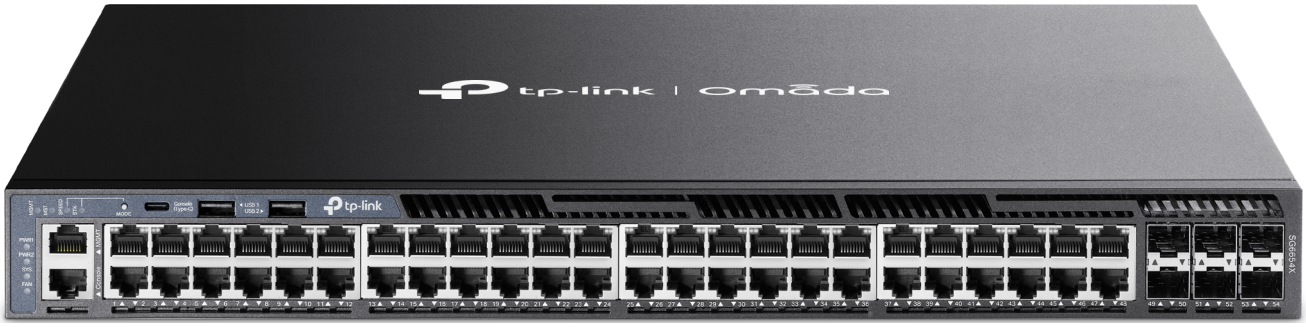
Omada Switch | Datasheet

SG6654X

Omada 48-Port Gigabit Stackable L3 Managed Switch with 6 10G Slots

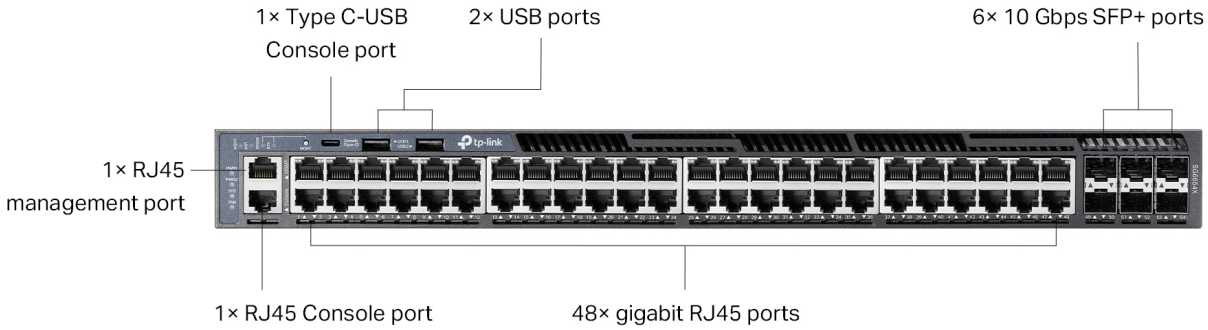


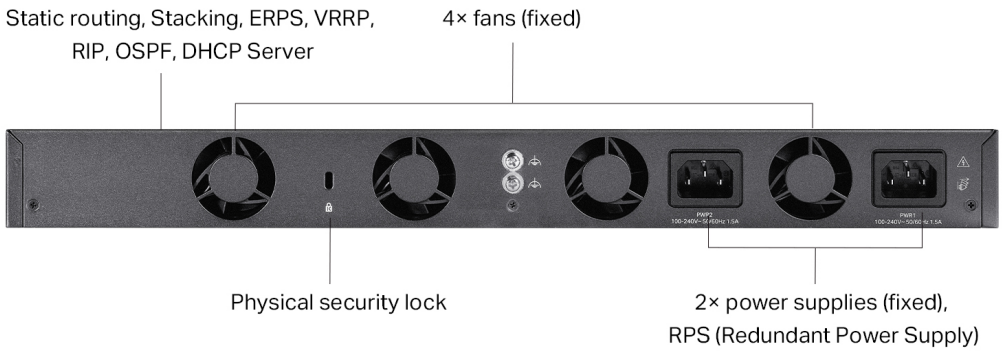
Highlights

- 48× Gigabit RJ45 ports and 6× 10 Gbps SFP+ slots
- 216 Gbps switching capacity per unit
- Physical Stacking up to 8 units for built-in redundancy and performance*
- L3 features: RIP, OSPF, ECMP, VRRP, PIM-DM, PIM-SM, and DHCP Server/Relay
- Security Strategies: ACL, Port Security, DoS Defend, 802.1X
- Highly Available with two internal fixed power supplies, VRRP, and ERPS
- Centralized cloud management via Omada SDN controller
- Standalone management via web, CLI, SNMP, and RMON

