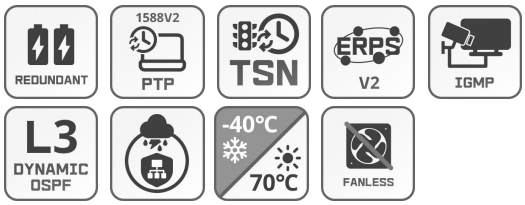
# FR-TSN4408

Industrial L3 Managed 8-port 10/100/1000Base-TX + 4-port 100/1000M/2.5G/10GBase-SFP TSN Fiber Ethernet Switch with Redundant DC Power Inputs








## Main Features

### TSN Features

- Time Sync: IEEE 1588v2 PTP and 802.1AS
- Traffic Shaping: IEEE 802.1Qbv and 802.1Qch
- Policing & Preemption: IEEE 802.1Qci and 802.1Qbu
- Redundancy: IEEE 802.1CB seamless redundancy

### Layer 2+ Features

- L3 Routing: IPv4/IPv6 OSPFv2/v3, RIPv2, and static routing
- Ring Recovery: ERPSv2 (<20ms), STP/RSTP/MSTP, MRP
- Link Aggregation: Dynamic LACP and static trunking
- VLAN Support: 802.1Q, QinQ, Voice, Private VLAN, MVR
- Multicast: IPv4 IGMP Snooping (v1/v2/v3) and IPv6 MLD Snooping (v1/v2)
- QoS: WRR/SP scheduling and 802.1p/DSCP prioritization

### Software Management

- Interfaces: WebUI, CLI, SNMPv1/v2c/v3
- Discovery & Logs: LLDP, LLDP-MED, NTP, Syslog
- Diagnostics: Port mirroring, sFlow, UDLD, OAM

### Security

- IEEE 802.1X, AAA, RADIUS, and TACACS+ authentication
- IPv4/IPv6 L2/L3 ACL, IP Source Guard, DAI, Storm control

### Industrial Reliability

- Operating temperature -40°C to +75°C
- Redundant DC power inputs / Alarm relay
- High ESD/surge protection / Fanless
- NDAA & RoHS compliant

CE FC

Protected by hardware warranty
Advance replacement. Global coverage.

View policy on Fiberroad's website.

# Product Specifications

## FR-TSN4408



| Product | FR-TSN4408 |
|---|---|
| **Interface** | |
| RJ45 Ports | 8 x 10/100/1000Base-T |
| Fiber Ports | 4 x 10G SFP+ |
| **Electrical and Mechanical** | |
| Input Voltage | Dual 18-72VDC wide-range input |
| Power Consumption | ≤10W (no load) / ≤20W (full load) |
| Surge Protection | Built-in reverse polarity, overcurrent and overvoltage protection |
| Enclosure | IP40 Aluminum case |
| Dimension | 160 x 132 x 70 mm, 1.2kg |
| **Standards** | |
| IEEE 802.3 | 10BaseT |
| IEEE 802.3u | 100BaseT(X) and 100BaseFX |
| IEEE 802.3ab | 1000BaseT(X) |
| IEEE 802.3z | 1000BaseSX/LX/LHX/ZX |
| IEEE 802.3x | Flow control |
| IEEE 802.1D | Spanning Tree Protocol |
| IEEE 802.1w | Rapid Spanning Tree Protocol |
| IEEE 802.1s | Multiple Spanning Tree Protocol |
| IEEE 802.1Q | VLAN tagging |
| IEEE 802.1p | Class of Service |
| IEEE 802.1ab | Link Layer Discovery Protocol |
| IEEE 802.1AS | Time-Sensitive Networking Timing |
| IEEE 1588 | Precision Time Protocol |
| IEEE 802.1Qbv | Time-Aware Shaper |
| IEEE 802.1Qbu | Frame Preemption |

# Product Specifications



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|---|---|
| **Standards** | |
| IEEE 802.1CB | Frame replication and elimination for reliability |
| **Switching** | |
| Switch Architecture | Store and forward; switching latency ≤7μs |
| Switch Fabric | 128Gbps |
| Forwarding Rate | 96Mpps |
| Packet Buffer Size | 32Mbits |
| Maximum Packet Length | 10K bytes (max. forwarding frame length) |
| MAC Address Table | 16K |
| Flow Control | IEEE 802.3x pause frame (full duplex); back pressure (half duplex) |
| **Software Features** | |
| Port Configuration | Port disable/enable; auto-negotiation 10/100/1000Mbps full/half duplex; port link capability control; jumbo frame size |
| Port Status | Speed, duplex mode, link status, flow control status, auto-negotiation status, trunk status, SFP detection/DDMI |
| Port Mirroring | Supported |
| VLAN | 4K VLAN entries; port-, MAC-, IP- and protocol-based VLAN; VLAN translation; GVRP |
| Link Aggregation | Manual (static) link aggregation |
| Spanning Tree Protocol | 802.1D STP, 802.1w RSTP, 802.1s MSTP |
| Multicast | IGMP Snooping, GMRP |
| Rate Limitation | Flow rate limiting; traffic shaping |
| Ring | ERPSv2, Recovery time<20ms; MRP |
| QoS | 802.1p/DSCP priority re-marking; SP, WRR, WFQ scheduling; traffic shaping; TSN: IEEE 1588 / 802.1AS time synchronization, 802.1Qbv, 802.1Qbu, 802.1CB |
| Security | Port protection; ARP inspection; storm suppression; MAC learning limit per port |

