CHANGDA TONG
SCIENCE & TECHNOLOGY

$\mathcal{T}$ - Switch

SWITCH

Product
manual

Tianjin Changdatong Technology Co., LTD

Founded in 2016, Tianjin Changdatong Technology Co., Ltd. is an innovative technology-based enterprise, integrating R&D, production, sales and service. The main products are programmable controllers, data acquisition modules, switches, industrial touch screens and big data platforms.

At present, the products have reached strategic cooperation with the world's top 500 enterprises and have been applied in many metallurgical enterprises. It is the first domestic enterprise to apply programmable controllers, data acquisition modules, switches, and industrial touch screens in the main process sections of metallurgy.

The company's vision and mission is to "become the backbone of the domestic independent industrial control product field".

Its market positioning is "to be a leading brand of completely independent domestic industrial control products, with the best cost-effective products".

T - Switch

T-Switch Series

T-Switch industrial-grade switch to build a stable and reliable communication network, fan less, wide temperature operation, ultra-long trouble-free working time, to build a stable Ethernet network.

At the same time, it supports access capabilities such as Ethernet, serial port, and DI/DO, supports redundant functions of the ring network, provides the fastest ring network fault recovery time of less than 20ms, and supports the RSTP protocol.

Product advantages:

1. On-site installation (in the control cabinet or directly installed on automation equipment, adapt to industrial applications with harsh environment)

2. Fan less heat dissipation, redundant power supply, average time without failure ⩾ 35 years

3. There are specific anti-vibration, anti-shock requirements, anti-corrosion of certain chemicals, strong anti-electromagnetic interference ability

4. Application in industrial production site DCS, SCADA system, signal system, environmental monitoring system and so on

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TSWSI6432G

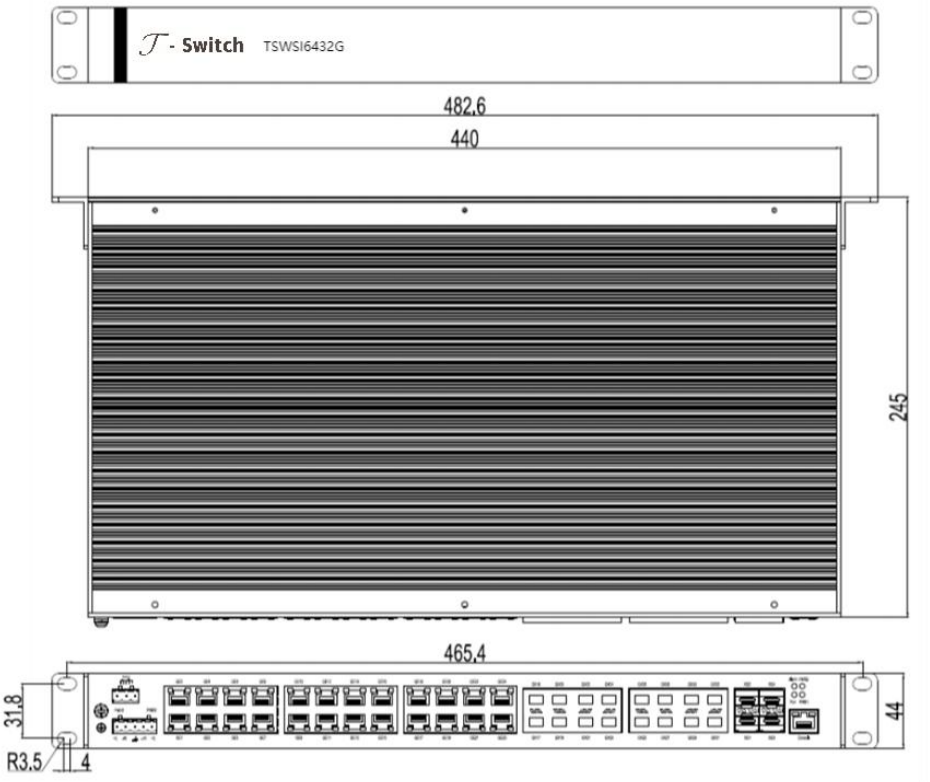
32G+4X port three-layer managed rack-mounted backbone switch

TSWSI6432G is a three-layer managed industrial Ethernet switch designed for industrial communication system requirements, which is 19-inch 1U rack mounted, and the port configuration mode:
(4) 4 Gigabit optical ports + 24 Gigabit Ethernet electrical ports. Combo port is a gigabit optical optional port, the port configuration has high flexibility, so that the product supports up to 4 10,000 Gigabit ports and up to 24 Gigabit ports. Supports up to 16 gigabit optical ports.
TSWSI6432G supports rich Layer 2 software features such as ports, VLANs, multicasts, QoS, and fast redundancy rings, supports Layer 3 functions such as static routing, RIP, OSPF, supports NAT-based IP translation, supports hardware-based 1588 pairs, timing accuracy up to ±100ns, supports DDM optical power detection functions, and supports Console, Telnet, Web management methods and SNMP-based network management software. At the same time, the body of the product is small, the depth is only 245mm, which can adapt to different installation spaces. The power consumption of the whole machine is less than 40W, which can be widely used in the backbone communication system of various industries.

Key Feature

- Supports optoelectronic optional Gigabit Combo interface for flexible port configuration. It supports up to 4 10 Gigabit interfaces, 24 Gigabit Ethernet electrical ports, and 16 Gigabit optical ports
- DRP/DHCP redundancy protocol is supported, and the ring network self-healing time is < 20ms, regardless of the size of the network range
- Support RSTP/MSTP/STP, ERPS, and VRRP and other redundant networking mechanisms
- Support static routing, RIP v1/v2, OSPF v2 dynamic routing protocols
- Supports QoS, VLAN, SNMP v1/v2c/v3, RMON (groups 1, 2, 3 and 9)
- Supports NAT-based IP translation
- Support DDM optical power detection function
- Supports hardware-based 1588 timing protocol with a timing accuracy of ± 100ns
- The body depth is 245mm, which is easy to install
- The power consumption of the whole machine < 40W
- Supports jumbo frame transmission, packet buffer up to 32Mbit, efficient and stable video transmission
- IP40 protection rating, fan less heat dissipation, operating temperature -

Mechanical Size



Performance

Software function	Switching function	Supports VLAN, PVLAN Supports port aggregation Supports flow control Supports broadcast storm suppression Supports port rate limit
	Redundancy protocol	Supports VRRP Supports ERPS(G.8032) Supports DRP/DHP with recovery time<20 ms Supports RSTP/MSTP and compatible with STP
	Multicast protocol	Supports IGMP snooping Supports PIM SM and PIM DM
	Routing protocol	Supports OSFPv2 Supports 静态路由 Supports RIPv1/v2 Supports IGM P Supports PIM-SM, PIM-DM
	Security	Supports IEEE 802.1x(user classification) Supports HTTPS/SSL,SFTP Client Supports SSH Supports RADIUS Support TACACS + Support unicast MAC filtering
	Service quality management	Supports ACL Support port and protocol based data flow control and restriction Supports 802.1p and TOS/Diff Serv, SP and WRR queuing
	Management and maintenance	Supports Console, Telnet, WEB management mode Supports SNMP management Supports SNMPv1/v2c/v3 Support DES and AES encryption Support TCP/UDP, Ping, Trace route Supports file transfer and software update over FTP and TFTP Supports remote port mirroring Support LLDP and LLDP MIB (802.1ab Support packet size (MTU) Support ICMP, ICMP route discovery
	Diagnostic	Supports RMON Supports the IP/MAC address conflict alarm, power failure alarm, port alarm, and ring alarm Supports DDM Supports Syslog
	IP address management	Support IPv4 Support IPv6 Support DHCP server/option12 Support Port Security over DHCP Support DHCP-relay-agent/option 82/61 Support DHCP Relay Agent Information Option Support DHCP Client Support DNS Support ARP Support IP Transformation based on NAT
	Clock management	Supports SNTP Client Supports NTP client Supports PTPv2, synchronization accuracy is ±100ns