*Physical stacking up to 8 units at standalone mode and 4 units at controller mode

Product Pictures





Specifications

Hardware Features & Performance		
Model		SG654X
General	Interface	48× 10/100/1000Mbps RJ45 ports 6× 10G SFP+ Slots**
	Console Ports	1× RJ45 + 1× USB Type C
	Management Port	1× RJ45
	USB Ports	2× USB 2.0
	Flash	2 × 4 MB Nor + 8,192 MB EMMC
	DRAM	4,096 MB DDR4
	Processor	Dual-core ARM @1.5GHz CPU
Performance	Switching Capacity	216 Gbps
	Forwarding Bandwidth	108 Gbps
	MAC Address Table	Max 32K
	Hardware Routes Entries	Max 10,240
	Packet Forwarding Rate	160.7 Mpps
	Packet buffer	24 Mbit
	Stacking Port	10G SFP+ slot (All uplink ports can be used as stacking ports)**
	Stacking bandwidth	Up to 120 Gbps (6 stacking ports)
	Max Stacking Number	8 in standalone mode, 4 in controller mode
	Compatible Model for Stacking	SG6428X, SG6428XHP, SG6654X, SG6654XHP
	Transmission Method	Store and Forward
	Jumbo Frame	9 KB
Physical & Environment	Power Supply	100-240 V ~50/60 Hz
	Redundant Power Supply	2 internal fixed power supply modules
	Max Power Consumption	39.8 W max @ 220V/50Hz 25 °C 38.5 W max @ 110V/60Hz 25 °C
	Max Heat Dissipation	135.81 BTU/hr (220 V/50 Hz) 131.29 BTU/hr (110 V/60 Hz)
	Standby Power Consumption	16.2 W max @ 220V/50Hz 25 °C 16.4 W max @ 110V/60Hz 25 °C
	Noise	Min: 14.8 dBA @1m 25 °C Max: 40.7 dBA @1m 25 °C
	Fan Quantity	4 internal fixed fans
	Airflow	Front-to-back
	Surge Protection	Service port: ±6 kV in common mode
	ESD Protection	Air: ±15 kV, Contact: ±8 kV
	MTBF	547,093 h @ 25 °C
	Dimensions (W x D x H)	17.3 × 15.0 × 1.7 in (440 × 380 × 44 mm)
	Installation	Rackmount
	Operating Temperature & Altitude	-5 °C to 50 °C (23 °F to 122 °F) @ 300 meters -5 °C to 45 °C (23 °F to 113 °F) @ 2,000 meters -5 °C to 40 °C (23 °F to 104 °F) @ 3,000 meters***
	Storage Temperature	-40 °C to 70 °C (-40 °F to 158 °F)
	Operation Humidity	10% to 90% RH, non-condensing
	Storage Humidity	5% to 90% RH, non-condensing
	Certification	CE, FCC

**No more than two 10G RJ45 SFP+ modules (SM5310-T) are supported, and they can only be inserted into SFP+ slots 49&53.
***The supported altitude is sea level to 5000 m. It should be noted that when the altitude is above 2000 m, for every 220 meters of altitude increase, the maximum operating temperature will drop by 1°C (1.8°F).

Software Features[△]

Model		SG6654X	
System	System Info	• Device Description - Name - Location - System Contact • System Time - Manual - Synchronize with PC's Clock - SNTP Client • DST - Predefined Mode - Recurring Mode - Date Mode	• LED - LED on/off • System IP - Static IP/DHCP/BOOTP • System IPv6 - Link-local Address Config - Global Address Autoconfig via RA Message - Global Address Autoconfig via DHCPv6 Server - Add a Global Address Manually
	User Management	• User Settings • Access Level: 4 levels	• Password Recorvery Settings
	System Tools	• Config Restore/Backup - Web: HTTP - CLI: TFTP/Flash/USB • Firmware Upgrade - Web: HTTP - CLI: TFTP/Flash/USB	• System Reboot • System Reset • Boot Config (Dual Image) • Reboot Schedule
	Access Security	• Access Control Config - IP-based - MAC-based - Port-based - IPv6-based • HTTP Config - Enable/Disable - Session Config - Access User Number - Port Setting • SSL Config - SSLv3/TLSv1 Enable/Disable - CipherSuite Config - IPv6 SSL	• SSH Config - Enable/Disable - v2 - Encryption Algorithm - Data Integrity Algorithm - Port Setting - IPv6 SSH • Telnet Config - Enable/Disable - Port Setting - IPv6 Telnet • Console Port - Baud Rate setting
	Stack	• Stack Setting • Stack-port LAG: up to 6 groups, each group supports a maximum of all stackable-ports • Stackable Devices: up to 8 devices	• Stack MAC Address Switching Delay • Multi-active Detection (MAD) • Virtual MAC
	SDM Template	• Dynamic SDM Template[§] - IPv4 ACL Rules: 4,000 Max - MAC ACL Rules: 4,500 Max - Combined ACL Rules: 2,000 Max - IPv6 ACL Rules: 1,000 Max - IPv4 Source Guard: 6,100 Max - IPv6 Source Guard: 2,000 Max	
	Time Range	• Time Range Config	• Holiday Config
	PTP	• Profile: IEEE 1588v2 (PTPv2), IEEE 802.1AS	• Clock-type: oc, bc, e2etc, p2ptc
	File System	• File Operation • FTP	• TFTP • USB Storage

