TNS5800D-TSN Series

Wall Mounting

20-port 100M and Gigabit combined or Gigabit Layer 3 EN50155 Industrial Ethernet Switch

- Support 4 Gigabit M12 interfaces (with 2 groups of Bypass function), 16 100M or Gigabit M12 interfaces
- Support Precision Time Protocol (PTP), provide sub-microsecond synchronization accuracy to meet requirements for high-precision time synchronization
- Support TSN (time sensitive networking) protocol standards such as IEEE802.1AS, IEEE802.1Qbv, IEEE802.1Qbu, IEEE802.1CB, IEEE802.1Qci and IEEE802.1Qcc, which can provide deterministic transmission with low delay and high reliability for data
- Adopt Ring patented technology, support single ring, coupling ring, chain, Dual-homing function
- Support 2 110VDC power supply inputs
- Support IP67 protection grade
- Support -40~75℃ wide operating temperature range

Industrial Grade EN 50155 EN 50121 Bypass IP67

ROBUST INDUSTRIAL CONNECTION

Introduction

TNS5800D-TSN series are 20-port 100M and Gigabit combined or Gigabit time-sensitive network switches, and layer 3 EN50155 industrial Ethernet switches that integrates the characteristics of TSN. The product conforms to the requirements of industrial standard EN50155 and EN50121 Ethernet interfaces use firm and reliable M12 connectors which can adapt to usage scenario with vibration and shock. This product provides Gigabit Bypass M12 interfaces, Gigabit M12 or 100M M12 interfaces, and it supports 110VDC power supply input. It adopts wall mounting, which can meet the requirements of different scenes.

TSN (Time Sensitive Networking) is a set of protocol standards developed by IEEE802.1 TSN task group. This standard defines the time sensitive mechanism of Ethernet data transmission, and ensures the transmission performance of business traffic in Ethernet by allowing some traffic packets to be forwarded first, clearing routes by using gating scheduling mechanism and bandwidth reservation. It adds certainty and reliability to the standard Ethernet to ensure that the Ethernet can provide stable and consistent service levels for the transmission of critical data. Currently, the supported basic TSN protocols include: IEEE 802.1AS, IEEE 802.1Qbv, IEEE 802.1Qbu, IEEE 802.1CB, IEEE 802.1Qci, IEEE 802.1Qcc (Netconf/Yang), etc.

The network management system supports a variety of network protocols and industry standards, such as IPv6, PTP, TSN, RIP, OSPF, PIM, VRRP, ISIS, NAT, Ring, STP/RSTP/MSTP, MRP, ERPS, VLAN, IGMP/MLD, IGMP/MLD Snooping, DHCP Server/Relay, LLDP, LACP, port mirroring. It possesses complete management functions and supports SNMP centralized management, port statistics, storm suppression, network diagnosis, online upgrade, etc. CLI, HTTP, HTTPS, TELNET, SSH, Netconf and other access methods can be supported. Network management system could bring you great user experience through its friendly interface design and easy and convenient operation.

When port has link failure, ALARM indicator will be bright and send out alarm, meanwhile, alarm device connected to the relay will send out alarm for rapid scene troubleshooting. The hardware adopts fanless, low power consumption and wide temperature design, and the external heat sink provides extraordinary heat dissipation performance. This devices have passed rigorous industrial standard tests, which can suit for the industrial scene environment with harsh requirements for EMC. It can be widely used in systems such as train network, signal, on-board PIS, CCTV.

Features and Benefits

- TSN supports 802.1 TSN series standards and timely delivery of time-sensitive streams.
  - IEEE 802.1 AS Timing and Synchronization
  - IEEE 802.1 Qbv Time Aware Shaper

- IEEE 802.1 Qbu Frame Preemption
- IEEE 802.1 CB Frame Replication and Elimination for Reliability
- IEEE 802.1 Qci Per-Stream Filtering and Policing
- IEEE 802.1 Qcc centralized management of network resources