Performance

Product specifications	Technical parameter	Standard IEEE 802.3i(10Base-T) IEEE 802.3u(100Base-TX and 100Base-FX) IEEE 802.3ab(1000Base-T) IEEE 802.3z(1000Base-SX/LX) IEEE 802.3ae(10GBase-X) IEEE 802.3ad (port aggregation) IEEE 802.3x (flow control) IEEE 802.1p (priority) IEEE 802.1Q(VLAN) IEEE 802.1w(RSTP) IEEE 802.1s(MSTP) IEEE 802.1x
	Switch properties	Priority queue: 8 Number of VLANs: 4K VLAN ID: 1－4093 Number of multicast groups: 1K Routing table: 4K MAC table: 32K Packet buffer:32Mbit Packet forwarding rate: 107 Mpps
	Interface	10 Gigabit ports: 10GBase-X, TSWSFP+ port Gigabit ports: 1000Base-X, TSWSFP port 10/100/1000Base-T(X): RJ45 port Console port: RS232,RJ45 Alarm terminal: 3-core 5.08mm pitch plug-in terminal
	LED	Running LED: Run Alarm LED: Alarm Power LED: PWR1, PWR2 Port LED: Link/ACT
	Power Requirements	Power input: 220VAC/DC Power terminal 5-pin 5.08 mm-spacing plug-in terminal block Power consumption: < 40 W Overload protection: Support Reverse connection protection: Support Redundancy protection: Support
	Physical Characteristics	Housing: Metal Cooling: Natural cooling, fan less Protection Class: IP40 Size (W×H×D): 482.6mm × 44mm × 245mm Weight<4 Kg Mounting: 19 inch rack mounting
	Environmental limits	Operating temperature: -40° C ~ 75° C Storage temperature: -40° C ~85° C Ambient Relative Humidity: 5% - 95% (non-condensing)
	Certification	CE , FCC
	Industry standard	EMI FCC CFR47 Part 15,EN55032/CISPR22,Class A EMS IEC61000-4-2(ESD) ±6kV(contact),±8kV(air) IEC61000-4-3(RS) 10V/m(80MHz-2GHz) IEC61000-4-4(EFT) Power Port:±2kV;Data Port:±2kV IEC61000-4-5(Surge) Power Line to line 1KV; Line to earth 2KV IEC61000-4-6(CS) 10V(150kHz-80MHz) IEC61000-4-8 (Frenquency magnetic field) 300A/m(16.7Hz,50Hz,0Hz) IEC61000-4-9(Pulsed magnetic field) 300A/m Machinery IEC60068-2-6 (vibration) IEC60068-2-27 (shock) IEC60068-2-32 (free fall)

Ordering Information

Product Model	TSWSI6432G-Ports-PS1-PS2
Code definition	Code selection
Ports:	4GX24GE: 4×1000Base-X SFP port; 24×10/100/1000Base-T(X)port。
PS1-PS2: power input	HV-HV=220VAC/DC redundant power inputs

TSWSI3028 GPT

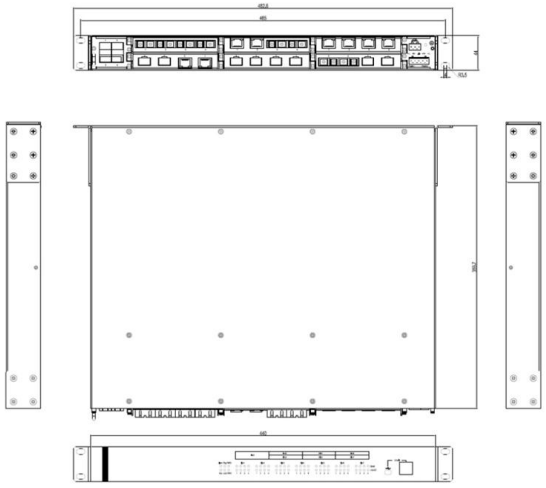
28 port layer 2/3 managed rack mountable modular switches

TSWSI3028GPT is an intelligent modular platform, which is an all-in-one solution that integrates clock synchronization, full gigabit, and Layer 2/Layer 3 functions, and is specially designed for industrial communication system requirements with strict EMC performance requirements.
The TSWSI3028GPT supports up to 28 opto electronic optional gigabit interfaces. TSWSI3028GPT is a 19-inch 1U rackmount device that supports one 1U slot and six 0.5U slots, and the module is field-replaceable and very flexible to use. TSWSI3028GPT provides IEEE1588v2 and synchronous Ethernet protocols based on hardware timestamps, supports BC, P2P TC, E2E TC clock modes, achieves 100ns timing accuracy, supports Power Profile and Telecom Profile, and can be extended to include Clock server module, GPS module, IRIG-B module and other clock interface modules. TSWSI3028GPT supports rich layer-2 software features such as ports, VLANs, multicasts, QoS, and fast redundancy rings, as well as layer-3 functions such as VRRP, RIP, OSFP, IGMP, and PIM, and supports multiple management modes such as Console, Telnet, Web, and SNMP-based network management software. The product provides up to 24 RS232/422/485 selectable serial interfaces by expanding the serial server module. By extending the HSR/PRP module, a zero-packet loss redundancy solution is provided. At present, the product has been widely used in electric power, rail transit, petrochemical and other industrial communication systems with severe requirements for EMC performance.

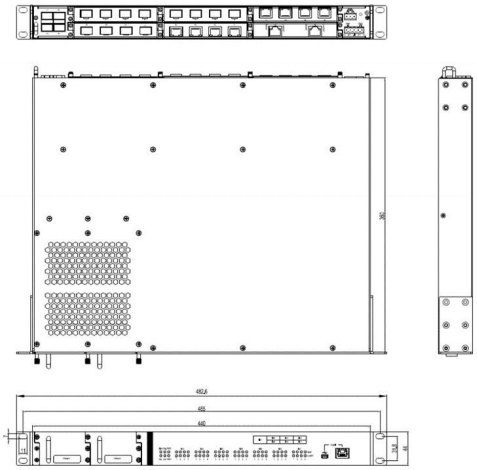
Key Features

- Flexible modular design, easy to expand, support up to 28 optoelectronic optional gigabit interfaces
- Support DRP protocol family, MSTP, VRRP and other redundant networking mechanisms
- Support RIP, OSPF and other three-layer routing protocols
- Support IEEE1588v2, synchronization accuracy up to ±100ns, support ITU-T.G.8261/G.8262 synchronous Ethernet, synchronization accuracy up to ±50ns
- Expandable GPS module, IRIG-B module, TMS-trigger module, clock server module, serial device server module, HSR/PRP module, indicator module

Mechanical Size



Machine Dimension
with Fixed power supply



Machine Dimension
with Hot-Swappable Power Supply

Performance

Software functions	Switching function	Supports VLAN and PVLAN Supports ARP Supports port aggregation and LACP Supports port flow control. Supports broadcast storm suppression Supports QinQ Supports MAC address management
	Redundancy protocol	The recovery time<50 ms. Supports DHP and DRP and the recovery time<20 ms. Supports RSTP/MSTP and compatible with STP
	Multicast protocol	Supports IGMP snooping Supports GMRP Supports static multicast Supports unknown Multicast control Supports GOOSE over IP tunnel (receiver)
	L3 function (part of sub-models support)	Supports RIPv1/v2 Supports OSFPv2 Supports static routing Supports VRRP Supports IGMP Supports PIM SM, PIMDM Supports GOOSE over IP tunnel (sender)
	Security	Supports IEEE 802.1x Supports HTTPS/SSL Supports SSH Supports SFTP client Supports RADIUS Supports TACACS+ Supports user grading. Supports MAC address binding Supports port isolate. Supports security IP for Web/Telnet/SSH/SNMP service Supports access management
	Service quality management	Supports ACL, filtering the data of L2 to L4. Supports 802.1p(TOS),TSCP Supports priority mapping Supports SP and WRR queuing.
	Management and maintenance	Supports Console, Telnet, and Web (HTTP or HTTPs) management methods. Supports SNMPv1/v2c/v3 and can managed Supports IEC61850 MMS management. Supports TFTP server/client. Supports FTP server/client. Supports software update over FTP/TFTP/SFTP. Supports IP/MAC conflict alarm, power loss alarm, power alarm, temperature alarm, port LinkDown alarm, ring alarm, CPU utilization alarm, memory utilization alarm, port traffic alarm, CRC and packet loss rate alarm, optical port receiving optical power alarm, optical module optical power alarm [optical port connection Optical power alarm and optical module optical power alarm need to be used with daughter cards that support DDM function 】Supports port mirroring. Supports cable test. Supports DDM. Supports loop detection Supports CRC protection Supports Support Syslog. Supports RMON Supports LLDP. Supports Link-check. Supports NTP Server/Client Supports SNTP Server Supports RTC. Supports time zone and TST.
	IP address management	Supports DHCP server/client
	Time synchronization (part of sub-models support)	Supports PTPv2 Supports Power profile (C37.238) Supports Telecom profile (in special version) Supports synchronous Ethernet (ITU-T.G.8261/G.8262). Supports TMS function

