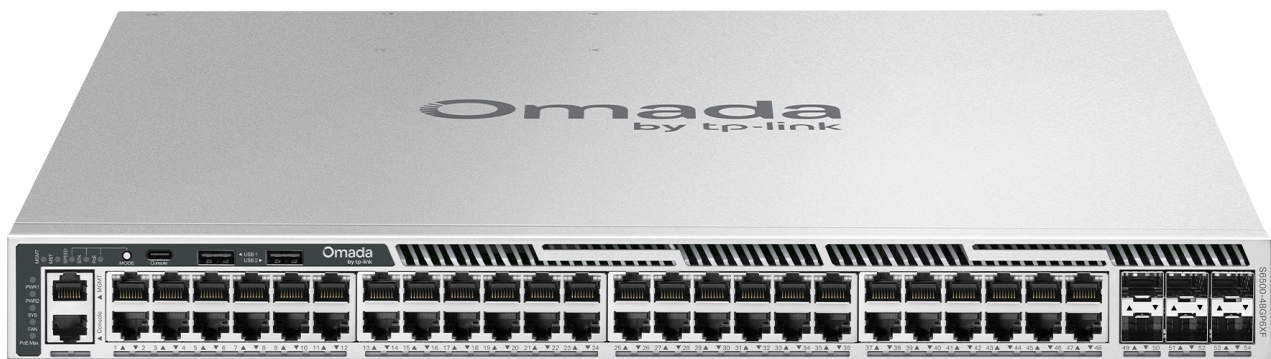


# Omada Switch | Datasheet

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## S6500-48GP6XF V1.20

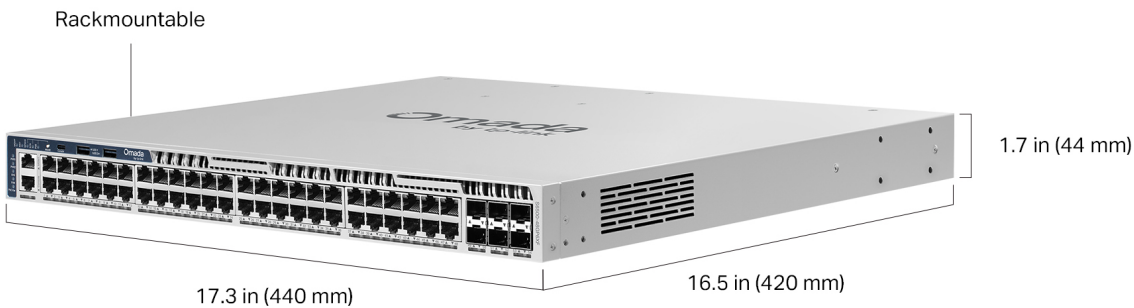
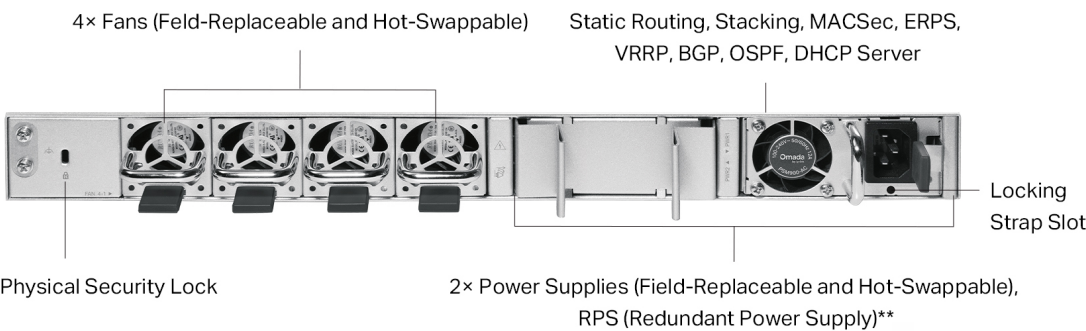
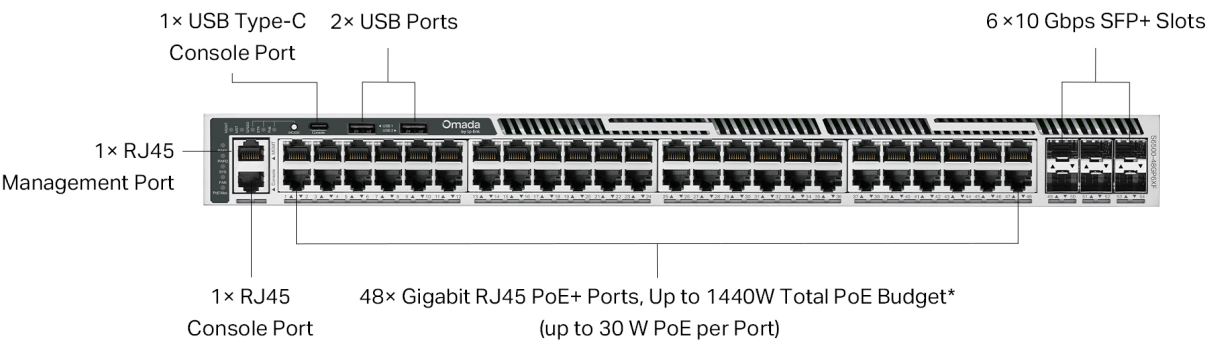
Omada Campus 48-Port Gigabit Stackable L3 Managed PoE+ Switch with 6× 10G Slots



