# FSP 150-GE104 (E)

Compact Carrier Ethernet service demarcation at the edge

As Carrier Ethernet networks scale, network demarcation devices need to extend their capabilities, while not increasing size or management complexity. Communication service providers need a compact, low-power and programmable Carrier Ethernet demarcation solution.

Our FSP 150-GE104 (E) enables cost-effective delivery of assured fiber-based MEF 3.0 Carrier Ethernet services and wholesale Ethernet applications. This series of compact first-mile demarcation devices provides dual network-to-network interfaces (NNI) and multiple client user network interfaces (UNI) with every port capable of 1000Base-X optical or 1000Base-T electrical operation. G.8032 ring protection and 802.1AX link aggregation ensures the highest service availability for network redundancy deployments. low-touch provisioning and an extensive set of standards-based auto-configuration functions and remote OAM capabilities ensure cost-efficient service rollout and reduce the need for truck rolls.
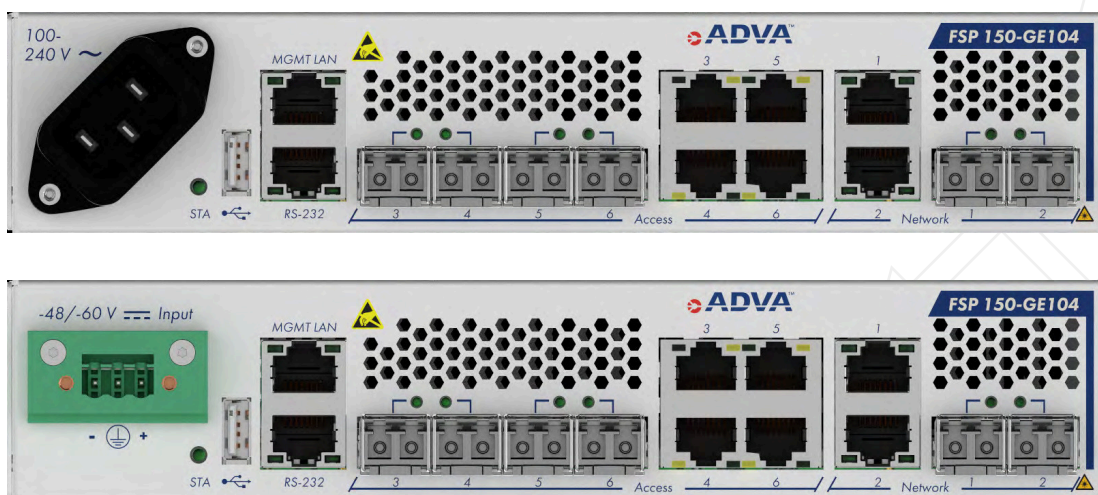
Your benefits

○ **Ideal for large-scale deployment**

Flexible and easy creation of SLA-compliant and MEF-certifiable Carrier Ethernet 3.0 services

○ **Low-touch provisioning and auto-config**

Unskilled craft personnel can install and turn up services without onsite provisioning

○ **Programmable interfaces**

Using NETCONF/YANG for control

○ **End-to-end service assurance**

Advanced demarcation technology for support of stringent SLAs and integration with a wide range of back-office support tools

○ **Ensemble management**

Fast service rollout and tracking of big amounts of ser vices

○ **Low power and low noise**

Fanless operation reduces power and noise; ideal for rack mount or desktop at remote office locations

High-level specifications

Capacity and interfaces

y Capacity: Four

10/100/1000BaseT or
100/1000BaseX (SFP) ports
y Network interfaces: Two
10/100/1000BaseT or
100/1000BaseX (SFP) ports

Ethernet services

y MEF-compliant SOAM and SAT
y 4096 VLANs - customer-tagged
and stacked VLANs
y tag management (push / pop /
swap) for c-tag and s-tag
y IEEE 802.1ad Provider Bridging

Resilience

y IEEE 8021.AX Link Aggregation

with active/standby mode with
optional load balancing
y ITU-T G.8032 Ethernet Ring
Protection Switching

Ethernet OAM

y EFM-OAM link management
y Connectivity fault management
(CFM) with hardware assistance
y ITU-T Y.1731 performance
monitoring
y ITU-T Y.1564 service activation
testing

Management

y Zero-touch / low-touch
provisioning
y Config backup and restore
y RADIUS / TACACS / SNMPv3
y Access control list (ACL)
y Dying gasp for power failure

Environmental

y ½ RU chassis, ETSI compliant
y Fanless operation
y Operating temp.: 0 to +55°C
y AC and DC variants

Applications in your network

Businessand wholesale services

y Large-scale mobile backhaul and wholesale offerings of intelligent MEF 3.0 Carrier Ethernet services compliant with the

latest OAM standards
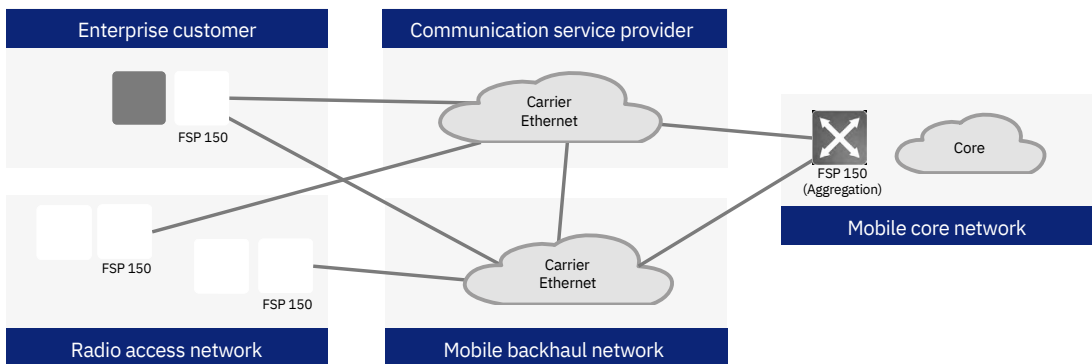
For more information please visit us at www.adva.com
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Product specifications are subject to change without notice or obligation.