Performance

Product specifications	Technical parameter	Standard IEEE 802.3i (10Base-T) IEEE 802.3u (100Base-T) IEEE 802.3ab (1000Base-T) IEEE 802.3ad (port aggregation) IEEE 802.3z (1000Base-SX/LX) IEEE 802.3x (flow control) IEEE 802.1p (priority) IEEE 802.1Q (VLAN) IEEE 802.1w (RSTP) IEEE 802.1s (MSTP) IEEE 802.1x IEEE1588-2008 (PTPv2) ITU-T.G.8261/G.8262 (synchronous Ethernet)
	Switch properties	Priority queue: 8 Number of VLANs: 4K VLAN ID: 1－4093 Number of multicast groups: 256 Routing table: 8K (L2 chassis do not involve) MAC table: 16K Packet buffer: 12Mbit (TSWSI3028GPT-L3F/L3FT/L3G/L3GT), 8Mbit (TSWSI3028GPT- L2F/L2FT/L2G/L2GT) Packet forwarding rate: 41.7Mpps (TSWSI3028GPT-L2G/L2GT/L3G/L3GT), 9.5Mpps (TSWSI3028GPT-L2F/L2FT/L3F/L3FT) Switching delay: < 10 μs Jumbo Frame Size: 10 KB
	Interface	Console port: Mini USB, RJ45 Alarm contact: 3-pin 5.08mm-spacing plug-in terminal block, 250 VAC/220 VDC Max, 2 A Max, 10A@1s, 60 W Max Slots for module: 1U: 1, 0.5U: 6
	LED	1.LED on front panel Alarm LED: Alarm Running LED: Run Ring Role LED: Ring Synchronization finish LED: Lock Power LED: PWR1, PWR2 Port LED: Link/ACT Port speed LED: Speed 2.LED on rear panel Port LED: Link/ACT Port speed LED: Speed Alarm LED: Alarm Running LED: Run Power LED: PWR1, PWR2 Port LED: Link
	Power Requirements	Power input: 100-240VAC,50/60Hz;110-220VDCPower terminal: 5-pin 5.08 mm-spacing plug-in terminal block Power consumption: < 40 W Overload protection: Support/Reverse connection protection: Support Redundancy protection: Support
	Physical Characteristics	Housing: Metal Cooling: Natural cooling, fan less Protection Class: IP40 Size(W×H×D)： 482.6 mm × 44 mm × 359.7 mm Weight: < 10 Kg Mounting: 19 inch 1U rack mounting
	Environmental limits	Operating temperature: -40° C ~75° C Storage temperature: -40° C ~85° C Ambient Relative Humidity: 5% to 95% (non-condensing)
	Certification	CE , FCC
	Industry standard	EMI FCC CFR47 Part 15, EN55022/CISPR22, Class A EMS IEC61000-4-2(ESD) ±8 kV (contact), ±15 kV(air) IEC61000-4-3(RS) 10 V/m (80 MHz-2 GHz) IEC61000-4-4(EFT) Power Port: ±4 kV; Data Port: ±2 kV IEC61000-4-5(Surge) Power Port: ±2 kV/DM, ±4 kV/CM; Data Port: ±2 kV IEC61000-4-6(CS) 3 V (10 kHz-150 kHz); 10 V (150 kHz-80 MHz) IEC61000-4-8 (power frequency magnetic field) 100 A/m(cont.), 1000 A/m(1s-3s) IEC61000-4-9 (pulsed magnetic field) 1000 A/m IEC61000-4-10 (damped oscillation) 100 A/m IEC61000-4-12 (oscillatory wave) 2.5 kV/CM, 1 kV/DM IEC61000-4-16 (common mode conduction) 30 V(cont.), 300 V(1s) Machinery IEC60068-2-6 (vibration) IEC60068-2-27 (shock) IEC60068-2-32 (free fall)

Ordering Information

Fixed power type	TSWSI3028GPT-SM-PS1-PS2
Code definition	Code selection
SM: Sub-model	L2GT-MB: TSWSI3028GPT 28G ports L2 Chassis with time synchronization L2G-MB: TSWSI3028GPT 28G ports L2 Chassis L3GT-MB: TSWSI3028GPT 28G ports L3 Chassis with time synchronization L3G-MB: TSWSI3028GPT 28G ports L3 Chassis
PS1: Power input 1	HV=100-240VAC,50/60Hz;110-220VDC
PS2: Power input 2	HV=100-240VAC,50/60Hz;110-220VDC

Hot-Swappable type	Module
TSWSI3028GPT-L2GT-MB	TSWSI3028GPT Layer 2, 28Gigabit switch with time synchronization, not including power supply, support 2 swappable power slots, need additional power unit.
TSWSI3028GPT-L2G-MB	TSWSI3028GPT layer 2, 28Gigabit switch, not including power supply, support 2 swappable power slots, need additional power unit.
TSWSI3028GPT-L3GT-MB	TSWSI3028GPT Layer 3, 28Gigabit switch with time synchronization, not including power supply, support 2 swappable power slots, need additional power unit
TSWSI3028GPT- L3G-MB	TSWSI3028GPT layer 3, 28Gigabit switch, not including power supply, support 2 swappable power slots, need additional power unit.
Power type	Model
SM6.6-Power-HV	Swappable power unit, matched with TSWSI3028GPT switch, 100-240VAC,50/60Hz;110-220VDC

TSWSI3024P

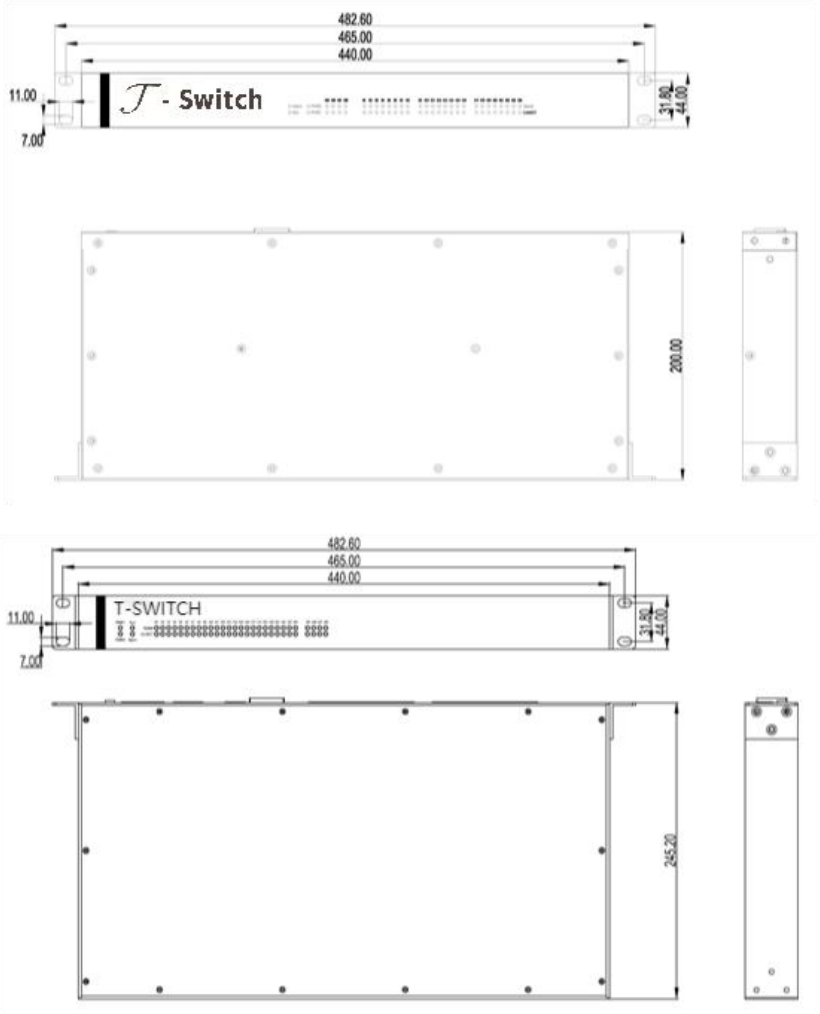
28G port Layer 2 managed rack switch

TSWSI3024P is a layer-2 managed industrial Ethernet switch designed for industrial communication system requirements with strict EMC performance requirements, supporting up to 28 gigabit interfaces and meeting IEC61850-3 and IEEE1613 standards. The TSWIS3024P switch is a 19-inch rack mount with front panel mounting and rear panel installation, TSWIS3024P supports multiple ways of VLAN configuration, multiple redundant networking protocols, rich security features, perfect management and maintenance methods and alarm information, and supports centralized configuration tools and centralized management software.

Key Features

- Supports up to 28 Gigabit interfaces
- It supports DRP/DHCP redundancy protocol based on IEC62439-6, and the network self-healing time < 20ms
- Support IEC61850 MMS modeling management
- Support optical port DDM function
- Supports multiple alarm types and log record uploads
- Complies with IEC61850-3 and IEEE1613

Mechanical Size



Performance

Software Functions	Switching Function	Supports VLAN Supports PVLAN Supports QinQ Supports GVRP Supports port aggregation Supports flow control Supports port rate limit Supports broadcast storm suppression Supports MAC aging & time learning
	Redundancy Protocol	Supports DHP and DRP and the recovery time<20 ms Supports ERPS (G.8032) Supports STP/RSTP/MSTP
	Multicast Protocol	Supports IGMP snooping, Supports IGMP Proxy Supports GMRP Supports static multicast
	Security	Supports IEEE 802.1x、 Supports HTTPs/SSL Supports SSH Supports SFTP Supports RADIUS Supports TACACS+ Supports MAC learning limit Supports user grading Supports enhanced password Supports port isolate
	Service Quality Management	Supports ACL, Filtering the data of L2 to L4 Supports 802.1p(CoS), TSCP Supports priority mapping Supports SP and WRR queuing
	Management & Maintenance	Supports Console, Telnet, and Web management Supports SNMPv1/v2c/v3 and can managed Supports IEC61850 MMS server Supports software update via FTP Supports configuration upload/download via FTP/HTTP Supports FTP Server/Client Supports TFTP Server/Client Supports the IP/MAC address conflict alarm, power failure alarm, power alarm, temperature alarm, port alarm, port flow alarm, CPU/memory usage alarm, login/logout alarm, config change alarm, and ring alarm Supports RMON Supports on line trouble testing Supports DDM function Supports BFD Supports port mirroring Supports Syslog, save to flash or send to log server Supports LLDP Supports Ring testing Supports CRC Protection Supports Link-check
	IP Address Management	Supports DHCP Server/Client/Relay/Snooping/Option 66/Option 67/Option 82
	Control Protocol	Supports Ethernet/IP Supports Profinet Supports Modbus TCP
	Clock Management	Supports NTP server/client Supports SNTP

