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# FS TSN3220 Series Switches Data Sheet

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## Product overview

FS TSN3220 series adopts industrial-grade high-reliability devices and industrial-grade hardware structure design, complies with a wide range of industrial Ethernet standards and specifications, and can be widely used in complex environmental scenarios such as urban monitoring, transportation, power energy, and smart manufacturing factories.

The TSN3220-10S features 8x 10/100/1000BASE-T copper ports, 2x 1/10Gb SFP+ ports, which is designed especially for a broad spectrum of industrial and extended enterprise connectivity needs. Equipped with an IP41 rated metal enclosure, it can operate within a wide temperature range of -40 to 75° C (-40 to 167° F). This switch is ideal for harsh environments, and can be widely used in energy, transportation, industrial production, environmental protection, and industrial industry. This layer 2 industrial managed switch supports enhanced L2 functions such as 802.1Q VLAN and port-based VLAN, QoS, QinQ, LACP link aggregation, etc., which can meet the requirements of many scenarios in industrial environments.

The TSN3220-10S-U features 8x 10/100/1000BASE-T PoE++ ports, 2x 1/10Gb SFP+ ports, which is designed especially for a broad spectrum of industrial and extended enterprise connectivity needs. Equipped with an IP41 rated metal enclosure, it can operate within a wide temperature range of -40 to 75° C (-40 to 167° F). This switch is ideal for harsh environments, and can be widely used in energy, transportation, industrial production, environmental protection, and industrial industry. All Gigabit PoE++ ports support a power budget of up to 360W for PoE+/PoE++, it is ideal for connecting PoE-powered end devices such as IP cameras, phones, wireless access points, sensors, and more. This layer 2 industrial managed switch supports enhanced L2 functions such as 802.1Q VLAN and port-based VLAN, QoS, QinQ, LACP link aggregation, etc., which can meet the requirements of many scenarios in industrial environments.

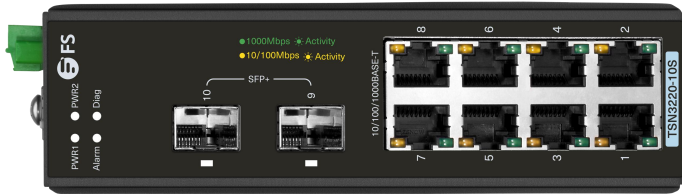
## Product highlights

- Support PROFINET, EtherNet/IP, Modbus TCP Industrial Ethernet Protocols
- Robust IP41 Aluminum Metal Enclosure for Use in Industrial Environments
- Support IEEE 1588v2 PTP (Precision Time Protocol) to Achieve Precise Synchronization
- Operate Stably Under the Temperature Range of -40 to 75° C
- DIN-rail Mounting for Efficient Use of Cabinet Space
- Support MRP, RRPP, ERPS, LACP, DHCP Server, QoS, ACL, etc.
- Support CLI/WEB/SSH/Telnet/SNMP for Easy Network Management
- Marvell Cygnus Chip, Up to 8 PoE++ Ports, 360W PoE Power Budget (Only for TSN3220-10S-U Switch)

## Platform details

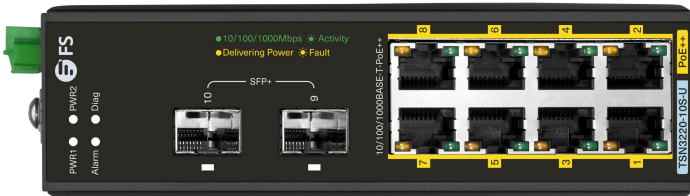
### Switch models and configurations

Figures 1 through 3 show the FS TSN3220 series switches.



**Figure 1.**

TSN3220-10S-U, 10-Port Gigabit Ethernet L2 Managed Industrial PoE++ Switch, 8 x PoE++ Ports@360W, with 2 x 1/10Gb SFP+, -40 to 75° C Operating Temperature



**Figure 2.**

TSN3220-10S, 10-Port Gigabit Ethernet L2 Managed Industrial Switch, 8 x 10/100/1000BASE-T, with 2 x 1/10Gb SFP+, -40 to 75° C Operating Temperature

## Switch configurations and port density

Table 1 shows the FS IES5120 series configurations and port density.

