

## 24-port 10/100 + 4-port Gigabit Managed Switch TL-SL5428



- IP Clustering supports virtual stack of 32 units
- L2/L3/L4 QoS, Voice VLAN, and IGMP snooping/filtering optimize voice and video application
- ACL, 802.1x, IP Source Guard and Dynamic ARP Inspection provide robust security strategy
- SNMP, RMON, sFlow, WEB/CLI/Telnet Log-in bring abundant management policies

### Description:

Designed for workgroups and departments, TL-SL5428 from TP-Link provides wire-speed performance and full set of layer 2 management features. It delivers maximum throughput where you need it — to high-performance workgroups at the edge of the network, or as a backbone for Fast Ethernet switches and high-speed servers in demanding small networks.

#### • Virtual Stackable

IP Clustering allows up to 32 TL-SG5426 & TL-SL5428 switches to be managed by a single IP, regardless of geographical locations. With all units identified by a single IP address, the stack could be configured, monitored, maintained as a single object.

Traffic running across units in this virtual stack utilizes full-duplex interfaces and network wires, eliminating costly and cumbersome cables, minimizing the impact of any single point of failure.

#### • Optimized Voice and Video Applications

To integrate voice, data and video service on one network, TL-SL5428 applies rich QoS policies and voice-based VLAN. Administrator can designate priorities to the traffic based on a variety of means including IP or MAC address, TCP or UDP port number, etc, and separate all voice traffic in one dedicated VLAN for easy administration and troubleshooting, so voice and video are clear, smooth and jitter free.

For other multimedia-on-demand application such as IPTV, TL-SL5428 provides advanced features for easy stream management. For example, IGMP snooping ensures the switch intelligently forward the multicast stream only to the appropriate subscribers; IGMP throttling & filtering restrict each subscriber on a port level to prevent unauthorized multicast access.

#### • Non-Blocking Switching

The TP-Link fully managed L2 switch TL-SL5428 provides non-blocking switching solution for a 10/100 fast Ethernet connection. It supports 24 10/100Mbps ports and 4 gigabit 10/100/1000BASE-T ports. These gigabit copper ports will be disabled if the four 1000BASE-X SFP are used - known as dual personality or combo ports. As to the switching capacity, TL-SL5428 has a non-blocking aggregated bandwidth of 12.8Gbps.

#### • Comprehensive Security Strategy

Access Control Lists (L2/L3/L4) restrict access to sensitive network resources by denying packets based on source and destination MAC addresses, IP addresses, TCP/UDP ports. This is done by hardware, so switching performance would not be compromised.

Moreover, Dynamic ARP Inspection which protects the network from "man-in-the-middle" attacks, IP Source Guard which prevents IP spoofing attacks such as DoS, together with 802.1x port-based authentication provide robust security to the network.

#### • Enterprise Level Manageability and Resiliency

TL-SL5428 caters to the enterprise management needs with SNMP v1/v2c/v3, RMON, intuitive web-based GUI, industrial standard Command Line Interface (CLI), sFlow and advanced features such as 802.1Q tunneling (Q-in-Q), which enables service providers to provide Layer 2 VPN service, often called Layer 2 transparent LAN services (TLS) or Ethernet LAN services, by using a VLAN-in-VLAN hierarchy and tagging the tagged packets.

Besides, link aggregation, multiple spanning tree protocol and virtual stack will work together to fulfill the enterprise's requirements for a highly intelligent and scalable network.

### Features and Benefits:

#### Manageability

- + Voice VLAN simplifies telephony installations by keeping voice traffic on a separate VLAN for easier administration and troubleshooting
- + IP Clustering provides high scalability and easy Single-IP-Management.
- + Supports Telnet, Cisco Like CLI, SNMP v1/v2c/v3, RMON and web access, which are all secured by SSHv2.
- + 802.1ab LLDP automated device discovery protocol facilitates network mapping by NMS

#### Security

- + IP Source Guard prevents IP spoofing attacks such as DoS.
- + Dynamic ARP Inspection blocks ARP broadcasts from unauthorized hosts, preventing "man-in-the-middle" attacks.
- + Supports multiple industry standard user authentication methods such as 802.1x, RADIUS and TACACS+ Authentication
- + L2/L3/L4 Access Control Lists restrict untrusted access to the protected resource.

#### Layer 2 Switching

- + 802.1Q and 802.1Q tunneling (Q-in-Q) provide point-to-point and multi-point Ethernet services
- + GVRP (GARP VLAN Registration Protocol) allows automatic learning and dynamic assignment of VLANs.

#### Resiliency and Availability

- + Link aggregation(LACP) increases aggregated bandwidth, optimizing the transport of business critical data.
- + IEEE 802.1s Multiple Spanning Tree provides high link availability in multiple VLAN environments.
- + IGMP snooping automatically prevents flooding of IP multicast traffic.
- + Root Guard protects root bridge from malicious attack or configuration mistakes

#### Quality of Service

- + Supports L2/L3/L4 granular CoS with 4 priority queues per port.
- + Rate limiting confines the traffic flow accurately according to the preset value.