Performance

Product specifications	Technical parameter	Standard IEEE 802.3i(10Base-T) IEEE 802.3u(100Base-TX and 100Base-FX) IEEE 802.3ab(1000Base-T) IEEE 802.3z(1000Base-SX/LX) IEEE 802.3ad (port aggregation) IEEE 802.3x(flow control) IEEE 802.1p(priority) IEEE 802.1Q(VLAN) IEEE 802.1d(STP) IEEE 802.1w(RSTP) IEEE 802.1s(MSTP)
	Switch properties	Priority queue: 8 Number of VLANs:4094 VLAN ID: 1－4094 Number of multicast groups: 256 MAC table: 8K Packet buffer: 32Mbit Packet forwarding rate: 83.3Mpps Switching delay:<5μs
	Interface	Gigabit ports: 1000Base-X, 10/100/1000Base-T(X) TSWSFP port 10/100/1000Base-T(X), RJ45 port Console port: RS232,RJ45 Alarm contact: 3-pin 5.08mm-spacing plug-in terminal block, 250 VAC/220 VDC Max, 2 A Max, 60 W Max
	LED	LED on front panel Running LED: Run Alarm LED: Alarm Power LED: PWR1, PWR2 Port LED: Link/ACT LED on rear panel Running LED: Run Alarm LED: Alarm Power LED: PWR1, PWR2 Port LED: Link/ACT, Port speed LED: Speed
	Power Requirements	Power input: 100-240VAC,50/60Hz;110-220VDC Power terminal: 5-pin 5.08 mm-spacing plug-in terminal block Power consumption: < 35 W Overload protection: Support Reverse connection protection: Support Redundancy protection: Support
	Physical Characteristics	Housing: Metal Cooling: Natural cooling, fan less Protection Class: IP40 Size(W×H×D): Small chassis: 482.6mm×44mm×200mm(W×H×D) Standard chassis: 482.6mm×44mm×245mm(W×H×D) Weight:<4Kg Mounting: 19 inch 1U rack mounting
	Environmental limits	Operating temperature: -40° C ~85° C Storage temperature: -40° C ~85° C Ambient Relative Humidity: 5% to 95% (non-condensing)
	Certification	CE , FCC
	Industry standard	EMI: FCC CFR47 Part 15,EN55022/CISPR22,Class A EMS: IEC61000-4-2(ESD) ±8kV(contact),±15kV(air) IEC61000-4-3(RS) 10V/m(80MHz-2GHz) IEC61000-4-4(EFT) Power Port:±4kV;Data Port:±2kV IEC61000-4-5(Surge) Power Port:±2kV/DM,±4kV/CM;Data Port:±2kV IEC61000-4-6(CS) 3V(10kHz-150kHz);10V(150kHz-80MHz) IEC61000-4-8(power frequency magnetic field) 100A/m(cont.),1000A/m(1s-3s) IEC61000-4-9(pulsed magnetic field) 1000A/m IEC61000-4-10(damped oscillation) 100A/m IEC61000-4-12(oscillatory wave) 2.5kV/CM,1kV/DM IEC61000-4-16(common mode conduction) 30V(cont.),300V(1s) Machinery: IEC60068-2-6 (vibration) IEC60068-2-27 (shock) IEC60068-2-32 (free fall)

Ordering Information

Recommended model

Model	Description
TSWSI3024P-4GX24GE-HV-HV	4×1000Base-X,10/100/1000Base-T(X) SFP port; 24×10/100/1000Base-T(X) RJ45 port; 100-240VAC,50/60Hz;110-220VDC Redundancy power
TSWSI3024P-4G12GX12GE-HV-HV	4×1000Base-X,10/100/1000Base-T(X) Combo port; 12×1000Base-X,10/100/1000Base-T(X) TSWSFP port; 12×10/100/1000Base-T(X) RJ45 port; 100-240VAC,50/60Hz;110-220VDC Redundancy power

Accessories configuration

Accessories Model	Description
Gigabit TSWSFP module	See the selection table of industrial gigabit TSWSFP module
100M TSWSFP module	See the selection table of industrial 100M TSWSFP module
DT-FCZ-RJ45-01	Single-port RJ45 dust plug

TSWSI3000A

Layer 2 managed Industrial Ethernet DIN-Rail switches

TSWSI3000A series is a Layer 2 managed industrial Ethernet switch with a wide range of product ports, 6/8/10/12/16/18/20 ports, 100/1000 MTSWSFP interface, 12/24/48/110/220V voltage input. TSWSI3000A supports DRP/DHP/MRP (self-healing time <20ms), STP/RSTP/MSTP, VLAN, multicast, QoS, SSH and other rich Layer 2 software features, and supports CLI, Telnet, Web management methods and SNMPv1/v2c/v3-based network management software.

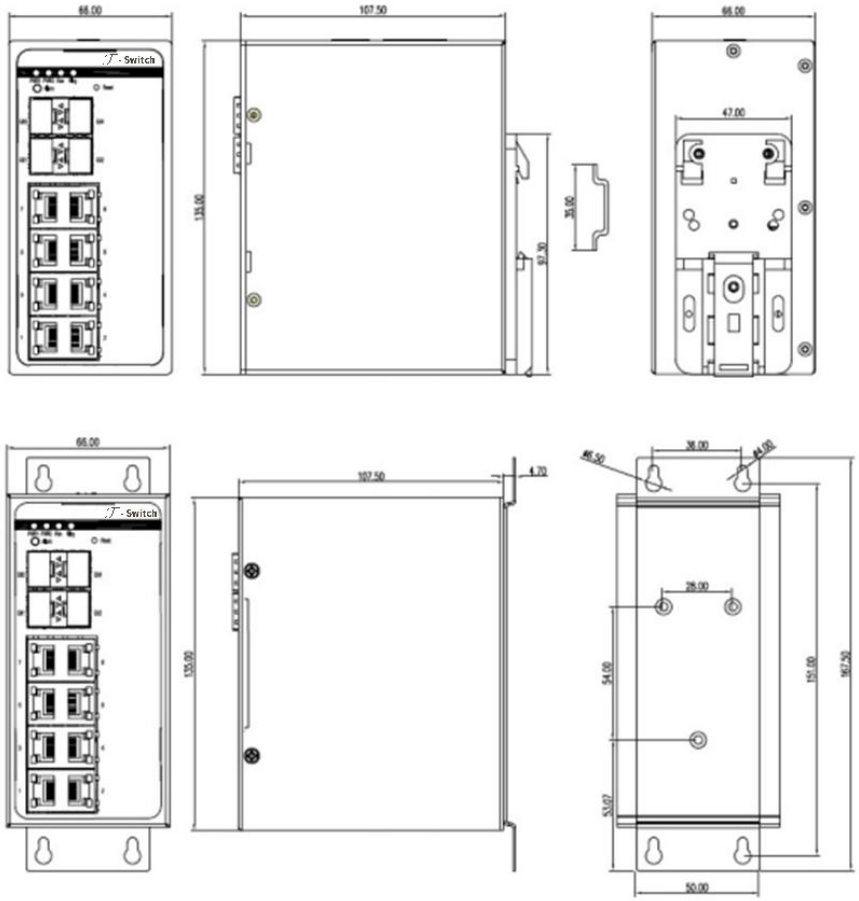
Support IEEE1588 PTPV2, automatic configuration backup and restore, DDM (TSWSFP interface), support PROFINET (-PN model), Ethernet IP and Modbus TCP protocol. TSWSI3000A has IP40 protected metal shell, anti-vibration rail seat, extreme ambient temperature adaptability and good EMC electromagnetic compatibility performance, so that this series of products have the ability to work stably and reliably in harsh industrial environments. Products can be widely used in factory automation, transportation, petroleum and petrochemical, wind power, distribution network and other industrial fields.

