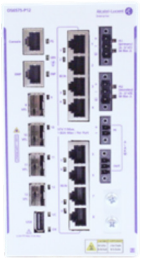
# Alcatel-Lucent OmniSwitch 6575

## Compact Hardened Ethernet Switches

The Alcatel-Lucent OmniSwitch 6575 is a family of ruggedized, fully manageable and fan-less Gigabit Ethernet switches. Designed for industrial Ethernet applications, this hardened Ethernet family offers a range of DIN rail and 19" rack-mountable switches that are ideal for a wide variety of industrial applications such as intelligent transportation, railway, smart cities and utilities.



OS6575-P

OS6575-U28

The OmniSwitch 6575 is a family of hardened, compact, fan-less gigabit Ethernet switches that have been designed specifically for industrial applications. The switches run on the widely deployed and field-proven Alcatel-Lucent Operating System (AOS) that offers high security, reliability, performance and easy management. These switches are designed to operate in extended temperatures, offer higher EMI/EMC tolerance, provide a flexible range of power input options and deliver high surge protection.

The OS6575 series offers advanced PoE capabilities with 90W PoE per port and Fast/Perpetual PoE support to power range of modern devices from PTZ IP cameras on toll booths, LED lights and building management gateways in smart buildings to industrial control systems. These switches are easy to deploy and offer out-of-the-box plug-and-play, zero-touch provisioning, network automation and disaster recovery options. These switches support IEEE-1588v2-PTP & G.8275.1/.2* and SyncE for the nanosecond-level precision timing requirements of industrial devices and applications. With support for MACSec-256 on all ports, the OS6575 enables end-to-end encrypted networks. The OS6575 family offers advanced system- and network-level resiliency features and convergence through standardized protocols in a space-efficient form factor.

These versatile industrial switches are ideal for deployment in transportation and traffic control systems, utilities, IP surveillance systems and outdoor installations, among other applications.

| Features | Benefits |
|---|---|
| • Resilient ruggedized hardware design | • Operates at a wider temperature range from -40° C to +75° C, withstands greater shock, vibrations, temperature and EMI/EMC variance |
| • Convection cooled fan-less models | • Fan-less operation increases resiliency and maximizes uptime for converged mission-critical networks |
| • Designed for industrial applications | • Operates at a wider temperature range from -40°C to +75°C, withstands greater shock, vibrations, surge and EMI/EMC variance<br>• Redundant power supply inputs with standard 1x 3 terminal block<br>• Alarm relays to connect external alarm systems<br>• Compact DIN rail and rack-mountable design |
| • Advanced Industrial PoE capabilities with support for 90W IEEE 802.3bt PoE and Fast PoE/Perpetual PoE | • Enables converged deployments and is ideal for all type of PoE application requirements from outdoor wireless APs, to PTZ surveillance cameras and video displays<br>• Fast PoE allows the PoE power to be supplied to the connected devices within a matter of seconds as soon as the switch is powered up<br>• Perpetual PoE maintains the power to connected PoE devices when a switch is rebooted |
| • IEEE 1588v2 PTP & -G.8275.1/.2* and SyncE support | • Provides precise sub-microsecond time synchronization for slave devices<br>• Used for timing profiles: Power, Industrial Automotive, Media |
| • Virtual chassis technology to connect multiple switches to create a single chassis-like entity | • Increases system redundancy, resiliency and high availability while simplifying network deployment, operations and management |
| • Auto-fabric technology to simplify installation and service provisioning | • Enables zero-touch provisioning and network automation with automatic protocol and topology discovery<br>• Prevent human mistakes by automating standardized and replicable configurations |
| • Built in resiliency and redundancy<br>• Hot-swappable, fully redundant power supplies<br>• Delivers redundant ring topologies using industry standard protocols | • Field upgradable, highly redundant network solution maximizes network uptime |
| • SDN-ready<br>¬ Supports RESTful API commands and MIBs<br>¬ Embedded scripting capabilities | • Allows creation of specialized services which ensures future readiness and enables interoperability with third-party solutions<br>• REST APIs provide access to all AOS CLI and, with advanced embedded scripting capabilities using Python and Bash, it enables fast deployment of new network services and to the ability to adopt new applications |
| • MACSec-256 support on all ports | • MACSec encryption support provides a secure network access, ensuring data confidentiality and integrity |
| • Switch backup and restore | • Simplifies switch replacement in field and minimizes network downtime using USB drive<br>• USB encryption ensures optimal security |

## Alcatel-Lucent OmniSwitch 6575 models

The OmniSwitch 6575 family offers an extensive selection of Gigabit fixed-configuration switches with up to 90 watts of PoE per port and power supply options that accommodate the most demanding requirements. The models can be mounted on DIN rail, 19" rack or a wall/panel.

All the models in the OS6575 family support IEEE 802.3bt-compliant 90W PoE, IEEE1588v2 PTP & G.8275.1/.2* and SyncE support, MACSec-256 and alarm relays. All ports of OS6575-P12 and OS6575-U28 are capable of IEEE 1588v2 and MACSec-256.

| Switch | Gigabit ports (RJ45) | SFP ports | 1G/10G SFP+ | Description |
|---|---|---|---|---|
| OS6575-P12 | 8 | 0 | 4 | Hardened GigE fan-less switch. 8x10/100/1000 BaseT RJ-45 802.3bt PoE, 4x100/1000 BaseX SFP+, alarm relay, RS-232 console & USB ports. FPoE/PPoE and up to 360W PoE budget. Includes user manual & DIN mounting hardware. 480W AC/DC power supply, 150W AC power supply, power cord. |

| Switch | Gigabit Ports (RJ45/Combo) | SFP ports | 1G/10G SFP+ | Description |
|---|---|---|---|---|
| OS6575-U28 | 4 | 20 | 4 | Hardened Gigabit Ethernet L3 1RU chassis 20x100/1000 BaseX SFP, 4xSFP+ , 4x10/100/1000 BaseT combo PoE (90W), RS-232 Console,USB ports. Includes 480W AC/DC power supply, 180W AC Power Supply, power cord, user manuals access card, 19" rack mount kit |

