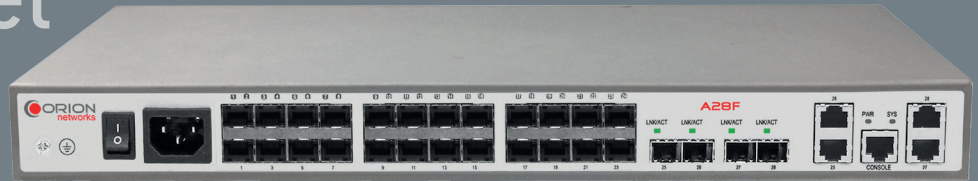


A28F Ethernet Switch

Enhanced L2 Metro-Ethernet
Fiber-Access Switch



Product Overview

A28F is designed for Metro Ethernet access portfolio, which provides cost-effective solutions for campus, enterprise, and residential access scenarios.

The product has 24x10/100 Base-X client interfaces and 4xSFP combo GE network interfaces, which enables flexible network deployments such as dual ring or ring + chain. The A28F 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© A28F Metro-Ethernet Fiber-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

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

Features

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

Features

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

Specifications

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

Compliances

Standards & Protocols	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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August 2013