Software Features[Δ]

Model		SG6654X	
L2 Features	Port	• Auto Negotiation/Auto MDI/MDIX • Port config - Status - Speed and Duplex - Flow Control (802.3x) - Jumbo Frame: 1,518-9,216 KB • Port Mirror - Ingress (Many to One) - Egress (Many to One) - RSPAN	• Port Security - Learn mode: Dynamic/Static/Permanent/Sticky - Port Max Learned MAC: 64 - Current Learned Number - Status - Exceed Max Learned Trap • Port Isolation • Loopback Detection - Alert - Port Based - VLAN Based
	Digital Diagnostic Monitoring (DDM)		
	LAG	• Hash Algorithm: SRC MAC/DST MAC/SRC MAC + DST MAC/SRC IP/DST IP/SRC IP + DST IP	• Static LAG: Up to 64 groups, up to 8 ports per group • LACP (802.3ad)
	Traffic Monitor	• TX Packets/Bytes • RX Packets/Bytes • TX Unicast/Multicast/Broadcast • RX Unicast/Multicast/Broadcast	• TX Jumbo • RX Jumbo • TX Errors • RX Errors • TX/RX Packet Size Analysis
	MAC Address	• MAC Address Table: Max 32K entries • IVL/SVL: IVL • Create Static Unicast Address	• Bind Dynamic Address • Create Filtering Address • MAC Notification Settings
	VLAN	• 802.1Q VLAN (802.1q): 4K VLANs • MAC VLAN: 256 entries • Protocol VLAN (IEEE 802.1v) - 16 Protocol VLAN Templates - 12 Protocol VLAN Groups	• QinQ(VLAN VPN): 256 entries • Private VLAN (RFC 5517) • GVRP
	L2 Multicast	• Max Multicast Groups: 4,093 (IGMP Snooping & MLD Snooping & MVR) • IGMP Snooping - IGMP V1/V2/V3 - Report Message Suppression - Fast Leave - Unknown Multicast Discard - Static Multicast Groups - IGMP Snooping Querier - IGMP Packet Statistics - IGMP Authentication - Multicast Filtering: 256 profiles and 16 entries per profile - Router Port Setting: Static Router Port/Forbidden Router Port	• Multicast Listener Discovery (MLD) Snooping - MLD V1/V2 - Report Message Suppression - Unknown Multicast Discard - Fast Leave - Static Multicast Groups - MLD Snooping Querier - MLD Packet Statistics - Multicast Filtering: 256 profiles and 16 entries per profile - Router Port Setting: Static Router Port/Forbidden Router Port • MVR
	STP	• STP (802.1d) • RSTP (802.1w) • MSTP (802.1s)	• STP Security - Loop Protect - Root Protect - TC Protect - BPDU Protect - BPDU Filter
	LLDP (802.1ab)	• Local Info • Neighbor Info	• Statistic Info • LLDP-MED
	Layer 2 Protocol Tunneling (L2PT)		
	PPPoE ID Insertion	• Circuit-ID Type	• Remote-ID
	ERPS	• V1&V2	• Ring: 32
	Virtual MAC		
	Sticky MAC		

Software Features[Δ]

