ADVA 400 Series

High-Speed Carrier Ethernet Services Over Copper

Product Overview

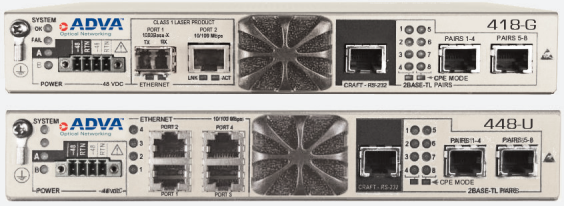
Our 400 series award-winning Ethernet service delivery products extend Ethernet services to sites without access to fiber. Boasting a powerful Ethernet in the first mile (EFM) solution, the ADVA 400 series quickly and economically delivers managed, symmetrical bandwidth and services at rates of up to 15Mbit/s per pair over outside plant copper utilizing standards-based 2BASE-TL technology (Ethernet over bonded copper).

Carriers can now offer symmetrical, broadband connectivity, and Ethernet services to business sites, cell towers and DSLAMs at speeds of 10-20Mbit/s – even over 100Mbit/s – without the expense and delays associated with fiber deployment. Our 400 series solution offers a powerful successor to T1, reaching much greater distances without repeaters, yielding a 7+ factor improvement in speed, with greater reliability at lower cost. Using the ADVA 400 series, carriers can leverage existing copper assets to deliver symmetrical, high-bandwidth Ethernet services with the quality of traditional private line services. These services can be delivered at full customer serving area distances.

Deployment Flexibility and Reduced OPEX

Our 400 series is deployable at either the customer premises or central office locations. Carriers can either physically separate management and data traffic on the two ports, or logically separate the traffic using in-band VLAN capabilities. Likewise, the two ports can support two separate services from the same or different customers. The ADVA 400 series provides carriers with increased deployment flexibility and reduced OPEX and inventory, since carriers only need to carry inventory for one model. With the 418 models, optical connectivity (small form factor pluggable 1000 BASE-X) is supported to reach customer or network equipment too far for normal CAT5 cabling at fast Ethernet and Gigabit Ethernet rates.

Our 400 series family is a half-rack-wide, one-RU-high, carrier-class, temperature-hardened set of platforms that enable carriers of all sizes to quickly and economically deliver valuable business broadband services over their copper infrastructure. The ADVA 400 series is fully compatible with our FSP 150EG-M, which provides Layer 2 aggregation and switching for subtended 400s for the delivery of transparent metro Ethernet services.



Simple Deployment and Remote Management

Our 400 series implements the IEEE standard for Ethernet OAM, with extensions to facilitate deployment and simplify remote management, while maintaining full interoperability with existing Ethernet switches, routers and Ethernet ADMs. The products also provides a comprehensive, user-friendly command-line interface, SNMP for alarming and remote management, a fully featured element management system, and an embedded web manager that requires no client software – all of which can be accessed over any in-band or out-of-band IP interface.

Guaranteed services and multiple SLAs per customer with robust support for traffic management, VLANs, stacked VLANs (Q-in-Q) and Ethernet class-of-service (CoS) enable carriers to offer a rich assortment of high-margin, value-added services backed by comprehensive SLAs. Unlike competing products, adding or deleting pairs to a bonded group does not disrupt the end-user service, yielding guaranteed uptime.