## Highlights

- 48× Gigabit PoE+ RJ45 ports and 6× 10 Gbps SFP+ slots
- Up to 1440 W total PoE budget\*
- Physical stacking for built-in redundancy and performance
- M-LAG improve link reliability from the card level to the device level.
- L3 Features: OSPF, BGP, IS-IS, VRF, VRRP, PIM-SM/PIM-DM/PIM-SSM, ECMP, PBR
- Security Strategies: MACsec, Secure Boot, RADSEC, IMPB, SFTP, 802.1X, Port Security
- Highly Available with two internal fixed power supplies, VRRP, ERPS, and BFD
- Easy O&M: NETCONF, Configuration Rollback, Hot Patching, and RSPAN
- Centralized cloud management via the web or the Omada app<sup>†</sup>

# Product Pictures



\*The total PoE budget varies with the power supply modules.  
\*\*Ships with one field-replaceable power supply module by default, and another field-replaceable power supply module for redundancy requires a separate purchase.

# Specifications

| Hardware Features & Performance |                                  |                                                                                                                                                                                     |
|---------------------------------|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Model                           |                                  | S6500-48GP6XF V1.20                                                                                                                                                                 |
| General                         | Interface                        | 48 × 10/100/1000Mbps RJ45 ports<br>6 × 1/10Gbps 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 GB EMMC                                                                                                                                                              |
|                                 | DRAM                             | 4GB DDR4                                                                                                                                                                            |
|                                 | Processor                        | Dual-Core ARM @1.5GHz CPU                                                                                                                                                           |
| PoE                             | PoE Standard                     | 802.3af/at                                                                                                                                                                          |
|                                 | PoE Ports                        | 48                                                                                                                                                                                  |
|                                 | PoE Power Budget                 | 764W (with 1*PSM900-AC, by default)<br>384W (with 1*PSM500-AC)<br>812W (with 2*PSM500-AC)<br>1176W (with 1*PSM500-AC and 1*PSM900-AC)<br>1440W (with 2*PSM900-AC)                   |
|                                 | Fast PoE                         | Yes                                                                                                                                                                                 |
|                                 | Perpetual PoE                    | Yes                                                                                                                                                                                 |
|                                 |                                  |                                                                                                                                                                                     |
| Performance                     | Switching Capacity               | 216 Gbps                                                                                                                                                                            |
|                                 | Forwarding Bandwidth             | 108 Gbps                                                                                                                                                                            |
|                                 | Packet Forwarding Rate           | 160.7 Mpps                                                                                                                                                                          |
|                                 | MAC Address Table                | 32 K                                                                                                                                                                                |
|                                 | 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              | 12 in standalone mode, 4 in Omada controller mode                                                                                                                                   |
|                                 | Compatible Models for Stacking   | S6500-24G4XF, S6500-48G6XF, S6500-24GP4XF, S6500-48GP6XF, S6500-24M4Y, S6500-48M6Y, S6500-24MPP4Y, S6500-48MPP6Y***                                                                 |
|                                 | Transmission Method              | Store and Forward                                                                                                                                                                   |
|                                 | Jumbo Frame                      | 9 KB                                                                                                                                                                                |
| Physical & Environment          | Power Supply                     | 100-240 V ~50/60 Hz                                                                                                                                                                 |
|                                 | Redundant Power Supply           | Max 2 hot swappable power supply module (shipping with one PSM900-AC module by default)****                                                                                         |
|                                 | Suitable Power Supply Module     | PSM500-AC, PSM900-AC                                                                                                                                                                |
|                                 | Max Power Consumption            | 41.9 W (110 V/60 Hz) (With no PD connected)<br>1767.7 W (110 V/60 Hz) (With 1440W PD connected and powered by 2× PSM900-AC)                                                         |
|                                 | Max Heat Dissipation             | 142.88 BTU/hr (110 V/60 Hz) (With no PD connected)<br>6,027.86 BTU/hr (110 V/60 Hz) (With 1440W PD connected and powered by 2× PSM900-AC)                                           |
|                                 | Standby Power Consumption        | 31.95 W (220 V/50 Hz)                                                                                                                                                               |
|                                 | Noise                            | 1× PSM900-AC power supply module:<br>Min: 38.2 dBA @1m 25 °C<br>Max: 60.6 dBA @1m 25 °C<br>2× PSM900-AC power supply modules:<br>Min: 39.9 dBA @1m 25 °C<br>Max: 62.3 dBA @1m 25 °C |
|                                 | Fan Quantity                     | 4 hot swappable fan modules,<br>N+1 redundant                                                                                                                                       |
|                                 | Airflow                          | Front-to-back                                                                                                                                                                       |
|                                 | Surge Protection                 | Service port: ±6 kV in common mode<br>Power port: ±6 kV in differential mode; ±6 kV in common mode                                                                                  |
|                                 | ESD Protection                   | Air: ±15 kV, Contact: ±8 kV                                                                                                                                                         |
|                                 | MTBF                             | 648,538 h @ 25 °C                                                                                                                                                                   |
|                                 | Dimensions (W x D x H)           | 17.3 × 16.5 × 1.7 in (440 × 420 × 44 mm)                                                                                                                                            |
|                                 | Net Weight                       | 7.6 kg (16.76 lbs)                                                                                                                                                                  |
|                                 | Installation                     | Rackmount                                                                                                                                                                           |
|                                 | Operating Temperature & Altitude | -5 °C to 45 °C (23 °F to 113 °F) @ 2,000 meters<br>-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, RoHS                                                                                                                                                                       |