Model		SG6654X	
L3 Features	IPv4 Interfaces: 4,094 IPv6 Interfaces: 4,094		
	IPv4 Static Routes: 1,024 (shared with IPv6 Static Routes) IPv6 Static Routes: 512 (shared with IPv4 Static Routes)		
	IPv4 Host Routes: 8,000 (shared with IPv6 Host Routes) IPv6 Host Routes: 8,000 (shared with IPv4 Host Routes)		
	IPv4 Network Routes: Max 10,240 (shared with IPv6 Network Routes) IPv6 Network Routes: Max 10,240 (shared with IPv4 Network Routes)		
	ECMP	• Max ECMP Routes: 256 • Max ECMP Nexhops per Destination: 32	
	ARP	• Static ARP: 512 • Dynamic ARP: 12,288 (shared with ND)	
	ND: 12,288 (shared with ARP)		
	DHCPv4	• DHCPv4 Server - IP Pools: 64 - Max Leases: 8,000 - Manual Binding Entries: 1,000 - Exclude IP range Entries: 100	• DHCPv4 Relay • DHCPv4 L2 Relay
	DHCPv6	• DHCPv6 Server - IP Pools: 64 - Max Leases: 8,000 - Manual Binding Entries: 64 - Exclude IP range Entries: 64	• PD Server • DHCPv6 Relay • DHCPv6 L2 Relay
	VRRP	• VRRP V2/V3 • VRRP Instance: 64 • VRRP Virtual IP: 32 per instance	
	OSPF	• OSPFv2 - OSPF Process: 16	• OSPFv3 - OSPFv3 Instance: 1
	RIP	• RIPv1/v2	• RIPng
	VRF	• VRF Instance: 1,024	
	PIM	• PIM-DM (IPv4) • PIM-SM (IPv4) • PIM-SSM (IPv4)	• IPv4 Multicast Route entries: 1,024
	IGMP	• Version: v1/v2/v3	• IGMP Groups: 2,048
	PBR		
QoS	Class of Service	• Priority Queues: 8 Queues • Port Priority • 802.1P Priority • DSCP/ToS Priority	• Priority Schedule Mode: SP/WRR per Queue • Queue Weight Config: For WRR/SP+WRR Mode
	Bandwidth Control	• Rate Limit - Ingress Rate Limit - Egress Rate Limit - Rate Limit Grade: 64kbps	• Storm Control - Control Mode: kbps/ratio - Broadcast - Multicast - Unknown Unicast
	Voice VLAN	• OUI entries: 64	

Software Features[Δ]

Model		SG6654X	
Network Security	IP-MAC Binding	• Binding entries: 8,192 entries • Manual Binding	• ARP Scanning • DHCP Snooping
	IPv6-MAC Binding	• Binding entries: 8,192 entries • Manual Binding	• DHCPv6 Snooping • ND Snooping
	ARP Inspection	• ARP Detect entries: 8,192 entries • Dynamic ARP Inspection (DAI)	• ARP Defend • ARP Statistics
	ND Detection	• ND Detection entries: 8,192 entries • ND Detect	• ND Statistics
	IP Source Guard	• IP Source Guard entries – Dynamic SDM Template: 6,100 Max	• Security Type - Source IP - Source IP + Source MAC
	IPv6 Source Guard	• IPv6 Source Guard entries – Dynamic SDM Template: 2,000 Max	• Security Type - Source IPv6 - Source IPv6 + Source MAC
	RA Guard: 30 entries		
	DoS Defend	• Scan SYNFIN • Xmascan • NULL Scan	• SYN sPort less 1,024 • Ping Flooding • SYN/SYN-ACK Flooding
	DHCP Filter	• DHCPv4 Filter - Legal Server entries: 200	• DHCPv6 Filter - Legal Server entries: 200
	802.1x	• Control Type - Port Based - MAC Based • Auth Method: PAP/EAP-MD5/EAP-TLS/EAP-TTLS/EAP-PEAP • CoA & DM	• Radius Authentication • Radius Accounting • RADSEC • Guest VLAN • VLAN Assignment • MAB
	Authentication, Authorization, Accounting (AAA)		
	ACL	• Time-Range - Time Slice - Week Time-Range - Absolute Time-Range - Holiday • MAC ACL • IP ACL • Combined ACL • IPv6 ACL • Rule Operation - Permit - Deny • Policy Action - Mirror - Rate Limit - Redirect - QoS Remark • Binding - Port Binding - VLAN Binding	• Dynamic SDM Template[§] - IPv4 ACL Rules: 4,000 Max - IPv6 ACL Rules: 1,000 Max - MAC ACL Rules: 4,500 Max - Combined ACL Rules: 2,000 Max
	CPP (Control Plane Policing)		
	MAC Spoofing Defend		
	MAC Flapping Detection		