## Technical specifications

| Product Matrix | OS6575-P12 | OS6575-U28 |
|---|---|---|
| Operating temperature | -40°C to 75°C (-40°F to 167°F) | -40°C to 75°C (-40°F to 167°F) |
| Fans | 0 | 0 |
| File system flash | 2 GB | 2 GB |
| RAM | 4 GB | 4 GB |
| Max switching capacity | 48 Gb/s | 64 Gb/s |
| Forwarding capacity | 35.7Mpps | 47.6 Mpps |
| Weight (no power supply attached) | 2.08 Kg (4.6 lbs) | 2.13 Kg (4.7 lbs) |
| Height | 170mm (6.9 in) | 43.4mm (1.71 in) |
| Width | 91 mm (3.58 in) | 440mm (17.32 in) |
| Depth (no power supply attached) | 161 mm(6.34in) | 295mm (11.61 in) |
| 1588v2-capable ports | All ports | All ports |
| MACsec-256-capable ports | All ports | All ports |
| USB port (5V@.5A) | 1 | 1 |
| Console port (RJ-45) | 1 | 1 |
| Ethernet Out of Band port (RJ-45) | 1 | 1 |
| Alarm relay contacts | 1 in, 1 out | 1 in, 1 out |
| PSU connectors | 2 (terminal block) | 2 (DB15) |
| Max PoE budget | 360W | 120W |
| Protection | IP30 | IP30 |
| Altitude | 13,000 ft | 13,000 ft |
| Storage temperature | -40°C to 85°C (-40°F to 185°F) | -40°C to 85°C (-40°F to 185°F) |
| Humidity (operating and storage) | 5% to 95% non-condensing | 5% to 95% non-condensing |
| Power consumption (idle) | ~15 W | ~12 W |
| Power consumption (full load) | ~44 W | ~60W |
| Heat dissipation (BTU/hr) | 148 BTU/hr | 204 BTU/hr |
| Maximum surge protection | 6 KV | 6 KV |
| MTBF (hours) (switch only) | > 25 years@25°C | > 25 years@25°C |
| MTBF (hours) (switch+2 ACPSU) | TBD | TBD |
| Mounting options | DIN/Wall/Panel | DIN/Wall/Panel |

## OmniSwitch 6575-P12 power supplies

OmniSwitch 6575-P12 models support a dual input terminal block (PS1/PS2) supporting AC/DC power supplies with OS6NN5-BPNS (150W AC) and OS6NN5-BPNSX (480W AC/DC) DIN rail power supplies.

| Power supply models | OS6NN5-BPNS | OS6NN5-BPNSX |
|---|---|---|
| Description | DIN rail mount AC power supply. Provides up to 480W of system and PoE power to one OS6575-P12 or OS6575-U28 switch | DIN rail mount AC power supply. Provides up to 480W of system and PoE power to one OS6575-P12 or OS6575-U28 switch |
| Dimensions (H x W x D) | 125.2mm x 40mm x 113.5 cm<br>(4.93 in x 1.57 in x 4.47 in) | 125.2cm x 48mm x 125cm<br>(4.93 in x 1.89 in x 4.92 in) |
| Weight | 0.76 kg (1.12 lbs) | 1.5 kg (3.31 lbs) |
| Input voltage | 100 VAC to 240 VAC<br>127 VDC to 370 VDC | 90 VAC to 264 VAC<br>127 VDC to 370 VDC |
| Input current | 2.1A | 5A |
| Max output power | 150 W | 480 W |
| Surge protection | Surge Level 4:<br>4 KV Line to ground<br>2 KV Line to line | Surge Level 4:<br>4 KV Line to ground<br>2 KV Line to line |
| Fans | 0 | 0 |
| Operating temperature | -40°C to 70°C | -40°C to 70°C |
| Mounting | DIN | DIN |
| PoE type supported | IEEE 802.3 at (30 W)<br>IEEE 802.3 af (15 W) | IEEE 802.3bt (90W)<br>IEEE 802.3 at (30 W)<br>IEEE 802.3 af (15 W) |

### Switch power input specifications

The OmniSwitch 6575-P12 model supports dual redundant, 1x3 terminal block inputs for power supplies in the front with three wire input cables: +VDC, -VDC and ground.

These switches can be powered with a power supply whose output meets the input specifications of the OS6575-P12 given below. When both input ports (PS1) and (PS2) are used, both inputs shall be powered by UL listed power supplies only. Please refer to the latest hardware user guide for more details.

OS6575-P12

| Input voltage range | Maximum current | PoE type supported |
|---|---|---|
| 54.5 V to 57 V | 5 A | IEEE 802.3 bt (90W) |
| 50 V to 57 V | 5 A | IEEE 802.3 at (30 W) |
| 44 V to 57 V | 5 A | IEEE 802.3 af (15 W) |
| 24 V to 60 V | 1.5 A | System power only |

## OmniSwitch 6575-U28 power supplies

OmniSwitch 6575-U28 models provide dual input DB-15 connectors (PS1/PS2) supporting rear mounted AC/DC power supplies OS6575-BPR (180W AC), OS6575-BPR-D (180W DC). The OS6NN5-BPNSX (480W AC/DC) DIN rail power is used for high voltage AC/DC installations. Please refer to the latest hardware user guide for more details.