\*No more than two 10G RJ45 SFP+ modules are supported, and they can only be inserted into SFP+ slots 49&53.

\*\*The 10G SFP+ slots support stacking only through 10G DAC/10G SFP+ modules rather than 1G SFP modules.

\*\*\*The stacking with S6500-24M4Y, S6500-48M6Y, S6500-24MPP4Y or S6500-48MPP6Y is supported only after upgrading to the latest software version.

\*\*\*\*An additional power supply module needs to be purchased separately.

| Software Features <sup>^</sup> |                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Model                          |                 | S6500-48GP6XF V1.20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| System                         | System Info     | <ul style="list-style-type: none"><li>• Device Description<ul style="list-style-type: none"><li>- Name</li><li>- Location</li><li>- System Contact</li></ul></li><li>• System Time<ul style="list-style-type: none"><li>- Manual</li><li>- Synchronize with PC's Clock</li><li>- SNTP Client</li></ul></li><li>• DST<ul style="list-style-type: none"><li>- Predefined Mode</li><li>- Recurring Mode</li><li>- Date Mode</li></ul></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"><li>• LED<ul style="list-style-type: none"><li>- LED on/off</li></ul></li><li>• System IP<ul style="list-style-type: none"><li>- Static IP/DHCP/BOOTP</li></ul></li><li>• System IPv6<ul style="list-style-type: none"><li>- Link-local Address Config</li><li>- Global Address Autoconfig via RA Message</li><li>- Global Address Autoconfig via DHCPv6 Server</li><li>- Add a Global Address Manually</li></ul></li></ul>                                                                                                                                                                               |
|                                | User Management | <ul style="list-style-type: none"><li>• User Settings</li><li>• Access Level: 4 levels</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"><li>• Password Recorvery Settings</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                | System Tools    | <ul style="list-style-type: none"><li>• Config Restore/Backup<ul style="list-style-type: none"><li>- Web: HTTP</li><li>- CLI: TFTP/Flash/USB</li></ul></li><li>• Firmware Upgrade<ul style="list-style-type: none"><li>- Web: HTTP</li><li>- CLI: TFTP/Flash/USB</li></ul></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"><li>• System Reboot</li><li>• System Reset</li><li>• Boot Config (Dual Image)</li><li>• Reboot Schedule</li><li>• Config Rollback</li><li>• Hot Patch</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                | Access Security | <ul style="list-style-type: none"><li>• Access Control Config<ul style="list-style-type: none"><li>- IP-based</li><li>- MAC-based</li><li>- Port-based</li><li>- IPv6-based</li></ul></li><li>• HTTP Config<ul style="list-style-type: none"><li>- Enable/Disable</li><li>- Session Config</li><li>- Access User Number</li><li>- Port Setting</li></ul></li><li>• SSL Config<ul style="list-style-type: none"><li>- SSLv3/TLSv1 Enable/Disable</li><li>- CipherSuite Config</li><li>- IPv6 SSL</li></ul></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"><li>• SSH Config<ul style="list-style-type: none"><li>- Enable/Disable</li><li>- v2</li><li>- Encryption Algorithm</li><li>- Data Integrity Algorithm</li><li>- Port Setting</li><li>- IPv6 SSH</li></ul></li><li>• Telnet Config<ul style="list-style-type: none"><li>- Enable/Disable</li><li>- Port Setting</li><li>- IPv6 Telnet</li></ul></li><li>• Console Port<ul style="list-style-type: none"><li>- Baud Rate setting</li></ul></li></ul>                                                                                                                                                        |
|                                | Stack           | <ul style="list-style-type: none"><li>• Stack Setting</li><li>• Stack-port LAG: up to 6 groups, each group supports a maximum of all stackable-ports</li><li>• Stackable Devices: up to 12 devices</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"><li>• Stack MAC Address Switching Delay</li><li>• Multi-active Detection (MAD)</li><li>• Virtual MAC</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                | M-LAG           | <ul style="list-style-type: none"><li>• M-LAG domain configuration</li><li>• Dual-Active Detection</li><li>• M-LAG Config Consistency Check</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"><li>• Peer-link-port LAG: 1 Group, each group supports a maximum of all peerLinkable-ports</li><li>• M-LAG Member Interface MAC Address Switching Delay</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                | SDM Template    | <ul style="list-style-type: none"><li>• Default Template<ul style="list-style-type: none"><li>- IPv4 ACL Rules: 300 entries</li><li>- MAC ACL Rules: 300 entries</li><li>- Combined ACL Rules: 300 entries</li><li>- IPv6 ACL Rules: 0 entries</li><li>- IPv4 Source Guard: 299 entries</li><li>- IPv6 Source Guard: 0 entries</li></ul></li><li>• IPv4 Access<ul style="list-style-type: none"><li>- IPv4 ACL Rules: 0 entries</li><li>- MAC ACL Rules: 300 entries</li><li>- Combined ACL Rules: 500 entries</li><li>- IPv6 ACL Rules: 0 entries</li><li>- IPv4 Source Guard: 499 entries</li><li>- IPv6 Source Guard: 0 entries</li></ul></li><li>• IPv6 Access<ul style="list-style-type: none"><li>- IPv4 ACL Rules: 0 entries</li><li>- MAC ACL Rules: 200 entries</li><li>- Combined ACL Rules: 0 entries</li><li>- IPv6 ACL Rules: 250 entries</li><li>- IPv4 Source Guard: 0 entries</li><li>- IPv6 Source Guard: 249 entries</li></ul></li></ul> | <ul style="list-style-type: none"><li>• Omada<ul style="list-style-type: none"><li>- IPv4 ACL Rules: 0 entries</li><li>- MAC ACL Rules: 0 entries</li><li>- Combined ACL Rules: 600 entries</li><li>- IPv6 ACL Rules: 150 entries</li><li>- IPv4 Source Guard: 0 entries</li><li>- IPv6 Source Guard: 0 entries</li></ul></li><li>• Extacl Access<ul style="list-style-type: none"><li>- IPv4 ACL Rules: 600 entries</li><li>- MAC ACL Rules: 800 entries</li><li>- Combined ACL Rules: 600 entries</li><li>- IPv6 ACL Rules: 300 entries</li><li>- IPv4 Source Guard: 0 entries</li><li>- IPv6 Source Guard: 0 entries</li></ul></li></ul> |
|                                | Time Range      | <ul style="list-style-type: none"><li>• Time Range Config</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"><li>• Holiday Config</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                | PTP             | <ul style="list-style-type: none"><li>• Profile: IEEE 1588v2 (PTPv2), IEEE 802.1AS</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"><li>• Clock-type: oc, bc, e2etc, p2ptc</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                | File System     | <ul style="list-style-type: none"><li>• File Operation</li><li>• FTP</li><li>• SFTP</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <ul style="list-style-type: none"><li>• SCP</li><li>• TFTP</li><li>• USB Storage</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