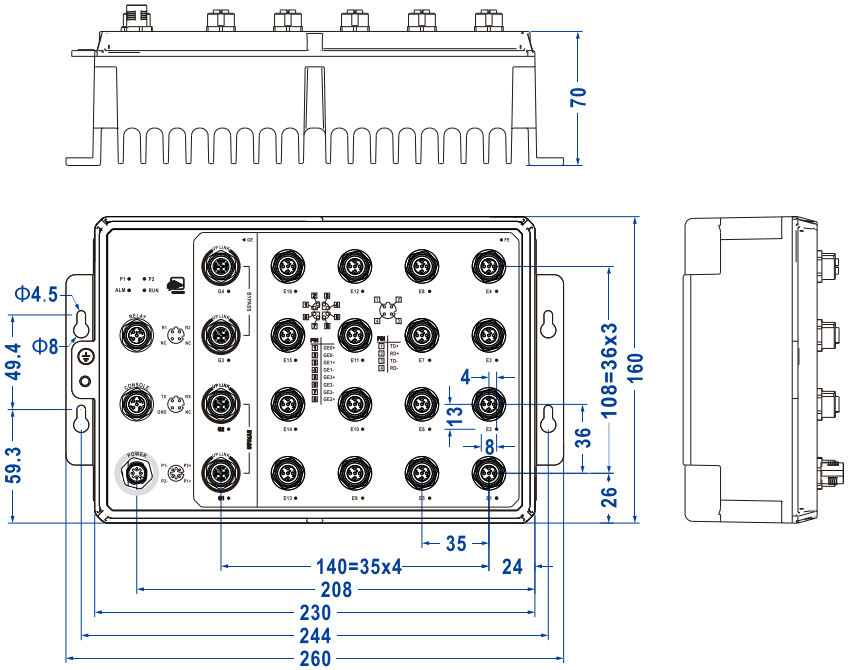
- SNMPv1/v2c/v3 is used for network management of various levels
- LLDP can achieve automatic topology discovery, which is convenient for visual management
- DHCP server and DHCP client could be used for allocating IP address of different strategies
- DHCP relay function can realize IP address, gateway, DNS configuration cross network segment
- File management is convenient for the device rapid configuration and online upgrading
- Log information and log server can record user operation, system failure, system security and other information locally and remotely
- User privilege classification configuration can set user privilege level
- SSH configuration and HTTPS configuration can improve device's management security and guarantee data access security
- Ring, MRP, STP/RSTP/MSTP can achieve network redundancy, preventing network storm
- EPRS function can realize link backup and improve the reliability of network
- Relay alarm is convenient for troubleshooting of construction site
- Storm suppression can restrain broadcast, unknown multicast and unicast
- VLAN is used for simplifying network planning
- Port Trunking and LACP can increase network bandwidth and enhance the reliability of network connection to achieve optimum bandwidth utilization
- IGMP/MLD Snooping can be used for filtering multicast traffic to save the network bandwidth
- IGMP/MLD can be used to manage and maintain multicast members
- ARP could be used for MAC address resolution
- VRRP, RIP/RIPng, ISIS and OSPF/OSPFv3 can realize dynamic routing configuration
- PIM-DM and PIM-SM can be used to create and maintain multicast routing table entries and realize multicast routing forwarding
- NAT maps private IP address to the legal IP address of external network, which can slow the consumption of IP address space
- Loop detection could efficiently eliminate the influence caused by port loopback by detecting the existence of loopback
- IPDT can track IP device status and realize interaction with other applications
- Smart Link link backup, providing reliable and efficient backup and fast switching mechanism
- Conduct network diagnosis and troubleshooting via Ping and Traceroute and cable diagnosis
- Port mirroring can conduct data analysis and monitoring, which is convenient for online debugging
- Bypass function can prevent communication breakdown caused by power supply