Key Features

- Support 100Base-X, 1000Base-X TSWSFP interface
- Support redundancy protocols: DRP/DHP/MRP (self-healing time<20ms), STP/RSTP/MSTP
- Support security technologies: HTTPS/SSL, SSH, TACACS+, IEEE802.1X, RADIUS, user rating, port MAC address binding
- It supports CLI, Telnet, and Web management methods, as well as SNMPv1/v2c/v3-based network management software
- Supports automatic configuration backup and recovery
- Supports hardware-based IEEE1588 PTPv2 (BC, P2P TC, E2E TC clock mode with ±100 ns alignment accuracy)
- Supports PROFINET (-PN model), Ethernet IP and Modbus TCP protocols
- Support DDM (TSWSFP interface)
- IP40 rating

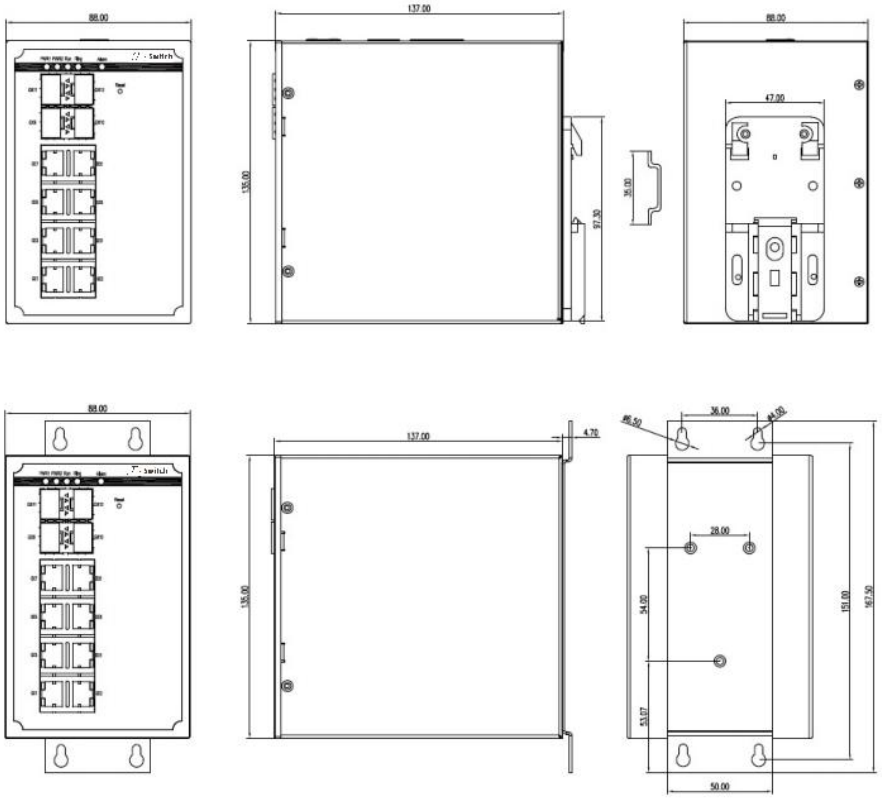
Mechanical Size

66mm×135mm×107.5mm(W×H×D):

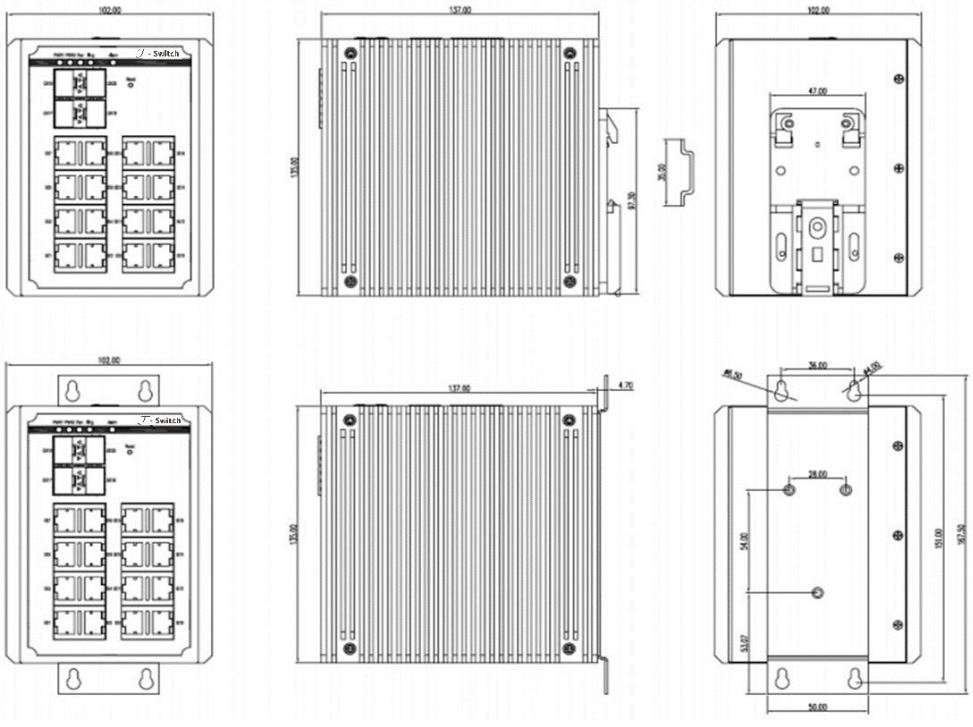


Mechanical Dimension

88mm×135mm×137mm(W×H×D):



102mm×135mm×137mm(W×H×D):



Performance

Software Functions	Switching Function	Supports VLAN, PVLAN Supports GVRP Supports port aggregation, LACP Supports port flow control Supports Rate limit based on flow (ACL Rate Limiter) Supports Global broadcast storm suppression (QOS Storm Policing)
	Redundancy Protocol	Supports DRP/DHP with the recovery time<20ms Supports STP/RSTP/MSTP/G.8032 ERPS Supports MRP, MRM&MRC
	Multicast Protocol	Supports IGMP snooping Supports GMRP Supports static multicast Supports IGMPv2/v3
	Security	Supports HTTPS/SSL Supports SSH Supports TACACS+ Supports IEEE802.1X Supports RADIUS Supports User Classification Supports MAC address binding with switch ports
	Service Quality Management	Supports QoS, 802.1p(CoS), TSCP Supports SP, WRR queue scheduling Supports ACL
	Management & Maintenance	Supports Console, Telnet, WEB management methods Supports SNMPv1/v2c/v3, Centralized management software Supports software upgrade by SFTP/HTTP Supports Power alarm, IP/MAC conflict alarm, Memory/CPU usage alarm, Port alarm, Ring alarm, Port traffic alarm, CRC error and packet lose alarm, TSWSFP port RX power alarm and TX power alarm Supports DDM (TSWSFP port) Supports loop detection Supports RMON Supports port mirroring Supports Syslog Supports LLDP Supports Link-check Supports Automatic Configuration Backup and Restore Supports IPv4/IPv6
	IP Address Management	Supports DHCP server/snooping/client, DHCP Option 82 Supports ARP
	Control Protocol	Supports DHCP server/snooping/client, DHCP Option 82 Supports ARP
	Clock Management	Supports NTP server/client Supports SNTP

Product Specification	Technical Parameter	Standard IEEE 802.3i (10Base-T) IEEE 802.3u (100Base-T and 100Base-FX) IEEE 802.3ab (1000Base-T) IEEE 802.3z (1000Base-SX/LX) IEEE 802.3ad (Link aggregation) IEEE 802.3x (Flow Control) IEEE 802.1p (Class of Service) IEEE 802.1Q (VLAN) IEEE 802.1d (STP) IEEE 802.1w (RSTP) IEEE 802.1s (MSTP) IEEE 802.1x (Network Access Control) IEEE 802.1ab (LLDP) IEEE1588 V2 (PTP)
	Switch Properties	Priority Queues 8 Number of VLANs 4K VLAN ID 1～4094 Number of Multicast Groups 8K MAC Table 8K Packet Buffer 4Mbit Backplane bus bandwidth 40Gbps Packet Forwarding Rate 1.5Mpps (2TSWSFP8T), 1.8Mpps (4TSWSFP8T) 4.2Mpps (2GX8T), 7.2Mpps (4GX8T) 14.9Mpps (2GX8GE), 17.9Mpps (4GX8GE) 3.0Mpps (4TSWSFP16T), 8.3Mpps (4GX16T) 2.4Mpps (8TSWSFP8T), 13.1Mpps (8GX8T) 29.8Mpps (4GX16GE,12GX8GE), 23.8Mpps (8GX8GE) Switching Delay <5μs Jumbo frame 9.6KB