Software Features^

| Model       |                                     | S6500-48GP6XF V1.20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| L2 Features | Port                                | <ul style="list-style-type: none"><li>• Auto Negotiation/Auto MDI/MDIX</li><li>• Port config<ul style="list-style-type: none"><li>- Status</li><li>- Speed and Duplex</li><li>- Flow Control(802.3x)</li><li>- Jumbo Frame: 1518-9216 KB</li></ul></li><li>• Port Mirror<ul style="list-style-type: none"><li>- Ingress (Many to One)</li><li>- Egress (Many to One)</li><li>- RSPAN</li></ul></li></ul>                                                                                                                                                                                                                                  | <ul style="list-style-type: none"><li>• Port Security<ul style="list-style-type: none"><li>- Learn mode: Dynamic/Static/Permanent/Sticky</li><li>- Port Max Learned MAC: 64</li><li>- Current Learned Number</li><li>- Status</li><li>- Exceed Max Learned Trap</li></ul></li><li>• Port Isolation</li><li>• Loopback Detection<ul style="list-style-type: none"><li>- Alert</li><li>- Port Based</li><li>- VLAN Based</li></ul></li></ul>                              |
|             | Digital Diagnostic Monitoring (DDM) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|             | LAG                                 | <ul style="list-style-type: none"><li>• Hash Algorithm: SRC MAC/DST MAC/SRC MAC + DST MAC/SRC IP/DST IP/SRC IP + DST IP</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <ul style="list-style-type: none"><li>• Static LAG: Up to 64 groups, up to 8 ports per group</li><li>• LACP(802.3ad)</li></ul>                                                                                                                                                                                                                                                                                                                                          |
|             | Traffic Monitor                     | <ul style="list-style-type: none"><li>• TX Packets/Bytes</li><li>• RX Packets/Bytes</li><li>• TX Unicast/Multicast/Broadcast</li><li>• RX Unicast/Multicast/Broadcast</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"><li>• TX Errors</li><li>• RX Errors</li><li>• RX Packet Size Analysis</li></ul>                                                                                                                                                                                                                                                                                                                                                       |
|             | MAC Address                         | <ul style="list-style-type: none"><li>• MAC Address Table: 32K entries</li><li>• IVL/SVL: IVL</li><li>• Create Static Unicast Address</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"><li>• Bind Dynamic Address</li><li>• Create Filtering Address</li><li>• MAC Notification Settings</li></ul>                                                                                                                                                                                                                                                                                                                           |
|             | VLAN                                | <ul style="list-style-type: none"><li>• 802.1Q VLAN (802.1q): 4K VLANs</li><li>• MAC VLAN: 200 entries</li><li>• Protocol VLAN<ul style="list-style-type: none"><li>- 16 Protocol VLAN Template</li><li>- 12 Protocol VLAN Group</li></ul></li></ul>                                                                                                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"><li>• QinQ (VLAN VPN): 256 entries</li><li>• Private VLAN</li><li>• GVRP</li></ul>                                                                                                                                                                                                                                                                                                                                                    |
|             | L2 Multicast                        | <ul style="list-style-type: none"><li>• Max Multicast Groups: 4K (IGMP Snooping &amp; Multicast Listener Discovery (MLD) Snooping &amp; MVR)</li><li>• IGMP Snooping<ul style="list-style-type: none"><li>- IGMP V1/V2/V3</li><li>- Report Message Suppression</li><li>- Fast Leave</li><li>- Unknown Multicast Discard</li><li>- Static Multicast Groups</li><li>- IGMP Snooping Querier</li><li>- IGMP Packet Statistics</li><li>- IGMP Authentication</li><li>- Multicast Filtering: 256 profiles and 16 entries per profile</li><li>- Router Port Setting: Static Router Port/Forbidden Router Port</li></ul></li><li>• MVR</li></ul> | <ul style="list-style-type: none"><li>• MLD Snooping<ul style="list-style-type: none"><li>- MLD V1/V2</li><li>- Report Message Suppression</li><li>- Unknown Multicast Discard</li><li>- Fast Leave</li><li>- Static Multicast Groups</li><li>- MLD Snooping Querier</li><li>- MLD Packet Statistics</li><li>- Multicast Filtering: 256 profiles and 16 entries per profile</li><li>- Router Port Setting: Static Router Port/Forbidden Router Port</li></ul></li></ul> |
|             | STP                                 | <ul style="list-style-type: none"><li>• STP(802.1d)</li><li>• RSTP(802.1w)</li><li>• MSTP(802.1s)</li><li>• MSTI instances: 16</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <ul style="list-style-type: none"><li>• STP Security<ul style="list-style-type: none"><li>- Loop Protect</li><li>- Root Protect</li><li>- TC Protect</li><li>- BPDU Protect</li><li>- BPDU Filter</li></ul></li></ul>                                                                                                                                                                                                                                                   |
|             | Per-VLAN Spanning Tree              | <ul style="list-style-type: none"><li>• PVST</li><li>• PVST+</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <ul style="list-style-type: none"><li>• RPVST</li><li>• RPVST+</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                |
|             | LLDP (802.1ab)                      | <ul style="list-style-type: none"><li>• Local Info</li><li>• Neighbor Info</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"><li>• Statistic Info</li><li>• LLDP-MED</li></ul>                                                                                                                                                                                                                                                                                                                                                                                     |
|             | L2PT                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|             | PPPoE ID Insertion                  | <ul style="list-style-type: none"><li>• Circuit-ID Type</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <ul style="list-style-type: none"><li>• Remote-ID</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                             |
|             | PoE                                 | <ul style="list-style-type: none"><li>• PoE Power Budget (Max): 1440W</li><li>• Port Config<ul style="list-style-type: none"><li>- PoE Status: Enabled/Disabled</li><li>- PoE Priority: Low/Middle/High</li><li>- Power Limit</li><li>- Time Range</li><li>- PoE Profile</li></ul></li></ul>                                                                                                                                                                                                                                                                                                                                              | <ul style="list-style-type: none"><li>• PoE Profile Config</li><li>• PoE Auto Recovery</li></ul>                                                                                                                                                                                                                                                                                                                                                                        |
|             | ERPS                                | <ul style="list-style-type: none"><li>• Ring: 16</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|             | Virtual MAC                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|             | Sticky MAC                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Software Features <sup>^</sup> |                                                                                                                             |                                                                                                                            |                                                                                                  |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Model                          |                                                                                                                             | S6500-48GP6XF V1.20                                                                                                        |                                                                                                  |