# Product Specifications

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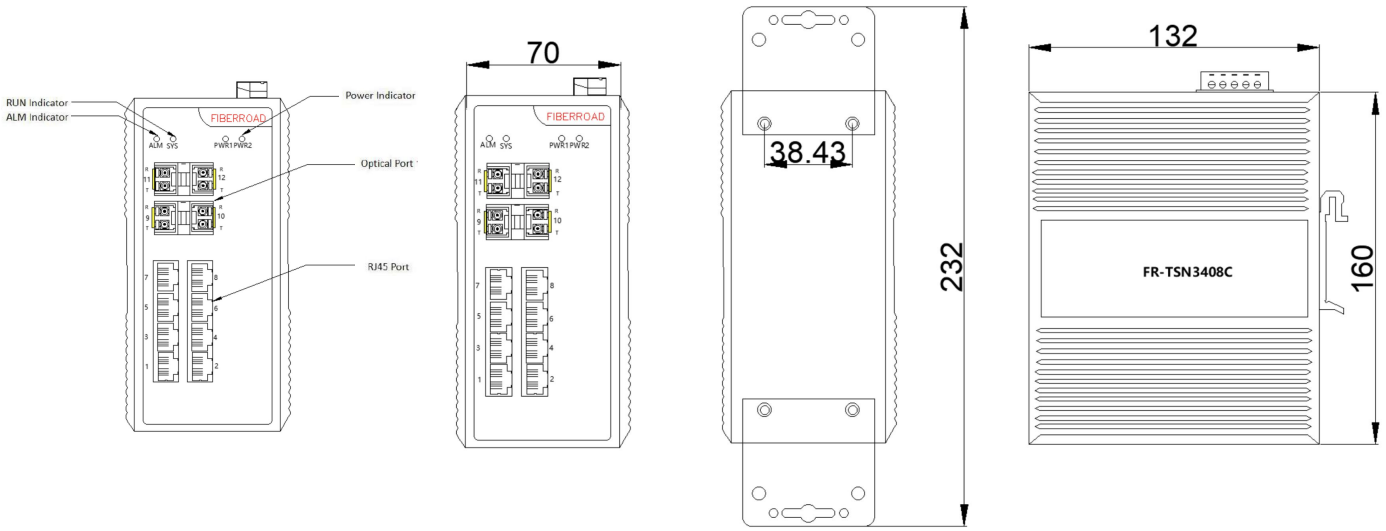
| Product | FR-TSN4408 |
|---|---|
| **Layer 3 Functions** | |
| IP Interfaces | Device IP setting |
| IP Services | Global DHCP Server, DHCP Snooping, DHCP Client; NTP |
| Routing | Static routing |
| **Management** | |
| Basic Management Interface | Console, Telnet, web browser, SNMP v1/v2/v3 |
| Secure Management Interface | HTTPS, SSHv2, SNMPv3 |
| System Management | LLDP; NTP; UDLD unidirectional link detection; MRP; alarms on port, power and configuration; IEC 61850, SV and GOOSE message processing |
| **Environmental** | |
| Operating Temperature | -40°C to +75°C |
| Storage Temperature | -40°C to +85°C |
| Operating Humidity | 5% to 95% (non-condensing) |
| MTBF | ≥ 300,000 hours |
| Cooling | Passive cooling, fan-less design |
| **Regulatory** | |
| ISO | ISO-9001 |
| Safety | IEC/EN 62368-1 |
| EMI | EN55032 Class A, CISPR 32 FCC Part 15B Class A |
| EMS | EN61000-4-2 (ESD) EN61000-4-3 (RS) EN61000-4-4 (EFT) EN61000-4-5 (Surge) EN61000-4-6 (CS) EN61000-4-8 (PFMF) |
| Shock | IEC 60068-2-27 |
| Free Fall | IEC 60068-2-32 |
| Vibration | IEC 60068-2-6 |
| Environmental | RoHS |

# Product Specifications



## Dimension (Unit: mm)




## Ordering Information

| Available Model | Description | Input Voltage | Operating Temp. |
|---|---|---|---|
| FR-TSN4408 | Industrial L3 Managed 8-port 10/100/1000Base-TX + 4-port 100/1000M/2.5G/10GBase-SFP TSN Fiber Ethernet Switch with Redundant DC Power Inputs | Dual 18-72VDC | -40 to +75°C |

| Optional Accessories (to be purchased separately) | |
|---|---|
| SFP Optical Transceiver | Please select your SFP on our SFP Modules page for details. |

| Package Contents | |
|---|---|
| Device | 1 x Industrial Ethernet Switch |
| Cable | 1 x DB9 female to RJ45 |
| Installation Kit | 1 x DIN-Rail Clip<br>2 x Wall-Mount Kits |

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