Product Specification	Interface	Gigabit Port 100Base-X, 1000Base-X, 10/100/1000Base-T(X) TSWSFP slot 10/100/1000Base-T(X), RJ45 port, Auto MDI/MDI-X connection Fast Ethernet Port 100Base-X TSWSFP slot 10/100Base-T(X), RJ45 port, Console Port RJ45, RS232 Alarm Contact 3-pin 5.08mm-spacing plug-in terminal block, 250VAC/220VDC Max, 2A Max
	LED	LETS on Front Panel Running LED: Run Alarm LED: Alarm Power LED: PWR1,PWR2 Ring LED: Ring Interface LED: Link/ACT, Speed (RJ45 port); Link/ACT(Fiber port)
	Button	Reset: Reboot and restore default configuration
	Power Requirement	Power Input 24-48VDC Power Terminal 5-pin 5.08 mm-spacing plug-in terminal block (L2) 3-pin 7.62 mm-spacing plug-in terminal block (HV) Power Consumption <12W (4GX8T) <16W (4GX8GE) <20W (4GX16GE,12GX8GE) Overload Protection Support Reverse Protection Support Redundancy Protection Support (12/24/48VDC)
	Physical Characteristics	Housing Metal Cooling Natural convection, fan less Protection Class IP41 Size 66mm×135mm×107.5mm (6T,8T,2GX8T,4GX8T) (W×H×D) 88mm×135mm×137mm (8GE,2GX8GE,4GX8GE) (W×H×D) 102mm×135mm×137mm (16GE,2GX16GE,4GX16GE,8GX8GE,12GX8GE) (W×H×D) Weight 1.1Kg (6T,8T,2GX8T,4GX8T) 1.5Kg (8GE,2GX8GE,4GX8GE) 1.9Kg (16GE,2GX16GE,4GX16GE,8GX8GE,12GX8GE) Mounting DIN-Rail or Panel Mounting
	Environmental Limit	Operating Temperature -40℃～85℃ Storage Temperature -40℃～85℃ Ambient Relative Humidity 5～95% (non-condensing)
	Certification	CE, FCC
	Industrial Standard	EMI: FCC CFR47 Part 15,EN55032/CISPR22,Class A EMS: IEC61000-4-2(ESD) ±6kV(contact),±8kV(air) IEC61000-4-3(RS) 10V/m(80MHz～2GHz) IEC61000-4-4(EFT) Power Port:±2kV;Data Port:±1kV IEC61000-4-5(Surge) Power Port:±1kV/DM,±2kV/CM;Data Port:±1kV IEC61000-4-6(CS) 10V(150kHz～80MHz) Machinery: IEC60068-2-6 (vibration) IEC60068-2-27 (shock) IEC60068-2-32 (free fall)

Ordering Information

Recommend Model

Model	TSWSI3000A-Ports-PS1-PS2-PN
Ports	66mm×135mm×107.5mm(W×H×D): 6T=6×10/100Base-T(X) RJ45 port 8T=8×10/100Base-T(X) RJ45 port 88mm×135mm×137mm(W×H×D): 8GE=8×10/100/1000Base-T(X) RJ45 port 2GX8GE=2×100Base-X, 1000Base-X, 10/100/1000Base-T(X) TSWSFP port; 8×10/100/1000Base-T(X)RJ45 port 4GX8GE=4×100Base-X, 1000Base-X, 10/100/1000Base-T(X) TSWSFP port; 8×10/100/1000Base-T(X)RJ45 port 102mm×135mm×137mm(W×H×D): 16GE=16×10/100/1000Base-T(X) RJ45 port 2GX16GE=2×100Base-X, 1000Base-X, 10/100/1000Base-T(X) TSWSFP port; 16×10/100/1000Base-T(X) RJ45 port 4GX16GE=4×100Base-X, 1000Base-X, 10/100/1000Base-T(X) TSWSFP port; 16×10/100/1000Base-T(X) RJ45 port
PS1-PS2	L2-L2=24-48VDC, redundant power inputs
PN	Supports PROFINET

Accessories configuration

Accessories Model	Description
TSWSFP module	See the selection table of industrial TSWSFP module.

TSWKO300F

3-port rail fiber optic transceiver

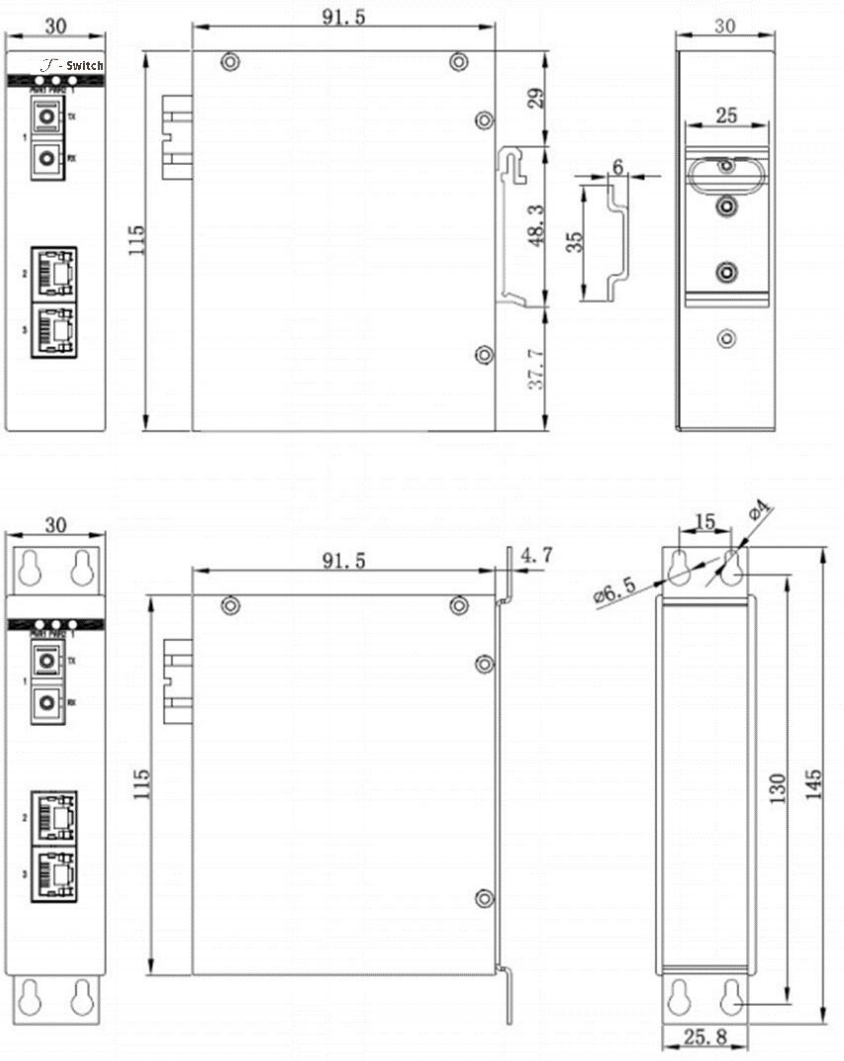
The TSWKO300F is a green, low-power, industrial-grade fiber transceiver that consumes as little as 3.5W at full load. Support 1 100 Gigabit optical port and 2 100 Gigabit electrical port, support 9-36VDC, 18-72VDC, 18-36VDC or 85-264VAC/77-300VDC single power input. DIN card rail and wall mounting, IP40 protection class metal shell, working temperature -40 - 75° C.

Key features

- Green Industrial Ethernet series with full load power consumption as low as 3.5W
- 1 100 Gigabit optical port, 2 100 Gigabit electrical port
- Wide range power input
- IP40 rating
- Industrial Level III electromagnetic compatibility requirements

Mechanical Size

66mm×135mm×107.5mm(W×H×D):



Performance

Product Specification	Technical parameter	Standard IEEE 802.3i(10Base-T) IEEE 802.3u(100Base-TX和100Base-FX)
	Switch properties	MAC Table 2K Package buffer 1Mbit Packet forwarding rate 0.8Mpps Swap delay <5μs
	Interface	100 Gigabit ports 100Base-FX, single/multimode, SC/ST/FC optional 10/100Base-T(X), RJ45 interface
	LED	Front panel LEDs Power LED:PWR Interface LEDs : Link/ACT,Speed(电口);Link/ACT(光口)
	Power Requirements	Access terminals 24-48VDC : 3-core 5.08mm pitch plug-in terminals Power < 3.5W Overload protection support Reverse polarity protection support
	Technical parameter	Housing: Metal Heat dissipation method Natural cooling, no fan Degree of protection IP40 Size 30mm×115mm×91.5mm(W×H×D) Weight 0.4Kg Installation method: DIN card rail type or wall mount
	Switch properties	Working temperature -40° C~75° C Storage temperature -40° C~85° C Relative humidity 5~95% non-condensing
	LED	CE, FCC EMC: EN 55032, EN 61000-6-4, EN 61000-6-2 IEC 62368-1, EN 62368-1
	Power Requirements	EMI FCC CFR47 Part 15,EN55032/CISPR22,Class A EMS IEC61000-4-2(ESD) ±6kV(contact),±8kV(air) IEC61000-4-3(RS) 10V/m(80MHz-2GHz) IEC61000-4-4(EFT) Power Port:±2kV;Data Port:±1kV IEC61000-4-5(Surge) Power Port:±1kV/DM,±2kV/CM ;Data Port:±2kV IEC61000-4-6(CS) 10V(150kHz-80MHz) Mechanical IEC60068-2-6 (vibration) IEC60068-2-27 (shock) IEC60068-2-32 (Free Fall)

Ordering Information

Accessories configuration

Product model	TSWK0300F-Ports-Connector-PS
Code definition	Code selection
Ports	1S2T=1×100Base-FX, single-mode optical port; 2×10/100Base-T (X) electrical port 1M2T=1×100Base-FX, multi-mode optical port; 2×10/100Base-T (X) electrical port
Connector	SC05=SC connector, multimode, 1310nm, 5km ST05=ST connector, multimode, 1310nm, 5km FC05=FC connector, multimode, 1310nm, 5km SC40=SC connector, single mode, 1310nm, 40km ST40=ST connector, single mode, 1310nm, 40km FC40=FC connector, single mode, 1310nm, 40km SC60=SC connector, single mode, 1310nm, 60km SC80=SC connector, single mode, 1550nm, 80km
Power input	L2=24-48VDC, single input

TSWOP5G

5G port full gigabit unmanaged card rail switch

The main features of TSWOP5G non-managed switches are full gigabit interface, compact structure, economical and easy to use, and are usually used for the formation of high-bandwidth Ethernet in factory automation, petrochemical, intelligent transportation and other industries. TSWOP5G supports 1 Gigabit optoelectronic optional interface and 4 Gigabit RJ45 power Port, redundant power input, built-in isolated power supply, IP40 protection metal housing, optional standard temperature (-10 - 60° C) and wide temperature (-40 - 75° C) models to meet different industrial application requirements, ensuring fast and reliable data transmission in harsh industrial environments.