| L3 Features                    | IPv4 Interfaces: 256(shared with IPv6 Interfaces)<br>IPv6 Interfaces: 256(shared with IPv4 Interfaces)                      |                                                                                                                            |                                                                                                  |
|                                | IPv4 Static Routes: 1024 (shared with IPv6 Static Routes)<br>IPv6 Static Routes: 512 (shared with IPv4 Static Routes)       |                                                                                                                            |                                                                                                  |
|                                | IPv4 Host Routes: 6100 (shared with IPv4 Host Routes)<br>IPv6 Host Routes: 6100 (shared with IPv6 Host Routes)              |                                                                                                                            |                                                                                                  |
|                                | IPv4 Network Routes: 10240 (shared with IPv6 Network Routes)<br>IPv6 Network Routes: 5120 (shared with IPv4 Network Routes) |                                                                                                                            |                                                                                                  |
|                                | ECMP                                                                                                                        | • Max ECMP Routes: 256<br>• Max ECMP Nexthops per Destination: 32                                                          |                                                                                                  |
|                                | ARP                                                                                                                         | • Static ARP: 512<br>• Dynamic ARP: 7680                                                                                   |                                                                                                  |
|                                | ND: 7680                                                                                                                    |                                                                                                                            |                                                                                                  |
|                                | DHCP                                                                                                                        | • DHCP Server<br>- IP Pools: 64<br>- Max Leases: 8000<br>- Manual Binding Entries: 1000<br>- Exclude IP range Entries: 100 | • DHCP Relay<br>• DHCP L2 Relay<br>• DHCPv6 Relay<br>• DHCPv6 L2 Relay                           |
|                                | VRRP                                                                                                                        | • VRRP V2/V3<br>• VRRP Instance: 64<br>• VRRP Virtual IP: 32 per instance                                                  |                                                                                                  |
|                                | OSPF                                                                                                                        | • OSPFv2<br>- OSPF Process: 16<br>- Graceful Restart<br>- OSPFv2 BFD                                                       | • OSPFv3<br>- OSPFv3 Instance: 1<br>- OSPFv3 BFD                                                 |
|                                | RIP                                                                                                                         | • RIPv1/v2                                                                                                                 | • RIPng                                                                                          |
|                                | VRF                                                                                                                         | • VRF Instance: 1024                                                                                                       |                                                                                                  |
|                                | IS-IS                                                                                                                       | • IS-ISv4<br>• IS-ISv6<br>• IS-IS BFD                                                                                      | • IS-IS Instance: 16<br>• IS-IS Graceful Restart                                                 |
|                                | BGP                                                                                                                         | • BGPv4                                                                                                                    | • BGP Graceful Restart                                                                           |
|                                | PIM                                                                                                                         | • PIM-DM (IPv4)<br>• PIM-SM (IPv4)<br>• PIM-SSM (IPv4)                                                                     | • IPv4 Multicast Route entries: 1024                                                             |
|                                | IGMP                                                                                                                        | • Version: v1/v2/v3                                                                                                        | • IGMP Multicast Groups: 2K                                                                      |
|                                | BFD                                                                                                                         | • Template Numbers: 16                                                                                                     | • Session Numbers: 8                                                                             |
|                                | PBR                                                                                                                         |                                                                                                                            |                                                                                                  |
|                                | uRPF                                                                                                                        |                                                                                                                            |                                                                                                  |
| QoS                            | Class of Service                                                                                                            | • Priority Queues: 8 Queues<br>• Port Priority<br>• 802.1P Priority<br>• DSCP/ToS Priority                                 | • Priority Schedule Mode: SP/WRR per Queue<br>• Queue Weight Config: For WRR/ SP+WRR Mode        |
|                                | Bandwidth Control                                                                                                           | • Rate Limit<br>- Ingress Rate Limit<br>- Egress Rate Limit<br>- Rate Limit Grade: 64kbps                                  | • Storm Control<br>- Control Mode: kbps/ratio<br>- Broadcast<br>- Multicast<br>- Unknown Unicast |
|                                | Voice VLAN                                                                                                                  | • Supported OUI Numbers: 64                                                                                                |                                                                                                  |
|                                | WRED                                                                                                                        | • WRED profile: 16                                                                                                         |                                                                                                  |