| Power supply models | OS6575-BPR | OS6575-BPR-D |
|---|---|---|
| Description | Modular AC rack mount power supply. Provides up to 180 W of system and PoE power to one OS6575-U28 switch. | Modular DC rack mount power supply. Provides up to 180W of system and PoE power to one OS6575-U28 switch. |
| Dimensions (H x W x D) | 5.1 cm x 9.5 cm x 18.1 cm (2 in x 3.74 in x 7.12 in) | 5.1 cm x 9.5 cm x 18.1 cm (2 in x 3.74 in x 7.12 in) |
| Weight | 1.42 kg (3.14 lbs) | 1.42 kg (3.14 lbs) |
| Input voltage | 100 VAC to 240 VAC | -20 VDC to -72 VDC |
| Input current | 3A/100V to 127 VAC<br>1.5A/200V to 240 VAC | 12A/-20V to -28 VDC<br>6A/-36V to -72 VDC |
| Max output power | 180 W/3.22A | 180 W/3.22A @ -36 to -72 VDC input<br>140 W/2.5 A @ -20 to -28 VDC input |
| Surge protection | Surge Level 4:<br>4 KV Line to ground 2 KV Line to line | Surge Level 4:<br>2 KV Line to ground 1 KV Line to line |
| Fans | 0 | 0 |
| Operating temperature | -40°C to 75°C | -40°C to 75°C |
| Mounting | 19" rack | 19" rack |
| PoE type supported | IEEE 802.3bt (90 W)<br>IEEE 802.3-at (30 W)<br>IEEE 802.3-af (15 W) | IEEE 802.3bt (90 W)<br>IEEE 802.3-at (30 W)<br>IEEE 802.3-af (15 W) |

## Product specifications and measurements

### Per-port LEDs

- Non-PoE ports - Green: link/activity
- PoE ports - Amber: link/activity

### System LEDs

- OK: Green/Amber operational status of the switch
- VC: Green/Amber master or slave role in VC configuration. Number of blinks identifies stacking unit number
- PS1: Green/Amber - status of the primary power supply
- PS2: Green/Amber - status of the backup power supply
- ALRM IN: Red when alarm in
- ALRM OUT: Red when alarm out

### Scalability numbers and speeds

- Wire rate at Layer 2 and Layer 3 on all ports
- Jumbo frame size: 9,216 bytes
- Total number of MAC addresses: 32,000
- Total number of IPv4 routes: 8,000
- Number of VLANs: 4,000

### Virtual chassis

- Maximum number of units in a VC: 4
- DAC cables for VC connection: 1m, 3m, 7m
- Supports remote VC connection

## Compliance and certifications

### Commercial safety

- IEC 62368-1
- UL 60950-1, 2nd Ed.
- IEC 60950-1; all national deviations
- EN 60950-1; all deviations
- CAN/CSA-C22.2 No. 60950-1-03
- NOM-019 SCFI, Mexico
- AS/NZ TS-001 and 60950:2000, Australia
- UL-AR, Argentina
- UL-GS Mark, Germany
- CU, EAC, Russia
- ANATEL, Brazil
- CCC, China
- KCC Korea
- BSMI, Taiwan
- EN 60825-1 Laser
- EN 60825-2 Laser
- CDRH Laser
- RoHS and WEEE directives compliant
- REACH directive

### Commercial EMI/EMC

- 47 CRF FCC Part 15: 2015 Subpart B (Class A)VCCI (Class A, with UTP Cables)
- ICES–003:2012 Issue 5, Class A
- AS/NZS 3548 (Class A) – C-Tick
- CE marking for European countries (Class A)
- CE emission
  - ¬ EN50581 (RoHS Recast)
  - ¬ EN 55032 (EMI & EMC requirement)
  - ¬ EN 55024 (Immunity Characteristics)
  - ¬ EN 61000-3-2 (Harmonic Current emissions)
  - ¬ EN 61000-3-3
  - ¬ EN 61000-4-2
  - ¬ EN 61000-4-3
  - ¬ EN 61000-4-4
  - ¬ EN 61000-4-5 (Surge Immunity, Class 4)
  - ¬ EN 61000-4-6

- ¬ EN 61000-4-8
- ¬ EN 61000-4-9
- ¬ EN 61000-4-11
- ¬ IEEE802.3: Hi-pot Test (2.25 KV DC on all Ethernet Ports)

## Industrial

### Industrial environmental

- IEC 60870-2-2 (operational temperature)
- IEC 60068-2-1 (temperature type test – cold)
- IEC 60068-2-2 (temperature type test – hot)
- IEC 60721-3-1: Class 1K5 (storage temperature)
- IEC 60068-2-30: 5% to 95% non-condensing humidity
- IEC 60255-21-2 (mechanical shock)
- IEC 60255-21-1 (vibration)
- IEC 60068-2-6 (sinusoidal vibration)
- IEC 60068-2-27 (shock testing)

### Industrial safety

- UL 508
- UL 61010
- EN 50021
- Hazardous location
  - ¬ ISA 12.12.01 (UL 1604) (Class I, Div 2, groups A-D)
  - ¬ CSA22.2/213 (Class I, Div 2, groups A-D)
- IP30

### Industrial emission

- EN 61805-3
- EN 55032 (Emission Standard)
- EN 61000-3-2
- EN 61000-3-3
- EN 55024/EN 55035 (Immunity Standard)
- EN 61000-4-2 to EN 61000-4-8
- EN 61000-4-11
- EN 61000-4-12
- EN 61000-4-16
- EN 61000-4-17
- EN 61000-4-29
- IEC 60255-5
- IEEE 1613