Key Features

- Support 1 optoelectronic optional gigabit interface, 4 gigabit electrical ports
- Built-in isolated power supply, full load power consumption is less than 4.3W
- Support standard temperature/wide temperature model selection
- Ultra-long frame transmission function (supports a maximum frame length of 9KB)
- Meet industrial Level III electromagnetic compatibility requirements
- IP40 rating

Ordering Information

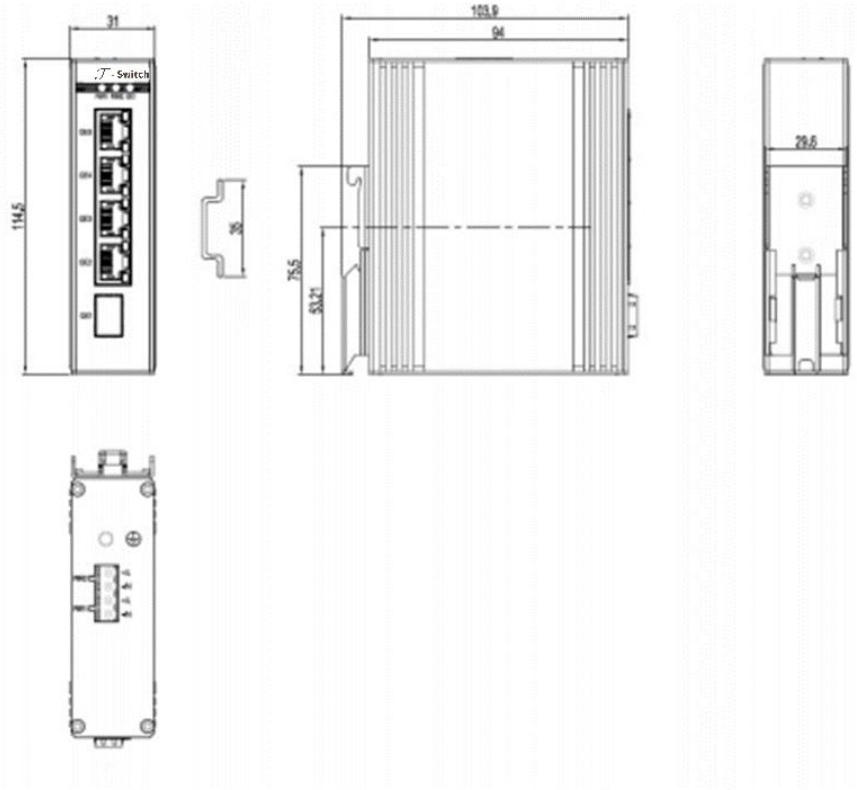
Product Model	TSWOP5G-X-Ports-PS1-PS2
Code definition	Code selection
X	
E	Operating temperature:-40° C- 60° C
None	Operating temperature:-40° C- 75° C
Ports	
1GX4GE	1 X 1000Base-X TSWSFP port, 4 X 10/100/1000Base-T(X) port
5GE	5 X 10/100/1000Base-T(X) RJ45 port
PS1-PS2	
LV-LV	12-48VDC/18-30VAC, redundant power inputs

Accessories

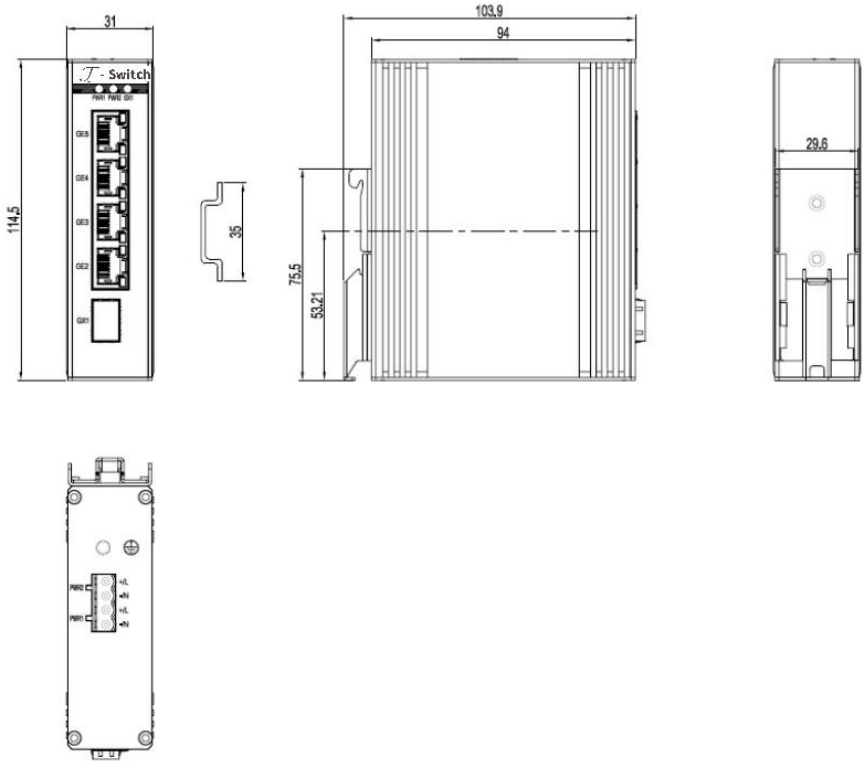
Accessory Model	Description
Gigabit TSWSFP module	See the selection table of industrial Gigabit TSWSFP module

Mechanical Size

TSWOP5G-5GE:



TSWOP5G-1GX4GE:



Performance

Product Specifications	Technical Specification	Standard IEEE 802.3i (10Base-T) IEEE 802.3u (100Base-TX) IEEE 802.3ab(1000Base-T) IEEE 802.3z (1000Base-X)
	Switch Properties	MAC Table: 4K Packet Buffer: 1.5Mbit Packet Forwarding Rate: 7.4 Mpps Switching Delay:<5μs Jumbo Frame Size: 9KB
	Interface	Gigabit Port 1000Base-X, TSWSFP slot 10/100/1000Base-T(X), RJ45 port
	LED	LETS on Front Panel Power LED: PWR1, PWR2 Interface LED: Link/ACT, Speed (RJ45 port); Link/ACT (Fiber port)
	Power Requirements	Power Input: 12-48VDC/18-30VAC Power Terminal: 4-pin 5.08mm-spacing plug-in terminal block Power : 4.3W(1GX4GE),4.1W(5GE) Support Overload Protection Support Reverse Protection Support Redundancy Protection
	Physical Characteristics	Housing: Metal Cooling: Natural convection, fan less Protection Class: IP40 Size: 31mm×114.5mm×94mm (W×H×D) Weight: 0.3Kg Mounting: DIN-Rail or Panel Mounting
	Environmental Limits	Operating Temperature: -10 ~60° C (TSWOP10G-E) -40° C ~75° C Storage Temperature: -40° C ~85° C Ambient Relative Humidity: 5－95% (non-condensing)
	Certification	CE, FCC
	Industry Standard	EMI: FCC CFR47 Part 15,EN55032/CISPR22,Class A EMS: IEC61000-4-2(ESD): ±6kV (contact), ±8kV (air) IEC61000-4-3(RS): 10V/m (80MHz－2GHz) IEC61000-4-4(EFT): Power Port: ±4kV; Data Port: ±2kV IEC61000-4-5(Surge): Power Port: ±1kV/DM, ±2kV/CM; Data Port: ±2kV IEC61000-4-6(CS): 10V (150kHz－80MHz) Machinery: IEC60068-2-6(Vibration) IEC60068-2-27(Shock) IEC60068-2-32(Free Fall)