Software Features^

| Model            |                                                 | S6500-48GP6XF V1.20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Network Security | IP-MAC Binding                                  | <ul style="list-style-type: none"><li>• Binding entries: 1024 entries</li><li>• Manual Binding</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <ul style="list-style-type: none"><li>• ARP Scanning</li><li>• DHCP Snooping</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                  | IPv6-MAC Binding                                | <ul style="list-style-type: none"><li>• Binding entries: 1024 entries</li><li>• Manual Binding</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <ul style="list-style-type: none"><li>• DHCPv6 Snooping</li><li>• ND Snooping</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                  | Dynamic ARP Inspection (DAI)                    | <ul style="list-style-type: none"><li>• ARP Detect entries: 1024 entries</li><li>• ARP Detect</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <ul style="list-style-type: none"><li>• ARP Defend</li><li>• ARP Statistics</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                  | ND Detection                                    | <ul style="list-style-type: none"><li>• ND Detection entries: 1024 entries</li><li>• ND Detect</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <ul style="list-style-type: none"><li>• ND Statistics</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                  | IP Source Guard                                 | <ul style="list-style-type: none"><li>• IP Source Guard entries<ul style="list-style-type: none"><li>- Default SDM Template: 299</li><li>- IPv4 SDM Template: 499</li><li>- IPv6 SDM Template: 0</li><li>- Extacl SDM Template: 0</li></ul></li></ul>                                                                                                                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"><li>• Security Type<ul style="list-style-type: none"><li>- Source IP</li><li>- Source IP + Source MAC</li></ul></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                  | IPv6 Source Guard                               | <ul style="list-style-type: none"><li>• IPv6 Source Guard entries<ul style="list-style-type: none"><li>- Default SDM Template: 0</li><li>- IPv4 SDM Template: 0</li><li>- IPv6 SDM Template: 249</li><li>- Extacl SDM Template: 0</li></ul></li></ul>                                                                                                                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"><li>• Security Type<ul style="list-style-type: none"><li>- Source IPv6</li><li>- Source IPv6 + Source MAC</li></ul></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                  | RA Guard: 30 entries                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                  | DoS Defend                                      | <ul style="list-style-type: none"><li>• Scan SYNFIN</li><li>• Xmascan</li><li>• NULL Scan</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <ul style="list-style-type: none"><li>• SYN sPort less 1024</li><li>• Ping Flooding</li><li>• SYN/SYN-ACK Flooding</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                  | DHCP Filter                                     | <ul style="list-style-type: none"><li>• DHCPv4 Filter<ul style="list-style-type: none"><li>- Legal Server entries: 200</li></ul></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <ul style="list-style-type: none"><li>• DHCPv6 Filter<ul style="list-style-type: none"><li>- Legal Server entries: 200</li></ul></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                  | 802.1x                                          | <ul style="list-style-type: none"><li>• Control Type<ul style="list-style-type: none"><li>- Port Based</li><li>- MAC Based</li></ul></li><li>• Auth Method: PAP/EAP-MD5/EAP-TLS/EAP-TTLS/EAP-PEAP</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                         | <ul style="list-style-type: none"><li>• Radius Authentication</li><li>• Radius Accounting</li><li>• Radius Server Load Balancing</li><li>• RADSEC</li><li>• Guest VLAN</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                  | Authentication, Authorization, Accounting (AAA) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                  | ACL                                             | <ul style="list-style-type: none"><li>• Time-Range<ul style="list-style-type: none"><li>- Time Slice</li><li>- Week Time-Range</li><li>- Absolute Time-Range</li><li>- Holiday</li></ul></li><li>• MAC ACL</li><li>• IP ACL</li><li>• Combined ACL</li><li>• IPv6 ACL</li><li>• Rule Operation<ul style="list-style-type: none"><li>- Permit</li><li>- Deny</li></ul></li><li>• Policy Action<ul style="list-style-type: none"><li>- Mirror</li><li>- Rate Limit</li><li>- Redirect</li><li>- QoS Remark</li></ul></li><li>• Binding<ul style="list-style-type: none"><li>- Port Binding</li><li>- VLAN Binding</li></ul></li></ul> | <ul style="list-style-type: none"><li>• Default Template<ul style="list-style-type: none"><li>- IPv4 ACL Rules: 300 entries</li><li>- IPv6 ACL Rules: 0 entries</li><li>- MAC ACL Rules: 300 entries</li><li>- Combined ACL Rules: 300 entries</li></ul></li><li>• IPv4 Access<ul style="list-style-type: none"><li>- IPv4 ACL Rules: 0 entries</li><li>- IPv6 ACL Rules: 0 entries</li><li>- MAC ACL Rules: 300 entries</li><li>- Combined ACL Rules: 500 entries</li></ul></li><li>• IPv6 Access<ul style="list-style-type: none"><li>- IPv4 ACL Rules: 0 entries</li><li>- IPv6 ACL Rules: 250 entries</li><li>- MAC ACL Rules: 200 entries</li><li>- Combined ACL Rules: 0 entries</li></ul></li><li>• Omada<ul style="list-style-type: none"><li>- IPv4 ACL Rules: 0 entries</li><li>- IPv6 ACL Rules: 150 entries</li><li>- MAC ACL Rules: 0 entries</li><li>- Combined ACL Rules: 600 entries</li></ul></li><li>• Extacl<ul style="list-style-type: none"><li>- IPv4 ACL Rules: 600 entries</li><li>- IPv6 ACL Rules: 300 entries</li><li>- MAC ACL Rules: 800 entries</li><li>- Combined ACL Rules: 600 entries</li></ul></li></ul> |