**Table 1. Switch configuration and port density**

FS P/N	TSN3220-10S	TSN3220-10S-U
<b>Description</b>	TSN3220-10S, 10-Port Gigabit Ethernet L2 Managed Industrial Switch, 8 x 10/100/1000BASE-T, with 2 x 1/10Gb SFP+, -40 to 75° C Operating Temperature	TSN3220-10S-U, 10-Port Gigabit Ethernet L2 Managed Industrial PoE++ Switch, 8 x PoE++ Ports@360W, with 2 x 1/10Gb SFP+, -40 to 75° C Operating Temperature
<b>Port</b>		
<b>1G port density</b>	8	8
<b>1/10G port density</b>	2	2
<b>Console port</b>	1	1
<b>Memory and processor</b>		
<b>Switch chip</b>	MVL Amethyst	MVL Cygnus
<b>SDRAM</b>	1G	1G
<b>Flash memory</b>	512M	512M
<b>Latency</b>	GE: 5μs 10GE: 3μs	GE: 5μs 10GE: 3μs
<b>Packet buffer</b>	1.5Mbits	1.5Mbits

### Note:

RJ45 ports can be used as 10/100/1000M ports for Ethernet connection.

SFP ports can be used for 1G connection.

## Power supplies and fans

Table 2 provides more details on the FS IES5120 series power supplies and fan specifications.

**Table 2. Power supply and fan specifications**

Description	TSN3220-10S	TSN3220-10S-U
Power supply	Dual 1+1 redundant power supplies (DC)	Dual 1+1 redundant power supplies (DC)
Fan number	Fanless	Fanless
Max. power consumption	Single DC: 15W Dual DC: 16W	Single DC: 200W(PoE:160W) Dual DC: 400W(PoE: 360W)
Power max rating	-	-
Input-voltage range and frequency	<ul style="list-style-type: none"> <li>Rated voltage range: 24-48 VDC; 50-60Hz</li> </ul>	<ul style="list-style-type: none"> <li>Dual-Route Redundant Input: 53-57 VDC</li> <li>Maximum voltage range: 48-57V 48-57V for PoE 52-57V for PoE+ 53-57V for PoE++</li> </ul>
PoE standard	-	IEEE 802.3af/at/bt
PoE power budget	-	360W

## Switch performance

Table 3 shows performance specifications for the FS TSN3220 series switches.

**Table 3. Performance specifications**

Performance for all TSN3220 Series Switches	TSN3220-10S	TSN3220-10S-U
<b>Switching capacity</b>	56Gbps	56Gbps
<b>Forwarding rate</b>	41.7Mpps	41.7Mpps
<b>Total number of MAC addresses</b>	16K	16K
<b>Total number of IPv4 routes (indirect routes)</b>	1K	1K
<b>Total number of IPv4 multicast routes</b>	N/A	N/A
<b>QoS ACL scale</b>	256	256
<b>VLAN IDs</b>	4K	4K
<b>Jumbo frame</b>	10000 bytes	10000 bytes

## Platform benefits

Table 4 lists the software spotlights for the FS TSN3220 series switches.

**Table 4. Software spotlights**

Functionality	Description
<b>IPv4/IPv6 Dual-Stack</b>	Support IPv4/IPv6 static routing Support RIP/RIPng, OSPF Support VRRP Support BFD FOR VRRP Support BFD FOR IPV4 Support BFD FOR IPV6
<b>Multicast Efficiency</b>	Support IGMP v1/v2/v3 Support IPv4 IGMP snooping Support IPv6 MLD snooping Support Multicast VLAN Support MVRP (Alternatives to GVRP/GARP)

Functionality	Description
<b>Layer 2 Ring Protection Protocol</b>	Support STP/RSTP/MSTP Support STP root protection Support BPDU protection Supports G.8032 Ethernet ring protection switching (ERPS) with a self-healing time of 30ms Supports RRPP (Rapid Ring Protection Protocol) with a self-healing time of 30ms Supports IEC 62439-2 MRP (Media Redundancy Protocol) with a self-healing time of less than 20ms
<b>Industrial Ethernet Protocols</b>	Supports monitoring and management by industrial Ethernet protocols such as PROFINET, Ethernet/IP, and Modbus TCP Supports PTP SyncE
<b>ACL&amp;QOS</b>	Supports packet filtering functions Supports flexible queuing scheduling algorithms; settings can be applied based on both ports and queues Supports multiple modes such as SP (Strict Priority), WRR (Weighted Round Robin), and SP+WRR (Combination of Strict Priority and Weighted Round Robin) Supports port-based rate limiting Supports flow-based redirection Supports time-based functions Support level 2/level 3/level 4 ACL Support IPv4/IPv6 ACL Support Ingress ACL
<b>Secure And Simplified Access</b>	Supports hierarchical user management and password protection Supports AAA authentication Supports Radius authentication Supports SSH 2.0 Supports port isolation Supports port security features Supports MAC address authentication Supports HTTPS Supports PKI (Public Key Infrastructure). Supports attack source tracing for ARP packets. Supports IP Source Guard (including both IPv4 and IPv6) Supports DAI, protection against ARP attacks and DDoS Supports Secure Boot
<b>Error-Free Network Configuration</b>	Supports remote configuration via Telnet Supports configuration through a console port Supports SNMP Supports RMON for alarms, events, and historical data Supports SDN/OpenFlow, compliant with the OpenFlow 1.3 standard Supports cloud-based management. Supports web-based network management Supports system logging Supports hierarchical alarms Supports IRF2 stacking technology Supports NTP Supports power and temperature alarms

## Product specifications

Table 5 shows the product specifications for the FS TSN3220 series switches.