TSWOP10G

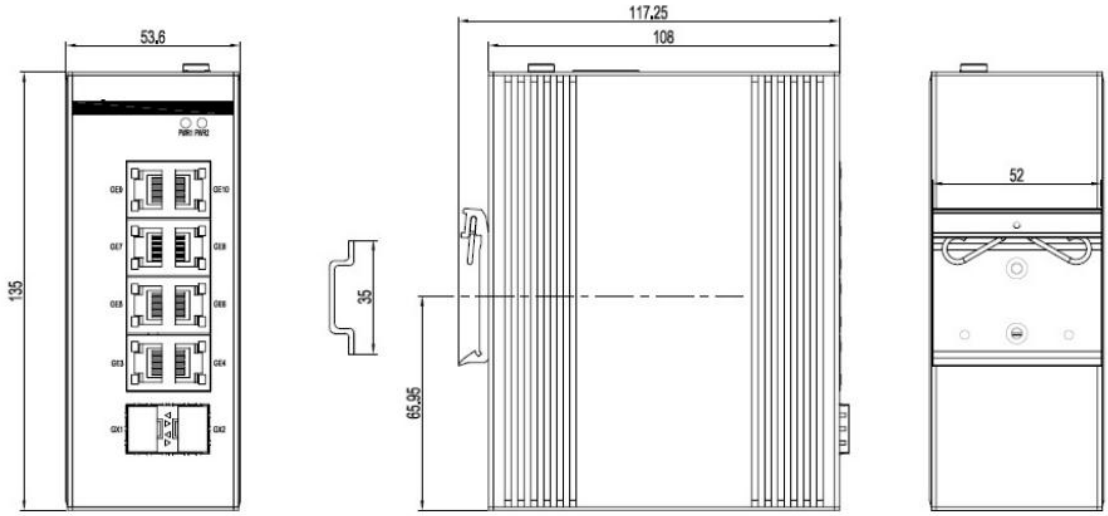
10G port full gigabit unmanaged card rail switch

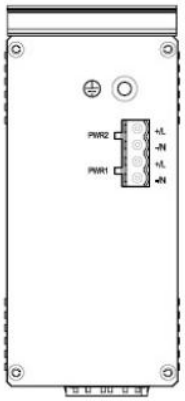
The main features of TSWOP10G non-network management switch are full gigabit interface, compact structure, economical and easy to use, and are usually used for the formation of high-bandwidth Ethernet in factory automation, petrochemical, intelligent transportation and other industries. TSWOP10G supports 2 Gigabit SFP ports and 8 Gigabit RJ45 ports, redundant power Source input, built-in isolated power supply, IP40 rated metal housing, optional standard temperature (-10 - 60° C) and wide temperature (-40 - 75° C) models to meet the requirements of different industrial applications, ensuring fast and reliable data transmission in harsh industrial environments.

Key Features

- Support 2 Gigabit TSWSFP ports and 8 Gigabit electrical ports
- Built-in isolated power supply, full load power consumption is less than 6.9W
- Support standard temperature/wide temperature model selection
- Ultra-long frame transmission function (supports a maximum frame length of 9KB)
- Meet industrial Level III electromagnetic compatibility requirements
- IP40 rating

Mechanical Size





Performance

Product Specifications	Technical Specification	Standard IEEE 802.3i (10Base-T) IEEE 802.3u (100Base-TX) IEEE 802.3ab(1000Base-T) IEEE 802.3z (1000Base-X)
	Switch Properties	MAC Table: 4K Packet Buffer: 1.5Mbit Packet Forwarding Rate: 14.9 Mpps Switching Delay:<5μs Jumbo Frame Size: 9KB
	Interface	Gigabit Port 1000Base-X, TSWSFP port 10/100/1000Base-T(X), RJ45 port
	LED	LETS on Front Panel Power LED: PWR1, PWR2 Interface LED: Link/ACT, Speed (RJ45 port); Link/ACT (Fiber port)
	Power Requirements	Power Input: 12-48VDC/18-30VAC Power Terminal: 4-pin 5.08mm-spacing plug-in terminal block Power : 6.9W Support Overload Protection Support Reverse Protection Support Redundancy Protection
	Physical Characteristics	Housing: Metal Cooling: Natural convection, fan less Protection Class: IP40 Dimension: 53.6mm×135mm×108mm (W×H×D) Weight: 0.5Kg Mounting: DIN-Rail or Panel Mounting
	Environmental Limits	Operating Temperature: -10 to 60° C (TSWOP10G-E) -40° C to 75° C Storage Temperature: -40° C to +85° C Ambient Relative Humidity: 5－95% (non-condensing)
	Certification	CE, FCC
	Industry Standard	EMI: FCC CFR47 Part 15,EN55032/CISPR22,Class A EMS: IEC61000-4-2(ESD): ±6kV (contact), ±8kV (air) IEC61000-4-3(RS): 10V/m (80MHz－2GHz) IEC61000-4-4(EFT): Power Port: ±4kV; Data Port: ±2kV IEC61000-4-5(Surge): Power Port: ±1kV/DM, ±2kV/CM; Data Port: ±2kV IEC61000-4-6(CS): 10V (150kHz－80MHz) Machinery: IEC60068-2-6(Vibration) IEC60068-2-27(Shock) IEC60068-2-32(Free Fall)

Ordering Information

Product Model	TSWOP10G-X-Ports-PS1-PS2
Code definition	Code selection
X	
E	Operating temperature: -40° C- 60° C
None	Operating temperature: -40° C- 75° C
Ports	
2GX8GE	2 X 1000Base-X TSWSFP slot, 8 X 10/100/1000Base-T(X) port
2SFP8GE	2 X 100Base-X TSWSFP slot, 8 X 10/100/1000Base-T(X) port
8GE	8 X 10/100/1000Base-T(X) RJ45 port
PS1-PS2	
LV-LV	12-48VDC/18-30VAC, redundant power inputs

TSWSFP1G

Industrial 1000M Optical Transceiver Module

Key Features

- Transmission rate 1.25Gb/s
- Hot-Pluggable capability
- Compliant with RoHS Standard
- Single power supply 3.3V
- Duplex LC connector
- Support for DDM function

Product Parameter

Specification	Technical parameter	**Standard** TSWSFP MSA SFF-8472 IEEE 802.3
	Interface	LC Connector
	Transmission Distance	0.55km/10km/40km/80km
	Physical Characteristics	Size 13.9mm×12.6mm×58.4mm (W×H×D) Weight 40g
	Environmental Limits	Operating Temperature -40℃～85℃ Storage Temperature -40℃～85℃ Ambient Relative Humidity 5～95% (non-condensing)
	Certification	RoHS

Ordering Information

Product Model	Product Description				
	Type	Interface	Central wavelength	Transmission distance	Coupled fiber
TSWIGS-M-SX-LC-850-0.55-DDM	(M)	LC	850nm	0.55KM	62.5/125μm MMF 50/125μm MMF
TSWIGS-S-LX-LC-1310-10-DDM	(S)	LC	1310nm	10KM	10/125μm SMF
TSWIGS-S-LH-LC-1310-40-DDM	(S)	LC	1310nm	40KM	10/125μm SMF
TSWIGS-S-ZX-LC-1550-80-DDM	(S)	LC	1550nm	80KM	10/125μm SMF

1000 Base X TSWSFP (1.25Gbit/s) Parameter table

Property		SX	LX	LH	ZX
Type		(M)	(S)	(S)	(S)
Central wavelength (nm)		850	1310	1310	1550
Transmission distance (Km)		0,55	10	40	80
Application Range of Transmission Distance(km)		0~0.55	0~10	12~40	27~80
Coupled Fiber		62.5/125μm MMF 50/125μm MMF	10/125μm SMF	10/125μm SMF	10/125μm SMF
Average Optical Output Power	Min. (dBm)	-9,5	-11,5	-2	0
	Max. (dBm)	0	-3	3	5
Receiver Sensitivity (dBm)		-17	-19	-23	-23
Maximum Input Power (dBm)		0	-3	-3	-3

TSWSFP1FX

Industrial 100M Optical Transceiver Module

Key Features

- Transmission rate155Mb/s
- Single power supply 3.3V
- Hot-Pluggable capability
- Duplex LC connector
- Compliant with RoHS Standard
- Support DDM function

Product Parameter

Specification	Technical parameter	Standard SFF-8472 IEEE 802.3
	Interface	LC Connector
	Transmission Distance	2km/40km/60km/80km
	Physical Characteristics	Size 13.7mm×12.7mm×56.6mm (W×H×D) Weight 40g
	Environmental Limits	Operating Temperature -40℃～85℃ Storage Temperature -40℃～85℃ Ambient Relative Humidity 5～95% (non-condensing)
	Certification	RoHS

Ordering Information

Product Model	Product Description				
	Type	Interface	Central wavelength	Transmission distance	Coupled fiber
TSWIFS-M-LX-LC-1310-2-DDM	(M)	LC	1310nm	2KM	50/125μm MMF 62.5/125μm MMF
TSWIFS-S-LH-LC-1310-40-DDM	(S)	LC	1310nm	40KM	10/125μm SMF
TSWIFS-S-LH-LC-1550-60-DDM	(S)	LC	1550nm	60KM	9/125μm SMF
TSWIFS-S-LH-LC-1550-80-DDM	(S)	LC	1550nm	80KM	9/125μm SMF

100M TSWSFP (155Mbit/s) Parameter table

Property		LX	LH	LH	ZX
Type		(M)	(S)	(S)	(S)
Central wavelength (nm)		1310	1310	1550	1550
Transmission distance (Km)		2	40	60	80
Application Range of Transmission Distance(km)		0~2	0~40	10~60	10~80
Coupled Fiber		62.5/125μm MMF 50/125μm MMF	10/125μm SMF	9/125μm SMF	9/125μm SMF
Average Optical Output Power	Min.(dBm)	-20	-12	-5	-5
	Max.(dBm)	-14	-4	0	0
Receiver Sensitivity (dBm)		-31	-34	-34	-34
Maximum Input Power (dBm)		-3	-3	-3	-3

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