Access capacity
y Four 10/100/1000BaseT or 100/1000BaseX (SFP) ports

Network interface
y Two 10/100/1000BaseT or 100/1000BaseX (SFP) ports
y One network port can be defined as an additional access port

Network interface redundancy
y IEEE 802.1AX Link Aggregation – active/standby mode with optional load balancing
y ITU-T G.8032 Ethernet Ring Protection Switching

VLAN support
y 4096 VLANs (IEEE 802.1Q customer-tagged) and stacked VLANs (Q-in-Q service provider tagged)
y 2-tag management (push / pop / swap) for c-tag and s-tag
y IEEE 802.1ad Provider Bridging (c-tag, s-tag)
y Ethertype translation
y Jumbo frames support up to 9612 Bytes

Traffic management
y Acceptable client frame policy: tagged or untagged
y Service classifi cation based on IEEE 802.1p, 802.1Q and IP-TOS / DSCP
y VLAN tag priority mapping (IEEE 802.1ad PCP encoding)
y MEF-compliant policing with token sharing bandwidth profiles
y Port shaping on transmit for both client and network ports
y MEF 10.3 Token Sharing
y Weighted-Fair Queuing
y ACL classification

Ethernet OAM
y IEEE 802.3ah EFM-OAM link management
y IEEE 802.1ag connectivity fault management (CFM) with hardware assistance
y ITU-T Y.1731 performance monitoring
y ITU-T Y.1564 service activation testing
y Terminal and facility loopbacks on port- and EVC-level for all interfaces
y Cable diagnostics with benchmarks (electrical interfaces)
y Embedded RFC 2544 test generator and analyzer (ECPA)
y MEF-compliant Layer 2 control protocol disposition and extensive filter options for Layer 2 packet types
y Link loss forwarding to signal local link and network path failures
y Dying gasp message for power failure alarming (EFM-OAM and SNMP trap option)

Low-touch provisioning
y DHCP / BOOTP auto-configuration
y Text-based configuration files
y TFTP for configuration file copy

Performance monitoring
y RFC 2819 RMON Etherstats on a per-port and per-service basis
y 15-minute and 1-day performance data bins
y ITU-T Y.1731 single- and dual-ended frame loss measurement
y Synthetic frame loss and delay measurement for multi-point service monitoring
y Threshold-setting and threshold-crossing alerts
y Physical parameter monitoring for SFP optics, including TCAs
y TWAMP-lite
y Temperature monitoring and thermal alarms

Management and security

Local management
y Serial connector (RJ45) using CLI
y Local LAN port (RJ45) using CLI, SNMP and Web GUI interfaces
y 3G / LTE USB interface

Remote management
y Maintains in-band VLAN and MAC-based management tunnels
y Fully interoperable with other FSP 150 products

Management protocols
y IPv4 and IPv6 DCN protocol stacks, including dual-stack operation and 6-over-4 tunnels
y Telnet, SSH (v1 / v2), HTTP / HTTPS, SNMP (v1 / v2c / v3)
y NETCONF

Secure administration
y Configuration database backup and restore
y System software download via FTP, HTTPS, SFTP or SCP (dual flash banks)
y Remote authentication via RADIUS / TACACS
y SNMPv3 with authentication and encryption
y Access control list (ACL)

IP routing
y DHCP, RIPv2 and static routes, ARP cache access control

System logging
y Alarm log, audit log and security log

Environmental
y Dimensions (W x H x D): 1RU compact chassis,
  – 220mm x 44mm x 212mm /8.7" x 1.75" x 8.4"
  – ETSI-compliant
y Operating temperature: 0 to +55°C
y Humidity: 5 to 95%, B1 (non-condensing)
y Integrated PSU, 110/240 VAC, -48 to -72VDC with over-voltage and over-current protection
y Maximum power consumption: 27W

ADVA™

Regulatory and standards compliance

y IEEE 802.1Q (VLAN), 802.1p (Priority), 802.1ag (CFM), 802.3ah (EFM), 802.1x

y ITU-T Y.1731, G.8010/Y.1306, G.8011.1+2, G.8012, G.8032

y MEF-6.1, -9, -10.2, -11, -14, -20, -21, -22.1, -23.1, -25, -26.1, -30, -33, -35, -36

y RFC 2863 (IF-MIB), RFC 2865 (RADIUS), RFC 2819 (RMON)

y MEF-compliant ITU-T Y.1564 service activation testing

y ANSI C84.1-1989

y ETSI 300 132-2, BTNR2511, ETS 300-019, ETS 300-019-2-[1,2,3], ETS 300-753

y EN 62368-1, 21CFR1040.10, EN 60825, EN 50371, EN 300-386, EN 50160, IEC 60320 / C14

y EMI EN 300-386, GR-1089-CORE, ETS 300-132,47 CFR Part 15 Sub Part B (FCC), EN 55032 Class B

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