## Industry specific

### Electric power substation

- IEEE 1613, Section 4 to 8
- IEC 61850-3

### Railway applications

- EN 50121-4
- EN 50155:2017
- EN 61373
- EN 62236-4
- EN 61000-6-2
- EN 61000-6-4

### Intelligent transportation (road)

- NEMA TS-2

### Marine certifications

- DNVGL-CG-0339†
- IEC 60945:2002†

† Requires mandatory DNV kit for compliance

### Federal certifications

- Trade Agreements Act (TAA)*

# Detailed product features

## Simplified manageability and configuration

- Intuitive CLI in a scriptable Python and BASH environment via console, Telnet or Secure Shell (SSH) v2 over IPv4/IPv6
- Powerful WebView graphical web interface via HTTP and HTTPS over IPv4/IPv6
- Network Automation and Programmability Abstraction Layer with Multivendor (NAPALM) support
- Fully programmable RESTful web services interface with XML and JSON support. API enables access to CLI and individual MIB objects.
- Integrated with Alcatel-Lucent OmniVista® products for network management
- Integrated with Nokia Network Services Platform (NSP)© for network management
- Full configuration and reporting using SNMPv1/2/3 to facilitate third-party network management over IPv4/IPv6
- File upload using USB, TFTP, FTP, SFTP or SCP using IPv4/IPv6
- Human-readable ASCII-based configuration files for off-line editing, bulk configuration and out-of-the-box auto-provisioning
- Non-volatile memory for start-up configuration
- Multiple microcode image support with fallback recovery
- Dynamic Host Configuration Protocol (DHCP) relay for IPv4/IPv6
- IEEE 802.1AB Link Layer Discover Protocol (LLDP) with Media Endpoint Discover (MED) extensions
- Network Time Protocol (NTP)
- DHCPv4 and DHCPv6 server managed by Nokia VitalQIP® DNS/DHCP IP Address Management
- Access to the AOS console via USB Adapter with Bluetooth technology provides wireless management access, eliminating the need of console cables
- Configurable per-port PoE priority, max power and time-of-day policy for PoE power allocation

## Cloud ready with OmniVista® Cirrus

- Alcatel-Lucent OmniVista® Cirrus offers a secure, resilient and scalable cloud-based network management. It offers hassle free network deployment and easy service roll-out with advanced analytics for smarter decision making. It provides IT-friendly unified access with secure authentication and policy enforcement for users and devices.

## Monitoring and troubleshooting

- Local (on the flash) and remote server logging (Syslog): event and command logging
- IP tools: ping and trace route
- Dying Gasp support via SNMP and syslog messages
- Loopback IP address support for management per service
- Management virtual routing and forwarding (VRF) support
- Policy- and port-based mirroring
- Remote port mirroring
- sFlow v5 and Remote Monitoring (RMON)
- Unidirectional Link Detection (UDLD), Digital Diagnostic Monitoring (DDM) and Time Domain Reflectometry (TDR)

## Resiliency and high availability

- Unified management, control and virtual chassis technology
- Virtual chassis 1+N redundant supervisor manager
- Virtual chassis In-Service Software Upgrade (ISSU)
- Remote virtual chassis - Up to 10-km fault-tolerant remote stacking supported
- Smart continuous switching technology
- ITU-T G.8032/Y1344 2010: Ethernet Ring Protection
- High availability automation network: Media Redundancy protocol (IEC 62439-2)

- IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) encompasses IEEE 802.1D Spanning Tree Protocol (STP) and IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)
- Per-VLAN spanning tree (PVST+) and 1x1 STP mode
- IEEE 802.3ad/802.1AX Link Aggregation Control Protocol (LACP) and static LAG groups across modules
- Dual-home link support for sub-second link protection without STP
- Virtual Router Redundancy Protocol (VRRP) with tracking capabilities
- IEEE protocol auto-discovery
- Bidirectional Forwarding Detection (BFD) for fast failure detection and reduced re-convergence times in a IPv4/IPv6 routed environment
- Redundant and hot-swappable power supplies
- Built-in CPU protection against malicious attacks
- Split virtual chassis protection: Auto-detection and recovery of virtual chassis splitting due to one or more VFL or stack element failures*

## Advanced security

### Switch software security

- AOS secured diversified code solution is available on OmniSwitch 6575, hardening it at both the software source code and binary executable levels to enhance overall network security
- AOS secured diversified code protects networks from intrinsic vulnerabilities, code exploits, embedded malware, and potential back doors that could compromise mission critical operations
- AOS secured diversified code is a proactive, defense approach toward network security that continuously defines and implements value-add capabilities to address both current and future threats

### Access control

- Alcatel-Lucent Access Guardian framework for comprehensive user-policy-based NAC
- Autosensing IEEE 802.1X multi-client, multi-VLAN support
- MAC-based authentication for non-IEEE 802.1X hosts
- Web based authentication (captive portal): a customizable web portal residing on the switch
- User Network Profile (UNP) simplifies NAC by dynamically providing pre-defined policy configuration to authenticated clients — VLAN, ACL, BW
- Secure Shell (SSH) with public key infrastructure (PKI) support
- Terminal Access Controller Access-Control System Plus (TACACS+) client
- Centralized Remote Access Dial-In User Service (RADIUS) and Lightweight Directory Access Protocol (LDAP) administrator authentication
- Centralized RADIUS for device authentication and network access control authorization
- Learned Port Security (LPS) or MAC address lockdown
- Access Control Lists (ACLs); flow-based filtering in hardware (Layer 1 to Layer 4)
- DHCP v4 & v6 Snooping, DHCP IP and Address Resolution Protocol (ARP) spoof protection
- DHCPv6 guard and DHCPv6 Client guard
- ARP poisoning detection
- IP v4 &v6 Source Filtering as a protective and effective mechanism against ARP attacks
- Bring Your Own Device (BYoD) provides on-boarding of guest, IT/non-IT issued and silent devices. Restriction/ remediation of traffic from non-compliant devices. Uses RADIUS CoA to dynamically enforce User Network Profiles based on authentication, profiling, posture check of devices.
- LLDP security mechanism for rogue device detection and restriction

### Network control

- AOS secured diversified code solution is available on OmniSwitch 6575, hardening it at both the software source code and binary executable levels to enhance overall network security.
- AOS secured diversified code protects networks from intrinsic vulnerabilities, code exploits, embedded malware, and potential back doors that could compromise mission-critical operations.