|                  | MACSec (gcm-aes-128, gcm-aes-256)               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                  | Secure boot                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Virtualization   | IP Tunnel                                       | <ul style="list-style-type: none"><li>• IPv6 over IPv4</li><li>• IPv6 over IPv4 GRE</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"><li>• IPv4 over IPv4 GRE</li><li>• Tunnel entries: 100</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| Software Features <sup>^</sup> |                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Model                          |                                                | S6500-48GP6XF V1.20                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Maintenance                    | System Monitor                                 | <ul style="list-style-type: none"><li>• CPU Monitor</li><li>• Memory Monitor</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                | sFlow                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                | Operation Administration and Maintenance (OAM) | <ul style="list-style-type: none"><li>• EFM<ul style="list-style-type: none"><li>- Link Monitoring</li><li>- Remote Failure Indication Config</li><li>- Statistics</li></ul></li></ul>                                                                                                                                                                                                                                                                                                    |
|                                | DLDP                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                | SNMP                                           | <div><ul style="list-style-type: none"><li>• SNMP Version: v1/v2c/v3</li><li>• SNMP Config<ul style="list-style-type: none"><li>- Global Config</li><li>- SNMP View</li><li>- SNMP Group</li><li>- SNMP User</li><li>- SNMP Community</li></ul></li></ul><ul style="list-style-type: none"><li>• Notification<ul style="list-style-type: none"><li>- Trap: IPv4/IPv6</li><li>- Inform: IPv4/IPv6</li></ul></li><li>• RMON v1</li><li>• Public MIBs</li><li>• Private MIBs</li></ul></div> |
|                                | NETCONF                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                | IEEE802.3az Energy Efficient Ethernet (EEE)    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                | DHCP Auto Install                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                | Log                                            | <div><ul style="list-style-type: none"><li>• Display/Filtering</li><li>• Severity Level</li><li>• Save to Flash</li></ul><ul style="list-style-type: none"><li>• Remote Host</li><li>• Backup Log</li></ul></div>                                                                                                                                                                                                                                                                         |
|                                | Device Diagnostics                             | <ul style="list-style-type: none"><li>• Cable Test</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                | Network Diagnostics                            | <div><ul style="list-style-type: none"><li>• Ping</li><li>• IPv6 Ping</li></ul><ul style="list-style-type: none"><li>• Tracert</li><li>• IPv6 Tracert</li></ul></div>                                                                                                                                                                                                                                                                                                                     |
| Others                         | Index                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                | Show running config                            | <ul style="list-style-type: none"><li>• Use the show running config command to view device's running status via telnet.</li><li>• Configuration File: Import/Export/Edit</li></ul>                                                                                                                                                                                                                                                                                                        |
| Omada SDN Controller           | Omada Pro SDN controller                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