Features & Benefits

- 2, 4 or 8 pair copper variants
- Up to 15Mbit/s per copper pair
- 128 TC PAM (rate adaptive)
- Optical SFP option
- Full front access
- Environmentally hardened
- NEBS level 3 and ETSI-certified

Technical Information

Interfaces

- 2, 4 or 8 pair copper variants
- IEEE 802.3ah, 2BASE-TL, ITU-T G.991.2.bis (Annex A, B, F &G)
- ANSI T1.417 Spectral compliance and UK ANFP Spectral compliance via RJ-21
- Sealing current applied to all copper pairs

Operation Deployment Efficiencies

- Pair Identification via Tone Generation and Opens/Shorts
- Time Domain Reflectometer
  - Prequalify a loop to determine the suitability for, and expected performance of, the intended service
  - Detect cable damage (e.g. cuts) without the need to dispatch to the remote site
  - Detect both powered and unpowered CPE unit

Ethernet & Routing Features

- DHCP server, NAT firewall, ACLs, Static Routes, RIPv2
- IGMP Snooping
- MEF E-LINE
- 802.1q VLANs, VLAN stacking (aka Q-in -Q), S-VLAN
- 802.1p Prioritization
- 802.3x Flow Control and pause frames
- MAC Filtering
- All Ethernet Ports perform auto-negotiation, full or half duplex
- VLAN Tag ID writing, stacking, stripping, and re-writing and VLAN Bundling and VLAN Pruning
- RFC 791 IP, RFC 792 ICMP, RFC 793 TCP, RFC 768 UDP, RFC 826 ARP, RFC 1122 Host Requirements
- Auto/Manual MDI/MDIX
- Local Switching between Ethernet Ports
- 2000 Byte MTU Traffic Management
- 8 COS Classifications Mapped to 4 Queues
- Queue management using Customizable Weighted Fair Queuing, Strict Priority and Combination
- COS based upon 802.1p, VLAN ID (802.1q), DSCP, and fixed per port
- Traffic Policing with dual leaky bucket algorithm
- Traffic Rate Shaping
- Broadcast, Multicast and Unknown Storm Control

Mechanical

- Compact 1 RU size, full front access
- Dimensions: Width 8.5” (216mm); Height: 1.38” (35mm); Depth: 9.08” (231mm)
- Weight: 3.0 lbs (1.36 kg)
- Rack Mounting in 19” and 23” EIA/ANSI and WECO racks; 600mm wide ETSI racks

Management, Security, and Diagnostics

- Craft Interface RS-232 via RJ-45 connector
- Imbedded Web GUI (Web Manager), Command Line Interface
- Telnet (client and server)
- FTP and TFTP
- RFC 1155 TCP/IP management
- RMON
- IEEE 802.3ah OAM
- SNTPv3 – Time Synchronization
- Error logging and SNMP Trap alarms based on GR-474-CORE and GR-883-CORE
- SSHv2, HTTP/HTTPS, SSL
- TACACS+ and RADIUS
- Management IP Access Control List
- Audit Log, Event Log, Boot Log and Syslog
- Link Trace, Ping, L2 Ping, Trace Route
- Test TCP, Link Loss Forwarding
- Auto Discovery
- IEEE 802.1ag CFM Y.156SAM
- ITUY.1731ETH-OAM
- CLEI Coded
- Traffic Generator/Monitor

Electrical

- Power: 14 Watts typical at -48 VDC with Redundant Feeds
- Optional AC/DC 120/240 power
- Input Voltage: -48V or -12V

Certifications and Compliance:

- NEBS Level 3 (GR-63-CORE and GR-1089-CORE)
- MEF Certifications: MEF 9 and MEF 14
- FCC Part 15 Class A/FCC Part 68
- EN 55022 Class A
- ITU K.20/K.21
- ETSI EN 300 386
- ETSI EN 300 019, T1.2, T2.2, T3.1E
- Safety: EN/UL 60950-1/IEC 60950-1
- CE Mark

Environmental

- Environmentally hardened with extended temperature range, -40°C (-40°F) to +65°C (+149°F)
- Storage and Transportation Temperature: -40C (-40F) to +65C (+158F)
- Operating Humidity: 5% to 85% Storage and Transportation
- Humidity: 5% to 95% non-condensing

For more information please contact an ADVA Optical Networking consultant or visit us at www.advaoptical.com

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ADVA™ Optical Networking

Product specifications are subject to change without notice or obligation.