## QoS

- Priority queues: Eight hardware-based queues per port for flexible QoS management
- Traffic prioritization: Flow-based QoS Flow-based traffic policing and bandwidth management
- 32-bit IPv4/128-bit IPv6 non-contiguous mask classification
- Egress traffic shaping
- DiffServ architecture
- Congestion avoidance: Support for end- to-end head-of-line (E2E-HOL) blocking prevention, IEEE 802.1Qbb Priority- based Flow Control (PFC) and IEEE 802.3x Flow Control (FC)
- Auto-QoS support for Generic Object Oriented Substation Events (GOOSE) messages

## Layer 3 routing and multicast

### IPv4 routing

- Multiple VRF and inter-VRF route leaking
- Static routing
- Routing Information Protocol (RIP) v1 and v2
- Open Shortest Path First (OSPF) v2 with Graceful Restart
- Intermediate System to Intermediate System (IS-IS) with Graceful Restart
- Border Gateway Protocol (BGP) v4 with Graceful Restart
- Generic Routing Encapsulation (GRE) and IP/IP tunneling
- Virtual Router Redundancy Protocol (VRRPv2)
- DHCP relay (including generic UDP relay)
- Address Resolution Protocol (ARP)
- Policy-based routing and server load balancing
- DHCPv4 server

### IPv6 routing

- Multiple VRF & Inter-VRF route leaking
- Internet Control Message Protocol version 6 (ICMPv6)
- Static routing
- Routing Information Protocol Next Generation (RIPng)
- Open Shortest Path First (OSPF) v3 with Graceful Restart
- Intermediate System to Intermediate System (IS-IS) with Graceful Restart
- Multi-Topology IS-IS (M-ISIS)
- BGP v4 multiprotocol extensions for IPv6 routing (MP-BGP)
- Graceful Restart extensions for OSPF and BGP
- Virtual Router Redundancy Protocol version 3 (VRRPv3)
- Neighbor Discovery Protocol (NDP)
- Policy-based routing and server load balancing
- DHCPv6 server
- DHCPv6 Relay and UDPv6 relay

### IPv4/IPv6 multicast

- Internet Group Management Protocol (IGMP) v1/v2/v3 snooping
- Protocol Independent Multicast – Sparse- Mode (PIM-SM), Source Specific Multicast (PIM-SSM)
- Protocol Independent Multicast – Dense- Mode (PIM-DM), Bidirectional Protocol Independent Multicast (PIM-BiDir)
- Distance Vector Multicast Routing Protocol (DVMRP)
- Multicast Listener Discovery (MLD) v1/v2 snooping
- PIM to DVMRP gateway support

### Fluent network for voice, video and data

- SIP profile for QOS, priority tuning for end-to-end processing*
- Multicast DNS Relay: Bonjour protocol support for wired Airgroup

### Advanced Layer 2 services

- Ethernet services support using IEEE 802.1ad Provider Bridges (also known as Q-in-Q or VLAN stacking
- Ethernet OAM (802.1ag, ITU-T Y.1731): Connectivity Fault Management (L2 ping & Link trace)
- Ethernet in First mile: Link OAM (802.3ah)
- Fabric virtualization services IEEE 802.1aq Shortest Path Bridging (SPB-M)
- In-band management for SPB-M
- Ethernet network-to-network interface (NNI) and user network interface (UNI)
- Service Access Point (SAP) profile identification
- Service VLAN (SVLAN) and Customer VLAN (CVLAN) support
- VLAN translation and mapping including CVLAN to SVLAN
- Port mapping
- DHCP Option 82: Configurable relay agent information
- Multiple VLAN Registration Protocol (MVRP)
- HA-VLAN for Layer 2 clusters such as MS-NLB and active-active Firewall clusters*
- Customer Provider Edge (CPE) test head traffic generator and analyzer tool
- TR-101 Point-to-Point Protocol over Ethernet (PPPoE) Intermediate Agent allowing for the PPPoE network access method
- Service Assurance Agent (SAA) for proactively measuring network health, reliability and performance.
- Jumbo frame support
- Bridge Protocol Data Unit (BPDU) blocking
- STP Root Guard
- STP Loop-Guard
- Loopback Detection to auto-detect and prevent L2 loops

## Supported standards

### IEEE standards

- IEEE 802.1D STP
- IEEE 802.1p CoS
- IEEE 802.1Q VLANs
- IEEE 802.1ab (LLDP)
- IEEE 802.1ag (OA&M)
- IEEE 802.1ad Provider Bridges Q-in-Q/ VLAN stacking
- IEEE 802.1ak (Multiple VLAN Registration Protocol (MVRP)
- IEEE 802.1s MSTP
- IEEE 802.3i 10BASE-T
- IEEE 802.1w RSTP
- IEEE 802.3x Flow Control
- IEEE 802.3z Gigabit Ethernet
- IEEE 802.3ab 1000Base-T
- IEEE 802.3ac VLAN Tagging
- IEEE 802.3ad/802.1AX Link Aggregation
- IEEE 802.3ae 10 GigE
- IEEE 802.3af Power over Ethernet
- IEEE 802.3at PoE Plus
- IEEE 802.3bt PoE (95W)
- IEEE 1588v2 Precision Time Protocol

### ITU-T recommendations

- ITU-T G.8032/Y.1344 2010: Ethernet Ring Protection (ERPv2)
- ITU-T Y.1731 OA&M fault and performance management

