MDI/MDI-X connection
- **Fiber Ports:** 100BaseFX ports (SC/ST or SFP LC connector)
- **LED Indicators:** 10/100M for TP port, 100M for fiber port
- **PoE Ports:** 10/100BaseT(X) auto negotiation speed, Full/Half duplex mode, and auto MDI/MDI-X connection, IEEE 802.3at standards, Mode A

### Power Requirements

- **Power Consumption:**
  - IM-6700-8TX: 1.43 W
  - IM-6700-8PoE: 1.43 W (w/o PoE output)
  - IM-6700-8SFP: 9.95 W
  - IM-6700-6MSC, -6MST, -6SSC: 8.20 W
  - IM-6700-4MSC2TX, -4MST2TX: 5.72 W
  - IM-6700-2MSC4TX, -2MST4TX, -2SSC4TX: 3.45 W

### Physical Characteristics

- **Weight:**
  - IM-6700-8TX: 225 g
  - IM-6700-8PoE: 260 g
  - IM-6700-8SFP: 295 g
  - IM-6700-6MSC, -6MST, -6SSC: 390 g
  - IM-6700-4MSC2TX, -4MST2TX, -4SSC2TX: 270 g
  - IM-6700-2MSC4TX, -2MST4TX, -2SSC4TX: 270 g

### Reliability

- **MTBF (mean time between failures):**
  - IM-6700-8TX: 10,412,400 hrs
  - IM-6700-8PoE: 338,800 hrs
  - IM-6700-8SFP: 366,119 hrs
  - IM-6700-6MSC: 365,741 hrs
  - IM-6700-6MST: 365,741 hrs
  - IM-6700-6SSC: 365,741 hrs
  - IM-6700-4MSC2TX: 530,268 hrs
  - IM-6700-4MST2TX: 537,942 hrs
  - IM-6700-2MSC4TX: 1,031,180 hrs
  - IM-6700-2MST4TX: 1,031,180 hrs
  - IM-6700-2SSC4TX: 1,031,180 hrs

### Optical Fiber

- **Wavelength:**
  - 100BaseFX: 1300 nm
  - 100BaseFX: 1310 nm

- **Max. TX:**
  - -10 dBm (Multi-mode)
  - 0 dBm (Single-mode)

- **Min. TX:**
  - -20 dBm (Multi-mode)
  - -5 dBm (Single-mode)

- **RX Sensitivity:**
  - -32 dBm (Multi-mode)
  - -34 dBm (Single-mode)

- **Link Budget:**
  - 12 dB (Multi-mode)
  - 29 dB (Single-mode)

- **Typical Distance:**
  - 5 km (Multi-mode)
  - 40 km (Single-mode)

- **Saturation:**
  - -6 dBm (Multi-mode)
  - -3 dBm (Single-mode)

*Optical Fiber specifications:
- a. 50/125 μm, 800 MHz-km fiber optic cable
- b. 62.5/125 μm, 500 MHz-km fiber optic cable
- c. 9/125 μm single-mode fiber optic cable

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**Database:** Telcordia (Bellcore), GB

**Warranty**

**Warranty Period:** 5 years

**Details:** See [www.moxa.com/warranty](http://www.moxa.com/warranty)
### Ordering Information

**Compatible Rackmount Ethernet Switch Systems**

**Modular Rackmount Ethernet Switch System:**

- **IKS-6726-2GTXSFP**
- **IKS-6727-4GTXSFP**
- **IKS-6728-8PoE**

#### Fast Ethernet Modules, IM-6700 Series

<table>
<thead>
<tr>
<th>Available Models</th>
<th>Port Interface</th>
<th>10/100BaseT(X)</th>
<th>Multi-mode, SC Connector</th>
<th>Multi-mode, ST Connector</th>
<th>Single-mode, SC Connector</th>
<th>100BaseSFP*</th>
</tr>
</thead>
<tbody>
<tr>
<td>IM-6700-8TX</td>
<td></td>
<td>8</td>
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<td>IM-6700-8SFP</td>
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<tr>
<td>IM-6700-6MSC</td>
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<tr>
<td>IM-6700-6MST</td>
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<td>IM-6700-6SSC</td>
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<td>IM-6700-4MSC2TX</td>
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<tr>
<td>IM-6700-4MST2TX</td>
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<td>–</td>
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<td>IM-6700-4SSC2TX</td>
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<td>4</td>
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<td>–</td>
</tr>
<tr>
<td>IM-6700-2MSC4TX</td>
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<td>–</td>
</tr>
<tr>
<td>IM-6700-2MST4TX</td>
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<td>–</td>
<td>2</td>
<td>–</td>
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<td>–</td>
</tr>
<tr>
<td>IM-6700-2SSC4TX</td>
<td>4</td>
<td>–</td>
<td>–</td>
<td>2</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>IM-6700-8PoE</td>
<td>8 (PoE+ ports)</td>
<td>–</td>
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</tbody>
</table>

**Package Checklist**

- IM-6700 series interface module
- Warranty card