**Table 5. Product specifications**

Description	TSN3220-10S	TSN3220-10S-U
<b>Environmental</b>		
<b>Operating temperature</b>	-40 to 75° C (-40 to 167° F)	-40 to 75° C (-40 to 167° F)
<b>Storage temperature</b>	-40 to 85° C (-40 to 185° F)	-40 to 85° C (-40 to 185° F)
<b>Operating humidity</b>	5% to 95% (Non-condensing)	5% to 95% (Non-condensing)
<b>Storage humidity</b>	5% to 95% (Non-condensing)	5% to 95% (Non-condensing)
<b>Physical specifications</b>		
<b>Dimensions (HxWxD)</b>	5.91"x1.73"x5.19" (150x44x130mm)	5.91"x1.73"x5.19" (150x44x130mm)
<b>Weight</b>	≤1.0kg	≤1.0kg
<b>Electrical</b>		
<b>Voltage (auto ranging)</b>	24-48 VDC	53-57 VDC
<b>Frequency</b>	50-60Hz	50-60Hz

Description	TSN3220-10S	TSN3220-10S-U
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## Connectors

<b>Connectors and cabling</b>	<ul style="list-style-type: none"> <li>• SFP transceivers: LC fiber connectors (single-mode or multimode fiber)</li> <li>• FS StackWise stacking ports: copper-based FS StackWise cabling</li> <li>• Ethernet management port: RJ-45 connectors, 4-pair Cat5 UTP cabling</li> <li>• Management console port: RJ-45-to-DB9 cable for PC connections</li> </ul>
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## Power connectors

- Customers can provide power to a switch by using the internal power
- Internal power supply connector: The internal power supply is an auto-ranging unit. It supports input voltages of 53-57 VDC or 100-240 VAC. Use the supplied DC/AC power cord to connect the DC/AC power connector to an DC/AC power outlet

## Standards

### Standards

IEEE 802.3af, IEEE 802.3at, IEEE 802.3bt, 802.3x, 802.3ad, 802.1P, 802.1Q, 802.1X

## Quality certification

At FS, our Quality Commitment lies in all aspects of processes, resources, and methods that enable us to build superior networks for our customers. Through a quality policy focusing on continuous improvement of products and services, we're able to achieve the highest levels of satisfaction for our customers. To that end, every FS employee is accountable for contributing to the value of the products and services we deliver.

Figure 3 shows some of the authoritative certifications obtained by FS TSN3220 Series Switches.



Figure 3.

## Warranty, service and support

FS TSN3220 Series Switches enjoy 5 years limited warranty against defects in materials or workmanship. For more information for FS Returns & Refunds policy, visit <https://www.fs.com/policies/warranty.html> or [https://www.fs.com/policies/day\\_return\\_policy.html](https://www.fs.com/policies/day_return_policy.html)

FS provides a personal account manager, free professional technical support, and 24/7 live customer service to each customer.

- Professional Lab: Test each product with the latest and advanced networking equipment.
- Free Technical Support: Provide free & tailored solutions and services for your businesses.
- 80% Same-day Shipping: Immediate shipping for in-stock items.
- Fast Response: Direct and immediate assistance from an expert.

For more information, visit [https://www.fs.com/service/fs\\_support.html](https://www.fs.com/service/fs_support.html)

## Ordering information

Table 6 provides the ordering information for TSN3220 series switches.

**Table 6. Ordering information**

FS P/N	Product description
<b>Switch hardware</b>	
<a href="#">TSN3220-10S</a>	TSN3220-10S, 10-Port Gigabit Ethernet L2 Managed Industrial Switch, 8 x 10/100/1000BASE-T, with 2 x 1/10Gb SFP+, -40 to 75° C Operating Temperature
<a href="#">TSN3220-10S-U</a>	TSN3220-10S-U, 10-Port Gigabit Ethernet L2 Managed Industrial PoE++ Switch, 8 x PoE++ Ports@360W, with 2 x 1/10Gb SFP+, -40 to 75° C Operating Temperature

## Additional information

For more information about the TSN3220 Series Switches, contact your account manager or visit [https://www.fs.com/search\\_result?keyword=TSN3220](https://www.fs.com/search_result?keyword=TSN3220)

## Document history

New or revised topic	Described in	Date
<b>Updates to FS TSN3220 Series Switches Data Sheet</b>	Updated all	2/23/2024



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