### IEC standards

- IEC 62439-2 Media Redundancy Protocol

### IETF RFCs

#### IPv4

- RFC 2003 IP/IP Tunneling
- RFC 2131 Dynamic Host Configuration Protocol (DHCPv4)
- RFC 2784 GRE Tunneling
- RFC 4022/2452 MIB for IPv4 TCP
- RFC 4087 IP Tunnel MIB
- RFC 4113/2454 MIB for IPv4 UDP
- RFC 4292/4293 IPv4 MIBs

#### RIP

- RFC 1058 RIP v1
- RFC 1722/1723/2453/1724 RIP v2 and MIB
- RFC 1812/2644 IPv4 Router Requirements
- RFC 2080 RIPng for IPv6

#### OSPF

- RFC 1765 OSPF Database Overflow
- RFC 1850/2328/4570 OSPF v2 and MIB
- RFC 2154 OSPF MD5 Signature
- RFC 2370/3630 OSPF Opaque LSA
- RFC 2740/5340 OSPFv3 for IPv6
- RFC 3101 OSPF NSSA Option
- RFC 3623/5187 OSPF Graceful Restart
- RFC 5838 MIB for OSPFv3
- RFC 4552 Authentication for OSPFv3
- RFC 5709 OSPFv2 HMAC-SHA Cryptographic Authentication

#### BGP

- RFC 1269/1657/4273 BGP v3 and v4 MIB
- RFC 1403/1745 BGP/OSPF Interaction
- RFC 1771-1774/2842/2918/3392/4271 BGP v4
- RFC 1965 BGP AS Confederations
- RFC 1966/2796 BGP Route ReflectionRFC 1997/1998/4360 BGP

#### Communities attribute

- RFC 2042/5396 BGP New Attribute
- RFC 2385 BGP MD5 Signature
- RFC 2439 BGP Route Flap Damping
- RFC 2545 BGP-4 Multiprotocol Extensions for IPv6 Routing
- RFC 2858/4760 Multiprotocol Extensions for BGP-4
- RFC 3065 BGP AS Confederations
- RFC 4456 BGP Route Reflection
- RFC 4486 Subcodes for BGP Cease Notification
- RFC 4724 Graceful Restart for BGP
- RFC 3392/5492/5668/6793 BGP 4-Octet ASN
- RFC 5082 Generalized TTL Security Mechanism (GTSM)

#### IS-IS

- RFC 1142/1195/3719/3787/5308 IS-IS v4
- RFC 2763/2966/3567/3373 Adjacencies and route management
- RFC 5120 M-ISIS: Multi Topology IS-IS
- RFC 5306 Graceful Restart
- RFC 5309/draft-ietf-isis-igp-p2p-over-lan Point to point over LAN

- RFC 6329 IS-IS Extensions Supporting IEEE 802.1aq SPB
- RFC 5304 IS-IS Cryptographic Authentication
- RFC 5310 IS-IS Generic Cryptographic Authentication

### IP Multicast

- RFC 1075/draft-ietf-idmr-dvmrp-v3-11.txt DVMRP
- RFC 2362/4601/5059 PIM-SM
- RFC 2365 Multicast
- RFC 2710/3019/3810/MLD v2 for IPv6
- RFC 2715 PIM and DVMRP interoperability
- RFC 2933 IGMP MIB
- RFC 3376 IGMPv3 (includes IGMP v2/v1)
- RFC 3569 Source-Specific Multicast (SSM)
- RFC 3973 Protocol Independent Multicast- Dense Mode (PIM-DM)
- RFC 4541 Considerations for IGMP and MLD Snooping Switches
- RFC 5015 BiDIR PIM
- RFC 5060 Protocol Independent Multicast MIB
- RFC 5132 Multicast Routing MIB
- RFC 5240 PIM Bootstrap Router MIB

### IPv6

- RFC 1981 Path MTU Discovery
- RFC 2460 IPv6 Specification
- RFC 2461 NDP
- RFC 2464 IPv6 over Ethernet
- RFC 2465 MIB for IPv6: Textual Conventions (TC) and General Group
- RFC 2466 MIB for IPv6: ICMPv6 Group
- RFC 2711 Router Alert Option
- RFC 3056 6to4 Tunnels
- RFC 3315 Dynamic Host Configuration Protocol for IPv6 (DHCPv6)
- RFC 3484 Default Address Selection
- RFC 3493/2553 Basic Socket API
- RFC 3542/2292 Advanced Sockets API
- RFC 3587/2374 Global Unicast Address Format
- RFC 3595 TC for IPv6 Flow Label
- RFC 3596/1886 DNS for IPv6
- RFC 4007 Scoped Address
- RFC 4022/2452 MIB for IPv6 TCP
- RFC 4113/2454 MIB for IPv6 UDP
- RFC 4193 Unique Local Addresses
- RFC 4213/2893 Transition Mechanisms
- RFC 4291/3513/2373 Addressing Architecture (uni/any/multicast)
- RFC 4292/4293 IPv6 MIBs
- RFC 4301/2401 Security Architecture
- RFC 4302/2402 IP Authentication Header
- RFC 4303/2406 IP Encapsulating Security Payload (ESP)
- RFC 4443/2463 ICMPv6
- RFC 4861/2461 Neighbor Discovery*
- RFC 4862/2462 Stateless Address Autoconfiguration
- RFC 5095 Deprecation of Type 0 Routing Headers in IPv6*

### Manageability

- RFC 854/855 Telnet and Telnet options
- RFC 959/2640 FTP
- RFC 1350 TFTP Protocol
- RFC 1155/2578-2580 SMI v1 and SMI v2
- RFC 1157/2271 SNMP
- RFC 1212/2737 MIB and MIB-II
- RFC 1213/2011-2013 SNMP v2 MIB
- RFC 1215 Convention for SNMP Traps
- RFC 1573/2233/2863 Private Interface MIB
- RFC 1643/2665 Ethernet MIB
- RFC 1867 Form-based File Upload in HTML
- RFC 1901-1908/3416-3418 SNMP v2c
- RFC 2096 IP MIB
- RFC 2131 DHCP Server/Client
- RFC 2388 Returning Values from Forms: multipart/form-data
- RFC 2396 Uniform Resource Identifiers (URI): Generic Syntax
- RFC 2570-2576/3410-3415/3584 SNMP v3
- RFC 2616 /2854 HTTP and HTML
- RFC 2667 IP Tunneling MIB
- RFC 2668/3636 IEEE 802.3 MAU MIB
- RFC 2674 VLAN MIB
- RFC 3023 XML Media Types
- RFC 3414 User-based Security Model
- RFC 3826 (AES) Cipher Algorithm in the SNMP User-based Security Model
- RFC 4122 A Universally Unique IDentifier (UUID) URN Namespace
- RFC 4234 Augmented BNF for Syntax Specifications: ABNF
- RFC 4251 Secure Shell Protocol Architecture
- RFC 4252 The Secure Shell (SSH) Authentication Protocol
- RFC 4253 SSH Transport Layer Protocol
- RFC 4254 SSH Connection Protocol
- RFC 4627 JavaScript Object Notation (JSON)
- RFC 6585 Additional HTTP Status Codes

### Security

- RFC 1321 MD5
- RFC 1826/1827/4303/4305 Encapsulating Payload (ESP) and crypto algorithms
- RFC 2104 HMAC Message Authentication
- RFC 2138/2865/2868/3575/2618 RADIUS Authentication and Client MIB
- RFC 3576 Dynamic Authorization Extensions to RADIUS
- RFC 2139/2866/2867/2620 RADIUS Accounting and Client MIB
- RFC 2228 FTP Security Extensions
- RFC 2284 PPP EAP
- RFC 2869/2869bis RADIUS Extension
- RFC 4301 Security Architecture for IP

### Security - With Common Criteria enabled

- RFC 5280 - Internet X.509 PKI Certificate and CRL Profile
- RFC 2560 - X.509 Internet PKI Online Certificate Status Protocol - OCSP
- RFC 2986 - PKCS #10: Certification Request Syntax Specification v 1.7
- RFC 5246 - TLS Protocol v 1.2
- RFC 4346 - TLS Protocol v 1.1
- RFC 3268 - AES Cipher suites for TLS
- RFC 6125 - Representation and Verification of Domain-Based Application Service Identity within Internet PKIX Certificates in the Context of TLS
- draft-ietf-radext-radsec-12 - TLS encryption for RADIUS

### QoS

- RFC 896 Congestion Control
- RFC 1122 Internet Hosts
- RFC 2474/2475/2597/3168/3246 DiffServ
- RFC 2697 srTCM
- RFC 2698 trTCM
- RFC 3635 Pause Control

### Others

- RFC 791/894/1024/1349 IP and IP/Ethernet
- RFC 792 ICMP
- RFC 768 UDP
- RFC 793/1156 TCP/IP and MIB
- RFC 2581 TCP Congestion Control
- RFC 826 ARP
- RFC 919/922 Broadcasting Internet Datagram
- RFC 925/1027 Multi-LAN ARP/Proxy ARP
- RFC 950 Subnetting
- RFC 951 BOOTP
- RFC 1151 RDP
- RFC 1191 Path MTU Discovery
- RFC 1256 ICMP Router Discovery
- RFC 1305/2030/5905 NTP v4 and Simple NTP

- RFC 1493 Bridge MIB
- RFC 1518/1519 CIDR
- RFC 1541/1542/2131/3396/3442 DHCP
- RFC 1757/2819 RMON and MIB
- RFC 2581 TCP Congestion Control
- RFC 2131/3046 DHCP/BootP Relay
- RFC 2132 DHCP Options
- RFC 2251 LDAP v3
- RFC 2338/3768/2787 VRRP and MIB
- RFC 3021 Using 31-bit Prefixes
- RFC 3060 Policy Core
- RFC 3176 sFlow
- RFC 3621 Power Ethernet MIB
- RFC 4562 MAC-Forced Forwarding