failure

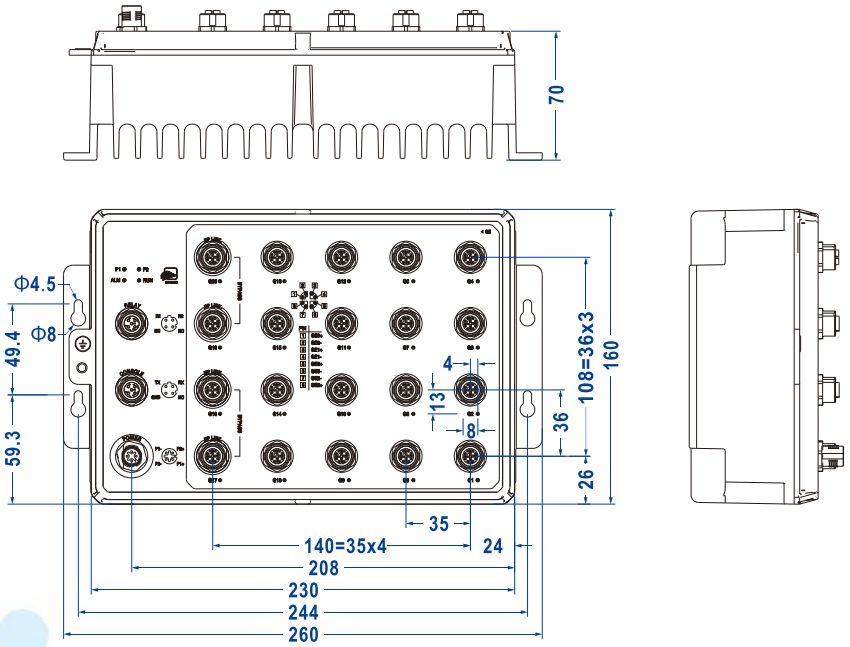
Dimension

Unit: mm

- TNS5800D-TSN-16T4GT-HV



- TNS5800D-TSN-20GT-HV



Specification

Standard & Protocol	IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-TX IEEE 802.3ab for 1000Base-T IEEE 802.1AS PTP for TSN IEEE 802.1Qbv IEEE 802.1Qbu IEEE 802.1CB IEEE 802.1Qci IEEE 802.1Qcc IEEE 802.3x for Flow Control IEEE 802.1D for Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1s for Multiple Spanning Tree Protocol ITU-T G.8032 for ERPS IEEE 802.1Q for VLAN IEEE 802.1AB for LLDP IEEE 802.3ad for LACP
TSN	PTP, QBU, QBV, Stream, CB, QCI, Netconf + YANG configuration
Management	SNMP v1/v2c/v3 centralized managed equipment, Port Mirroring, LLDP, DHCP Server, DHCP Relay, port speed limit, port isolation, port statistics, file management, online upgrade, log information, Syslog server
Security	User privilege classification, SSH/HTTPS protocol authorization, link flap protection, port loop detection, IPDT, IPv6DT, Smart-Link, NAT, port alarm.
Switch Function	802.1Q VLAN, MAC, static aggregation, LACP, ARP, storm suppression
Unicast / Multicast	IGMP-Snooping, MLD-Snooping, IGMP, MLD, PIM-SM, PIM-DM, IPv6-PIM-SM, IPv6-PIM-DM
Redundancy Technology	Ring, MRP, STP/RSTP/MSTP, ERPS
Routing Technique	RIP, RIPng, OSPF, OSPFv3, ISIS, VRRP, IPv6 VRRP
Troubleshooting	Ping, Traceroute, Cable Diagnosis
Time Management	NTP

Interface	100M M12: 10/100Base-T(X), M12(Female), 4-Pin D-Coded, Automatic Flow Control, Full/half Duplex Mode, MDI/MDI-X Autotunning Gigabit M12: 10/100/1000Base-T(X), M12(Female), 8-Pin X-Coded, Automatic Flow Control, Full/half Duplex Mode, MDI/MDI-X Autotunning ; it supports two groups of Bypass Relay port: M12 (Female), 4-Pin D-Coded, support 1 relay alarm output, current load capability is 1A@30VDC or 0.3A@125VAC Console port: CLI command line management port (RS-232), M12(Female), 4-Pin D-Coded
Indicator	Power indicator, alarm indicator, running indicator, interface indicator
Switch Property	Transmission mode: store and forward MAC address: 32K Buffer: 32Mbit Backplane bandwidth: 90G Switch time delay: <10μs
Power Supply	Voltage range: 110VDC (66~156VDC) Connection method: M12 (Male), 4-Pin A-Coded Connection protection: anti-reverse connection
Power Consumption	TNS5800D-TSN-16T4GT-HV： ● No-load: 22.8W@110VDC ● Full-load: 28.6W@110VDC
Working Environment	Operating temperature: -40~75℃ Storage temperature: -40~85℃ Relative humidity: 5%~95%(no condensation)
Physical Characteristic	Housing: IP67 protection, metal Installation: wall mounting Dimension (W x H x D): 260mm×160mm×70mm Weight: 2.52kg
Industrial Standard	EN 50121-3-2: 2016 standard, Table 5.3 (Electrostatic Discharge), Level 3 ● Air discharge:± 8kV ● Contact discharge: ±6kV EN 50121-3-2: 2016 standard, Table 3.3 (Surge), Level 3

	• Power supply: common mode±2kV, differential mode±1kV EN 50121-3-2: 2016 standard, Table 3.2 (Electrical Fast Transient Pulses), Level 3 • Power supply: ±2kV • Signal: ±2kV Shock: IEC 61373 Free fall: IEC 60068-2-32 Vibration: IEC 61373
Authentication	CE, FCC, RoHS, EN50155, EN50121-3-2, IEC61373, EN45545
Warranty	5 years

Ordering Information

Available Models	100M M12	Gigabit M12 LAN Port	Gigabit Bypass M12	Power supply
TNS5800D-TSN-16T4GT-HV-N	16	—	4	110VDC
TNS5800D-TSN-20GT-HV-N	—	16	4	