| Others              |                                                                                                                                                                                                                               |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Package Content     | <ul style="list-style-type: none"><li>• S6500-48GP6XF V1.20 Switch</li><li>• Power Cord</li><li>• Console Cable</li><li>• Rackmount Kit</li><li>• Rubber Feet</li><li>• Locking Straps</li><li>• Installation Guide</li></ul> |
| 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                                                                     |
| S6500-48GP6XF V1.20 | Omada Campus 48-Port Gigabit Stackable L3 Managed PoE+ Switch with 6× 10G Slots |

| Power Supply Module |                              |
|---------------------|------------------------------|
| Model               | Description                  |
| PSM500-AC           | 500 W AC Power Supply Module |
| PSM900-AC           | 900 W AC Power Supply Module |

| SFP/SFP+ Modules |                                                                                                  |
|------------------|--------------------------------------------------------------------------------------------------|
| 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                           |

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

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

| MC Series Media Converter |                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------|
| Model                     | Description                                                                                |
| MC210CS                   | Gigabit Single-Mode Media Converter, up to 20 km, chassis mountable                        |
| MC200CM                   | Gigabit multi-mode SC SFP Transceiver, up to 550 m, chassis mountable                      |
| MC200L                    | Gigabit SFP slot supporting mini-GBIC modules, chassis mountable                           |
| MC1400                    | 14-slot power supply chassis for TP-LINK MC Series Media Converter, 19-inch rack-mountable |

†These functions require the use of the Omada Pro SDN Controller. Zero-Touch Provisioning requires the use of the Omada Pro Cloud-Based Controller.

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

Some models featured in this guide may be unavailable in your country or region. Visit TP-Link website for local sales information: [www.tp-link.com](http://www.tp-link.com).

PoE budget calculations are based on laboratory testing. Actual PoE power budget is not guaranteed and will vary as a result of client limitations and environmental factors.

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