Software Features[Δ]

Model		SG6654X
Maintenance	System Monitor	• CPU Monitor • Memory Monitor
	sFlow	
	OAM	• EFM - Link Monitoring - Remote Failure Indication Config - Statistics
	DLDP	
	SNMP	• SNMP Version: v1/v2c/v3 • SNMP Config - Global Config - SNMP View - SNMP Group - SNMP User - SNMP Community • Notification - Trap: IPv4/IPv6 - Inform: IPv4/IPv6 • RMON v1 • Public MIBs • Private MIBs
	IEEE 802.3az Energy Efficient Ethernet (EEE)	
	DHCP Auto Install	
	Log	• Display/Filtering • Severity Level • Save to Flash • Remote Host • Backup Log
	Network Diagnostics	• Ping • IPv6 Ping • Tracert • IPv6 Tracert
	Packet Capture	
	Syslog (UDP/TCP/DTLS/TLS)	
	DNS Lookup	
Others	Index	
	Show running config	• Use the show running config command to view device's running status via telnet. • Configuration File: Import/Export/Edit
Omada SDN Controller	Yes	

Others

Package Content	• SG6654X Switch • Power Cord • Console Cable • Rackmount Kit • Rubber Feet • Installation Guide
System Requirements	Microsoft® Windows® 98SE, NT, 2000, XP, Vista™ or Windows 7/8/10/11, MAC® OS, NetWare®, UNIX® or Linux.

Ordering Information

Host Switch	
Model	Description
SG6654X	Omada 48-Port Gigabit Stackable L3 Managed Switch with 6 10G Slots

SFP/SFP+ Module	
Model	Description
SM311LS	Gigabit SFP module, Single-mode, LC interface, Up to 20km distance
SM311LM	Gigabit SFP module, Multi-mode, LC interface, Up to 550m distance
SM321A	Gigabit WDM Bi-Directional SFP Module, single-mode, LC connector, TX: 1550 nm/RX: 1310 nm, 20 km
SM321A-2	Gigabit WDM Bi-Directional SFP Module, single-mode, LC connector, TX: 1550 nm/RX: 1310 nm, 2 km
SM321B	Gigabit WDM Bi-Directional SFP Module, single-mode, LC connector, TX: 1310 nm/RX: 1550 nm, 20 km
SM321B-2	Gigabit WDM Bi-Directional SFP Module, single-mode, LC connector, TX: 1310 nm/RX: 1550 nm, 2 km
SM5110-LR	10GBase-LR SFP+ LC Transceiver, single-mode, LC connector, 1310nm, 10 km
SM5110-SR	10GBase-SR SFP+ LC Transceiver, multi-mode, LC connector, 850nm, 300 m
SM5110LSA-10	10GBase-BX WDM Bi-Directional SFP+ Module, single-mode, LC connector, TX: 1330 nm/RX: 1270 nm, 10 km
SM5110LSB-10	10GBase-BX WDM Bi-Directional SFP+ Module, single-mode, LC connector, TX: 1270 nm/RX: 1330 nm, 10 km

RJ45 SFP/SFP+ Module	
Model	Description
SM331T	1000BASE-T RJ45 SFP Module
SM5310-T	10GBASE-T RJ45 SFP+ Module

MC Series Media Converter	
Model	Description
MC420L	10G Multi-Gigabit SFP+ Media Converter, up to 100 m, chassis mountable
MC220L	Gigabit SFP Media Converter, up to 100 m, chassis mountable
MC210CS	Gigabit Single-Mode Media Converter, up to 20 km, chassis mountable
MC211CS-20	Gigabit WDM Media Converter, up to 20 km, chassis mountable
MC212CS-20	Gigabit WDM Media Converter, up to 20 km, chassis mountable
MC211CS-2	Gigabit WDM Media Converter, up to 2 km, chassis mountable
MC212CS-2	Gigabit WDM Media Converter, up to 2 km, chassis mountable
MC200CM	Gigabit Multi-Mode Media Converter, up to 550 m, chassis mountable

Direct Attach Cable	
Model	Description
SM5220-1M	1 Meter 10G SFP+ Direct Attach Cable
SM5220-3M	3 Meters 10G SFP+ Direct Attach Cable

Some features are available only after upgrading to the latest software version.

[§]The Dynamic SDM Template provides dynamic resource allocation for ACLs, IPv4 Source Guard, and IPv6 Source Guard, allowing these features to be configured directly without adjusting the template settings.

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