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### Specifications:

Product specifications		
TL-SL5428	24-port 10/100 + 4-port Gigabit Managed Switch	
MAC Address Table	8K	
Switching Capability	12.8Gbps	
Buffer Size	4Mb	
SDRAM	64MB	
Flash	16MB	
Port Configuration	24 10/100 BASE-T ports	
	4 Gigabit combo ports (RJ-45/SFP)	
	1 Male DB9 RS-232C Console Port	
Cable Type	UTP CAT 5 or better for 10BASE-T/100BASE-TX	
	UTP CAT 5e or Better for 1000BASE-T	
	RS-232 DB9 Male Console Cord	
MTBF	8 years	
Network Protocols and Standards		
IEEE	IEEE 802.3, 802.3u, 802.3ab, 802.3z, 802.3ad, 802.3x,	
	IEEE 802.1D, 802.1p, 802.1Q, 802.1v, 802.1w, 802.1X, 802.1s, IEEE 802.3ac	
IETF	RFC 1541, RFC 1112, RFC 2236, RFC 2618, RFC 1757, RFC 1157, RFC 2571,	
	RFC 2030, RFC 1350, RFC DRAFT 3414, 3410, 2273, 3411, 3415	
L2 Switching Features		
Link Aggregation	802.3ad with LACP	1) Total 8 Trunks (including Cisco EtherChannel Like trunks) 2) 2~8 port/trunk FE      3) 4 port/trunk GE
	Cisco EtherChannel Liked	
	Unicast / Multicast traffic Balance over Trunkingport (Six Trunk Balance mode on Unicast)	
VLAN	IEEE 802.1Q Tagged Based	Supports 256 active VLAN groups
	Port-based	
	GVRP	
	802.1v Protocol VLAN	
	Voice VLAN	
	MAC-based VLAN	
	VLAN trunking	
Private VLAN (Traffic segmentation)		
Spanning Tree	IEEE 802.1D Spanning Tree Bridge	
	IEEE 802.1s Multiple Spanning Tree	
	IEEE 802.1w Rapid Spanning Tree	
	Spanning Tree Fast Forwarding	
	Loop back detection	
	BPDU filter/guard	
	Root guard	

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L2 Switching Features		
Storm Control	Broadcast storm control	
IGMP Snooping	IGMP Snooping v1/v2	255 Groups for static/dynamic, 1 router port
	IGMP Immediate Leave	
	IGMP Throttling & Filtering	
	IGMP v3 Snooping	
Multicast VLAN Registration	Support	
Jumbo Frame	9KBytes	
QinQ	Port-Based	
QoS Features		
Pripority Queue	4	
Scheduling for Pripority Queue	WRR Pripority scheduling; Strict Pripority scheduling	
COS	802.1p based COS; IP DSCP based COS; TCP/UDP Port based COS	
Rate Limiting	Ingress	1) Per Port-based 2) FE: - 64K bits/sec ~ 100Mbits/sec - Resolution 64K bits/secZ
	Egress	3) GE: - 64K bits/sec ~ 1000Mbits/sec - Resolution 64K bits/sec
DiffServ	Support	
Security Features		
Static/Dynamic Port Security (MAC-based)	1) Per system/stack: Total 1024 MAC	
	2) Per port: Up to 1024 MAC3) Auto-learned support	
IP Source Guard	Support	
Dynamic ARP inspection (DAI)	Support	
802.1x	Port-Based; MAC-based; VLAN assignment; Guest VLAN; Supplicant Support	
L2/L3/L4 ACL	Number of rules	1024 rules
	L2 SA/DA MAC, VLAN based; L3 SIP/DIP, subnet based; L4 TCP/UDP port; IPv6	
RADIUS authentication	Support	
TACACS+ Authentication	Support	
HTTPS and SSL	Support	
MAC Based authentication	Support	
SSH 1.5/V2.0	Support	
User name password authentication	Local Authentication	Cisco-like (5 User/password)
	Remote Authentication via RADIUS/TACACS+	Cisco-like
Instruction lock (link detection)	Support	
MAC filter	Support	
Management Features		
In and out of band management	Cisco Like CLI, Web Based Management, Telnet, SNMP v1/v2/v3, RMON I (1,2,3,9 group), TFTP, Xmodem	
Software Download	TFTP, Xmodem, Diag support TFTP download, FTP, HTTP	
Dual Image	Support	
BOOTP	Client	

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Management Features		
DHCP	Client; Snooping; Option 82; dynamic provision (option 66,67)	
Port Mirroring	many to one port monitoring; Ingress and/or Egress mirror	
VLAN mirror	Support	
MAC based mirror	Support	
Event/Error Log	Local Flash	4000 entries
	Remote server via System Log(RFC3164)	Cisco-like(5 Server)
	SMTP	3 Server
DNS	Client	
	Proxy	
SNTP/NTP	Support	
IP Clustering	32 units	
LLDP(802.1ab, Link Layer Discovery Protocol)	Support	
sFlow	Support	
Electrical & Emissions Summary		
Compliance	CE Mark; FCC Class A	
Safety	CSA/CUS (CSA 22.2. NO 60950-1 & UL60950-1)	
	TUV/GS (EN60950-1)	
	CB (IEC60950-1)	
Power	100-240VAC 50-60 Hz 1 A	
	Consumption 30 Watts maximum.	
Physical Specifications		
Dimensions(W x D x H)	17.3 x 6.7 x 1.7in.(440 * 172 * 43 mm)	
Temperature	Operating	0°C ~ 40°C (32°F ~ 104°F)
	Storage	-40°C ~ 70°C (-40°F ~ 158°F)
Humidity	Operating	10%~90% Non-Condensing
	Storage	5% to 90% RH, Non-Condensing

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### Topology Diagram:

