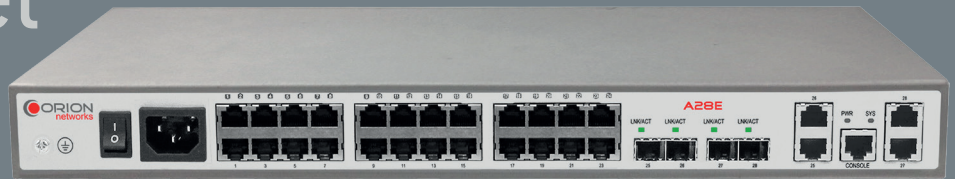


# A28E Ethernet Switch

Enhanced L2 Metro-Ethernet Access Switch



## Product Overview

A28E is designed for Metro Ethernet access portfolio, which provides cost-effective solutions for campus, enterprise, and residential access scenarios.

The product has 24x10/100Base-T auto-sensing client interfaces and 4xSFP combo GE network interfaces, which enables flexible network deployments such as dual ring or ring + chain. The A28E also offers rich functionality that guarantees MEF-compliant E-Line, E-Tree and E-LAN services together with full suite of management and protection mechanisms for FTTX triple-play applications. Port Backup (Flex Links) feature serves as an alternative to STP - a pair of layer 2 interfaces has one interface configured as backup to other, and if the primary link fails, the backup link takes over traffic forwarding. A28E is equipped with advanced microchips that ensure carrier-class stability and reliability.

## Product Description

The Orion Networks© A28E Metro-Ethernet Access Switch supports a number of key features:

- **Network Security** - Upgraded security with port-isolation, advanced ACL, broadcast/multicast/DLF storm control, unique port loopback detection, and DHCP Client/Snooping/Option 82 functionality, IGMP RADIUS Authentication
- **Resiliency & Protection** - Supports ITU-T G.8031 linear and ITU-T G.8032 ring protection; Supports STP/RSTP/MSTP, IEEE 802.3ad Link Aggregation, and Port Backup (Flex Links) as an alternative to STP functionality with ability to backup links and balance traffic between primary and backup links
- **Carrier Ethernet Service & Management** - Supports IEEE 802.3ah Link OAM, IEEE 802.1ag end-to-end connectivity OAM and ITU-T Y.1731 end-to-end service and performance; Advanced QoS technology allows stream-marking based on CoS, DSCP and port priority; Scheduling modes including SP, WRR, SP+WRR; Support flow-based mirroring/rate-limit/redirection/VLAN swapping and rewriting
- **Multicast Functionality** - Supports IGMP snooping/proxy, multicast filtering, multicast VLAN registration (MVR) to save bandwidth and optimize corresponding services such as IPTV

## Features

|                                |  |
|--------------------------------|--|
| <b>Switching mode</b>          | Store and forward mode<br>Non-blocking switching   |
| <b>Packet Forwarding</b>       | MTU: 9,712 bytes (default)<br>DLF Control  |
| <b>Bandwidth Profile</b>       | Rate limiting: up to 1,048,576Kbps<br>Burst configuration (Max 130KB)<br>Ingress rate limit per port<br>Rate limit per VLAN<br>Increments: <ul style="list-style-type: none"> <li>• 64Kbps (64K-1M)</li> <li>• 1Mbps(1-100M)</li> <li>• 10Mbps(100-1000M)</li> </ul> |
| <b>VLAN</b>                    | IEEE 802.1Q VLAN: 4K active VLANs<br>Port-based VLAN<br>GVRP, 256 max dynamic VLAN   |
| <b>Storm Control</b>           | Broadcast/multicast/unicast/DLF storm control<br>Control mode: global, bps, burst<br>Default burst: 8KB  |
| <b>Multicast</b>               | 1K multicast addresses<br>Static multicast group<br>IGMP Snooping V1/V2/V3<br>Multicast filtering & unknown multicast discarding<br>Multicast VLAN Registration (MVR)  |
| <b>Mirror</b>                  | Mirroring per port<br>Separate mirroring configurations for ingress & egress ports   |
| <b>Port Loopback Detection</b> | Auto shutdown individual ports upon fault signals<br>Auto-detection interval can be set  |
| <b>MAC Address Table</b>       | 16K MAC address<br>Add/remove MAC address<br>View MAC address statistics<br>Search MAC address<br>Aging time: 10-1,000,000s<br>MAC table threshold per port<br>MAC table limit: 1-255  |
| <b>Q-in-Q</b>                  | Port/flexible Q-in-Q<br>682 flexible Q-in-Q configurable items<br>Egress-direction VLAN-mapping  |

## Features

|                                  |  |
|----------------------------------|--|
| <b>Link Aggregation</b>          | Up to 6 groups and 8 ports per group<br>Group member max-port-number 26<br>Load balance based on MAC/MAC+IP<br>Standard LACP (static only)   |
| <b>Flow Control</b>              | IEEE 802.3x in full duplex mode<br>Back pressure in half duplex mode<br>Separate configurations for ingress & egress   |
| <b>STP</b>                       | STP, RSTP & MSTP (64 instances)<br>256 STG (Spanning Tree Group)   |
| <b>Digital Diagnostic (DDMI)</b> | SFP digital diagnostic function  |
| <b>Port Backup</b>               | Supported  |
| <b>Transparent Relay</b>         | BPDU, DOT1X, LACP, CDP, VTP, PVST  |
| <b>OAM</b>                       | IEEE 802.3ah OAM including discovery, link performance, remote loopback, fault detection & performance stats per OAM standards<br>OAM Active/Passive mode, OAM MIB Variable Get function, OAM Event function<br>Extended OAM (configure on remote switch)  |
| <b>SLA</b>                       | Layer-2/Layer-3 SLA (frame delay, jitter & packet loss)  |
| <b>System Management</b>         | CLI/Telnet/SNMP/Web management<br>16 Layer-3 interfaces, Super VLAN, max 4K VLANs<br>RMON1, 2, 3 & 9, Bridge MIB (RFC1493), System log, Hierarchical alarms, Link alarm per port, Keep-alive report, Fault pass through, Module information management   |
| <b>Maintenance</b>               | Debug information output, PING, Telnet client, Port statistics, Port dynamic statistics  |
| <b>QoS</b>                       | Global CoS/DSCP to queue mapping<br>Port priority override<br>Port TRUST mode: CoS/DSCP/port priority<br>Global queue scheduling with 8 queues per port<br>Scheduling mode: SP/WRR/SP+WRR<br>WRR weight range: 1-255<br>Flow statistics, Flow-based mirror/rate-limit/redirection/VLAN swapping/rewriting of 802.1p CoS, DSCP, port priority |
| <b>Ethernet Ring</b>             | Orion private ring protocol<br>Up to 8 rings<br>124 devices on one ring<br>switching time $\leq 50\text{ms}$   |

## Features

|   |   |
|---|---|
| <b>ACL</b>                              | MAC/IP-based ACL<br>ACL map (L2~L4 byte) (User-defined ACL)   |
| <b>Safety Features</b>                  | Client classification and password protection<br>RADIUS, TACACS+<br>Binding of MAC address & port, Port protection, IP source guard, Dynamic APR Inspection<br>PPPoE agent, DOT1X<br>IGMP RADIUS Aithentication |
| <b>CFM</b>                              | IEEE802.1ag/ITU-T Y.1731 protocol: up to 256 MEP, 256 MA<br>Connectivity check (CC), Loopback (LB), Link trace (LT)   |
| <b>Password Recovery</b>                | Supported   |
| <b>Filter</b>                           | ACL hardware filter<br>Support MAC 1536 traffic streams   |
| <b>LLDP</b>                             | Discovery remote base on link layer<br>Get remote basic information   |
| <b>Error Tolerance &amp; Redundancy</b> | System error report<br>Fast recovery during serious error   |
| <b>Scheduling</b>                       | System task scheduling  |
| <b>MEF9 &amp; MEF14</b>                 | Supported   |
| <b>Time Management</b>                  | Time zone, Time modification, Support SNTP & NTP  |
| <b>Software Upgrade</b>                 | Xmodem/FTP upgrade in BootROM<br>FTP/TFTP   |
| <b>Auto configuration</b>               | Supported   |
| <b>DHCP</b>                             | DHCP Client/Snooping/Relay/Option 82  |
| <b>Lightning Proof</b>                  | Up to 6KV (CM&DM) lightning proof ability on all power and communication interfaces   |
| <b>Cable Diagnostic</b>                 | Supported   |

## Specifications

|                           |   |
|---------------------------|---|
| <b>Performance</b>        | Switching fabric: 12.8Gbps  |
| <b>Capacity</b>           | 64MB DDR2<br>8MB flash<br>1.5MB switch buffer<br>1K IGMP groups   |
| <b>Indicators</b>         | Power Supply (flashing)<br>FE port: LINK/ACT<br>GE port: LINK/ACT   |
| <b>Physical interface</b> | Management port: 1 console (RJ45)<br>Client interfaces: 24 x 10/100 Base-TX RJ45 port<br>Network interfaces: 4 x COMBO (4 x 100/1000Base-X SFP; 4 x 10/100/1000Base-T RJ45) |
| <b>Power Specs</b>        | AC: 90~264V, 47~63Hz<br>Full load: ≤15.0W   |
| <b>Usage Conditions</b>   | Operating temp: 0~50 °C (32~122 °F)<br>Storage temp: -25~70 °C (-13~158 °F)<br>Humidity: 10~90% non condensing  |
| <b>Dimensions</b>         | 440(L) x 220(W) x 44(H) mm  |
| <b>Weight</b>             | ≤ 3.0Kg   |

## Compliances

|                                  |   |
|----------------------------------|---|
| <b>Standards &amp; Protocols</b> | IEEE 802.1Q VLAN, IEEE 802.3ad Link Aggregation, IEEE 802.1ad QinQ, IEEE 802.1D Spanning Tree, IEEE 802.1w RSTP, IEEE 802.1s MSTP, IEEE 802.1x Security, IEEE 802.1p CoS Prioritization, IEEE 802.3x Flow Control, IEEE 802.3ah OAM, IEEE 802.1ag Connectivity Fault Management, ITU Y.1731 Services OAM, Static Routing, IGMP v1/v2/v3, RMON I and II standards, SNMPv1/v2/v3, MEF9, MEF14 |
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