![Techroutes NETWORK logo]

TR-S2528D Series

High Performance Gigabits Intelligent Ethernet Switch

■ **Product Overview**

TR-S2528D Series is L2 Gigabits intelligent switch designed for carrier and MAN networks. It supports comprehensive QoS, enhanced VLAN functions (VLAN VPN, Voice VLAN, QinQ, N:1 VLAN Translation etc), Ethernet Ring Protection Protocol (G.8032), classified bandwidth control, intelligent security control, OAM(Operations, Administration and Maintenance), manageability functions and Triple-Play services which fulfill the network requirements demanded by carrier network, MAN access. TR-S2528D Series switch offers green features like IEEE 802.3az (Energy Efficient Ethernet), Fan-less design feature, which can dramatically lower power consumption, achieve green energy and save the cost for the carrier and MAN users.

■ **Main Features**

➢ **Green Energy**

● TR-S2528D series comply with IEEE 802.3az (Energy-Efficient Ethernet) standard, dramatically lower power consumption

● With Innovative port-LED Shut-off function, the user can automatically set the switch port-LED UP or DOWN at a specified time period according to their needs to achieve functional, energy-saving correct results.

● Full account of low noise requirements of the environment, TR-S2528D uses smart fan strategies to real-time temperature monitoring system, and reduce the noise pollution.

➢ **Simple and Flexible Operation and Maintenance**

● Full Ethernet OAM technology (IEEE802.3ah/802.1ag), VCT, DDM (Digital Diagnostic Monitoring) and other features achieve rapid detection of the network failures; reduce operation and maintenance difficulty.

➢ **Enhanced Security**

● TR-S2528D series provide a variety of security mechanisms like SYN Flood, Land, ICMP Flood attack prevention and other DOS class technology, BPDU Guard and Root Guard which avoid accidental topology loops and prevent illegal edge devices become root to cause unnecessary flapping.

● IEEE 802.1X port-based access control ensures all users are authorized before being granted access to the network. User authentication is carried out using any standard-based RADIUS server.

● Access Control Lists (ACLs) can be used to restrict access to sensitive network resources by denying packets and forward by different policies. User-defined ACL provides more flexible access control for users.

● TR-S2528D series support DHCP snooping, which prevents DHCP attacks and illegal DHCP SERVER by setting trust ports and untrust ports. With DHCP Snooping binding and option82 enabled, it can combine modules like dot1x and ARP, or implement user-access-control independently.

● TR-S2528D series support much more L2 security features such as ARP guard, Anti-ARP scanning, and other ARP and MAC Security technology to protect network security and reliability.

➢ **High Reliability**

● TR-S2528D series support 4 Gigabit uplink ports, which could be designed to offer redundant uplinks with various ring protection applications, effectively raised the expansibility and performance of network.

● G.8032 provides sub-50ms protection and recovery switching for Ethernet traffic in a carrier ring topology. TR-S2528D series support G.8032 v2 and can be deployed in a variety of complex network topologies including single ring, tangent ring, intersecting rings, double rings and other home networking.

● Built-in 4K lightning protection for ports on TR-S2528D series effectively resists lightning, reduces equipment damage significantly.

➢ **High adaptability VLAN Features**

● TR-S2528D series support 802.1Q and port based VLAN as well as MAC based VLAN, Voice VLAN and Protocol VLAN.

● Abundant QinQ technology including Normal QinQ, Selective QinQ, and Flexible QinQ, gives users maximum freedom to configure QinQ policy.

● N:1 VLAN Translation feature can translate multiple VLAN tags in the frames from access ports into one specified VLAN Tag. It provides a strong technical support for QoS policy convergence.

➢ **Abundant Multicast Features**

● TR-S2528D series also support MVR (Multicast VLAN Register), selectively allows traffic to cross between different VLANs for bandwidth and security reasons. With MVR Trunk function, which could associate multicast VLAN to trunk port, TR-S2528D series combines the VLAN data into the same link, saving lots of resources for users.

- TR-S2528D series could prevent multicast traffic from flooding via IGMP Snooping, while multicast traffic is only forwarded to ports associated to multicast devices.

■ **Specifications**

Item	TR-S2528D
Ports	24 x 10/100/1000Base-T + 4 x 100/1000Base-X (SFP)
Performance	
Switching Capacity	56 Gbps
Forwarding Rate	41.7 Mpps
MAC ADDRESS	16K
Jumbo Frame	12K
ACL Table	2048
Queues per port	8
VLAN TABLE	4K
Physical	
Dimension(W×H×D)	442mm x 43.6mm x 220mm
weight	2.42kg
Power Input	100~240VAC, 50~60Hz
Power Consumption	20w
Temperature	Working 0°C~50°C, Storage -40°C~70°C
Relative Humidity	5%~95%,non-condensing
Physical Protection	Lightning Protection Level: 4KV
Main Features	
Forwarding	Storage and Forwarding
VLAN	Port-based VLAN, IEEE802.1Q, private VLAN, Protocol VLAN, Voice VLAN, MAC VLAN Normal QinQ, Selective QinQ, Flexible QinQ VLAN Translation, N:1 VLAN Translation
DHCP	IPv4/IPv6 DHCP Client,IPv4/IPv6 DHCP Relay Option 82,IPv4/IPv6 DHCP Snooping,IPv4/IPv6 DHCP Server
Reliability	Spanning Tree	802.1D STP, 802.1W RSTP, 802.1S MSTP Root Guard, BPDU Guard, BPDU Forwarding
	LACP	Support
	L2 Ring Protection	MRPP ITU-T G.8032 Loopback Detection Fast Link
Security	IP ACL, MAC ACL, MAC-IP ACL, User-Defined ACL Time Range ACL ACL on VLAN interface Storm Control based on packets and bytes

Item	TR-S2528D
	Port Security, MAC Limit based on VLAN and Port Anti-ARP-Spoofing , Anti-ARP-Scan, ARP Binding ND Snooping DAI IEEE 802.1x Authentication, Authorization, Accounting Radius, TACACS+
Multicast	IGMP v1/v2/v3 snooping, IGMP Fast leave MVR MLD v1/v2 snooping IPv4/IPv6 DCSCM
QoS	8 Queues Per Port Bandwidth Control Flow Redirect Classification based on ACL, VLAN ID, COS, TOS, DSCP, Policing Based on Port and VLAN Single Rate single barrel double color for Policing Remark DSCP, COS/802.1p, Precedence, TOS SP, WRR, SWRR, DWRR for Scheduling Match the IP fragmentation of message
Maintenance and Operation Management	TFTP/FTP CLI, Telnet, Console Web/SSL (IPv4/IPv6) SSH (IPv4/IPv6) SNMPv1/v2c/v3 SNMP Trap Public & Private MIB interface RMON 1,2,3,9 Ping, Trace Route Radius Authentication Syslog (IPv4/IPv6) SNTP/NTP (IPv4/IPv6) Dual IMG, Multiple Configuration Files Port Mirror, CPU Mirror, RSPAN sFlow OAM EFM VCT, DDM ULDP LLDP/LLDP MED
Green Energy	IEEE 802.3az (Energy Efficient Ethernet) LED Shut-off

■ **Ordering information**

Product	Description
TR-S2528D	L2 Gigabit Intelligent Ethernet Switch with 24 10/100/1000Base-T and 4 100/1000Base-SFP ports, 100-240VAC Power Input