## Ordering information

| Orderable part | Description |
|---|---|
| OS6575-P12-xx | Hardened GigE fan-less switch. 8x10/100/1000 BaseT RJ-45 802.3bt PoE, 4x100/1000 BaseX SFP+, alarm relay, RS-232 console & USB ports. FPoE/PPoE and up to 360W PoE budget. Includes user manual & DIN mounting hardware. 150W AC power supply and power cord. |
| OS6575-P12-00 | Hardened GigE fan-less switch. 8x10/100/1000 BaseT RJ-45 802.3bt PoE, 4x100/1000 BaseX SFP+, alarm relay, RS-232 console & USB ports. FPEE/PPoE and up to 360W PoE budget. Includes user manual & DIN mounting hardware. Order power supply separately. |
| OS6575-P12-zz | Hardened GigE fan-less switch. 8x10/100/1000 BaseT RJ-45 802.3bt PoE, 4x100/1000 BaseX SFP+, alarm relay, RS-232 console & USB ports. FPoE/PPoE and up to 360W PoE budget. Includes user manual & DIN mounting hardware. 150W AC power supply. Order power cord separately. |
| OS6575-U28-xx | Hardened Gigabit Ethernet L3 1RU chassis 20x100/1000 BaseX SFP, 4xSFP+ , 4x10/100/1000 BaseT combo PoE (90W), RS-232 Console,USB ports. Includes 180W AC PSU, power cord, user manuals access card, 19» rack mount kit. |
| OS6575-U28-00 | Hardened Gigabit Ethernet L3 1RU chassis 20x100/1000 BaseX SFP, 4xSFP+ , 4x10/100/1000 BaseT combo PoE (90W), RS-232 Console, USB ports. Order power supply separately. Includes user manuals access card, 19» rack mount kit. |
| OS6575-U28-zz | Hardened Gigabit Ethernet L3 1RU chassis 20x100/1000 BaseX SFP, 4xSFP+ , 4x10/100/1000 BaseT combo PoE (90W), RS-232 Console, USB ports. Includes 180W AC PSU, user manuals access card, 19» rack mount kit. Order power cord separately. |
| OS6575-U28-D | Hardened Gigabit Ethernet L3 1RU chassis 20x100/1000 BaseX SFP, 4xSFP+ , 4x10/100/1000 BaseT combo PoE (90W), RS-232 Console, USB ports. Includes 180W DC PSU, user manuals access card, 19» rack mount kit. |
| **Power supplies (DIN)** | |
| OS6NN5-BPNS-xx | OS6575 modular DIN Rail 150W AC power supply. Provides system & PoE power to one OS6575-P12 switch. Ships with AR power cord & TS-35/7.5 or 15 DIN rail mounting. |
| OS6NN5-BPNS-zz | OS6575 modular DIN Rail 150W AC power supply. Provides system & PoE power to one OS6575-P12 switch. Ships with TS-35/7.5 or 15 DIN rail mounting. Order power cord separately. |
| OS6NN5-BPNSX-xx | OS6575 modular DIN Rail 480W AC power supply. Provides system & PoE power to one OS6575-P12/-U28 switch. Ships with country specific power cord & TS-35/7.5 or 15 DIN rail mounting. |
| OS6NN5-BPNSX-zz | OS6575 modular DIN Rail 480W AC power supply. Provides system & PoE power to one OS6575-P12/-U28 switch. Ships with TS-35/7.5 or 15 DIN rail mounting. No power cord included. |
| **OS6575-U28 power supplies** | |
| OS6575-BPR-xx | OS6575 modular 180W AC power supply. Provides system and PoE power to one OS6575-U28 switch. Ships with US power cord and chassis connection cable. |
| OS6575-BPR-zz | OS6575 modular 180W AC power supply. Provides system and PoE power to one OS6575-U28 switch. Order power cord separately. |
| OS6575-BPR-D | OS6575 modular 180W DC power supply. Provides system and PoE power to one OS6575-U28 switch. Ships with chassis connection cable. |
| **OmniSwitch 6575 software** | |
| OS-SW-MACSEC | Site license to enable MACSec on OS6575 models. One license per customer at no cost. |
| **OmniSwitch 6575 transceivers** | |
| iSFP-100-MM | 100Base-FX industrial transceiver with an LC type interface. This transceiver is designed for use over multimode fiber. |
| iSFP-100-SM15 | 100Base-FX industrial transceiver with an LC type interface. This transceiver is designed for use over single-mode fiber up to 15 km. |
| iSFP-100-SM40 | 100Base-FX Industrial SFP transceiver with an LC type interface. This transceiver is designed for use over single mode fiber optic cable up to 40 km. |

| Gigabit transceivers | |
|---|---|
| iSFP-GIG-T | 1000Base-T industrial Gigabit Ethernet Transceiver (SFP MSA). SFP works at 1000 Mb/s speed and full-duplex mode |
| iSFP-GIG-SX | 1000Base-SX industrial Gigabit Ethernet industrial optical transceiver (SFP MSA) |
| iSFP-GIG-LX | 1000Base-LX industrial Gigabit Ethernet optical transceiver (SFP MSA) |
| iSFP-GIG-LH40 | 1000Base-LH industrial Gigabit Ethernet optical transceiver (SFP MSA). Typical reach of 40 km on 9/125 µm SMF |
| iSFP-GIG-LH70 | 1000Base-LH industrial Gigabit Ethernet optical transceiver (SFP MSA). Typical reach of 70 km on 9/125 µm SMF |
| iSFP-GIG-BX-U | 1000Base-BX SFP transceiver with an LC type of interface. This bi-directional transceiver is designed for use over single mode fiber optic on a single strand link up to 10 km. Transmits 1310 nm and receives 1490 nm optical signal. |
| iSFP-GIG-BX-D | 1000Base-BX SFP transceiver with an LC type of interface. This bi-directional transceiver is designed for use over single mode fiber optic on a single strand link up to 10 km. Transmits 1490 nm and receives 1310 nm optical signal. |
| **10G transceivers** | |
| iSFP-10G-LR | 10 Gigabit industrial optical transceiver (SFP+). Supports monomode fiber over 1310 nm wavelength (nominal) with an LC connector. Typical reach of 10 km |
| iSFP-10G-SR | 10 Gigabit industrial optical transceiver (SFP+). Supports Multimode fiber with an LC connector. Typical reach of 300m |
| iSFP-10G-ZR | 10 Gigabit industrial optical transceiver (SFP+). Supports data transmission at 1550nm over up to 80km single mode fiber. LC connector type. |
| iSFP-10G-C1M | 10 Gigabit direct attached cable (DAC, uplink/stacking) 1m, SFP+ |
| iSFP-10G-C3M | 10 Gigabit direct attached cable (DAC, uplink/stacking) 3m, SFP+ |
| iSFP-10G-C7M | 10 Gigabit direct attached cable (DAC, uplink/stacking) 7m, SFP+ |

' -xx ' suffix in part numbers refers to country specific power cord that ships with the part number. For e.g. OS6575-P12-US ships with USA power cord, OS6NN5-BPNS -EU ships with EU power cord etc. ALE offers 11 different power cord options. Please replace ' xx ' with country code needed.

## Warranty

The OmniSwitch 6575 family comes with a Limited Lifetime Hardware Warranty.

## Services and support

For more information about our Professional services, Support services, and Managed services, please go to https://www.al-enterprise.com/en/services

Please visit our website to learn more: https://www.al-enterprise.com/en/products/switches/omniswitch-6575



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