The FSP product family provides comprehensive Optical+Ethernet networking solutions for access, metro core and regional networks. ADVA Optical Networking is focused on the needs of enterprise and service provider customers deploying data, storage, voice and video applications.

**FEATURES + BENEFITS**

- Ideal for E-Line and E-LAN services such as internet access, private line/LAN, VoIP, video, wireless backhaul, etc.; enables MEF certifiable services

- Etherjack® demarcation adds intelligence to Ethernet services – provides CSU/DSU or Smartjack® function for Ethernet services – reduces OPEX

- Supports Ethernet extension over fiber, copper, TDM/PDH or SONET/SDH – enables delivery of ubiquitous Ethernet services both in-region and out-of-region to address multi-site customer applications

- Etherjack Service Assurance (ESA) and Y.1731 provide in-service measurement of Ethernet frame delay, delay variation, dropped frames and service availability to support stringent Service Level Agreements (SLAs)

- Integrated RFC 2544 testing to verify SLA throughput, delay and delay variation under fully loaded worst-case conditions; ensures services are carrier-class

- In-band and out-of-band management options for remote management (CLI, GUI and SNMP) eliminate the need for truck rolls

The ADVA FSP 150 family of Ethernet access products supports Ethernet demarcation, extension and aggregation to enable delivery of intelligent Ethernet services both in-region and out-of-region. The family allows service providers to deliver profitable and differentiated Ethernet services ubiquitously.

Incorporating the latest OAM and advanced Etherjack® demarcation capabilities, the FSP 150CC products enable carriers to deliver intelligent Ethernet services that can be remotely monitored and managed with a minimal number of truck rolls. It provides the service intelligence necessary to encourage enterprise data users to make the switch from Frame Relay, Private Line and ATM services to a carrier-class Ethernet service.

The FSP 150CC family enables service providers to deliver ubiquitous Ethernet services by supporting a wide range of Ethernet transport options to allow the extension of Ethernet services over available fiber, copper, TDM/PDH and SONET/SDH facilities. It enables service providers to support multi-site enterprise applications over a variety of leased or owned facilities anywhere in the world, while providing a consistent Ethernet customer experience guaranteed by integrated Etherjack® demarcation.

As Ethernet networks scale, the FSP 150 family’s Network-to-Network Interface (NNI) demarcation shelf – the FSP 150CM – supports large scale wholesale or bulk retail applications with a modular shelf optimized for Central Office (CO) use and capable of supporting multiple services in a single shelf with a single management interface.

The optical interfaces of the FSP 150 product family can be equipped with a variety of different SFP modules supporting transmission distances up to 100km, single fiber working and WDM applications.

**ETHERJACK®**

ADVA Optical Networking’s patent-pending Etherjack technology allows a carrier to deploy profitable Ethernet services by providing an intelligent Ethernet demarcation point that includes an 802.1ag-, Y.1731-, RFC 2544- and 802.3ah-compliant Network Interface Device (NID) or Network Termination Equipment (NTE) unit for OAM functionality plus an MEF-certified User Network Interface (UNI) for providing advanced services definition. The NID supports Etherjack Service Assurance (ESA) and Y.1731 for in-service SLA monitoring critical for carrier-class Ethernet services. The Etherjack service UNI provides service intelligence necessary for defining CIR, EIR and burst size of individual ports, priorities or VLANs. ADVA Optical Networking’s unique demarcation function enables carriers to provide differentiated, profitable Ethernet services.
## ETHERNET OVER TDM

<table>
<thead>
<tr>
<th>Application</th>
<th>Service IF</th>
<th>Network IF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intelligent Ethernet service extension over leased copper-based local loop services up to 1.5 or 2Mbit/s</td>
<td>2 ports 10/100BaseT</td>
<td>DS1/E1 using Bridging Control Protocol (BCP/PPP), cHDLC, FR or GFP (1)</td>
</tr>
<tr>
<td>Intelligent Ethernet service extension over leased copper-based local loop services up to 12 or 16Mbit/s</td>
<td>3 ports 10/100BaseT, 1 port 10/100BaseT or 100BaseX</td>
<td>nxDs1/E1 (n up to 8) using GFP (1)/VCAT (2)/LCAS (3) or BCP/PPP/MLPPP</td>
</tr>
<tr>
<td>Intelligent Ethernet service extension over leased DS3/E3, services up to 45Mbit/s or 34Mbit/s</td>
<td>2 ports 10/100BaseT</td>
<td>DS3/E3 (1 or 2 bonded) using GFP (1)/VCAT (2)/LCAS (3) or X.86 LAPs encapsulation</td>
</tr>
<tr>
<td>Intelligent Ethernet service extension over 1 or 2 leased DS3s/E3s, services up to 90Mbit/s or 68Mbit/s</td>
<td>3 ports 10/100BaseT, 1 port 10/100BaseT or 100BaseX SFP</td>
<td>1+1 OC-3/STM-1 or 1+1 OC-12/STM-4 both using GFP (1)/VCAT (2)/LCAS (3) or X.86 LAPs encapsulation</td>
</tr>
<tr>
<td>Intelligent Ethernet service extension over leased SONET/SDH local loop services up to 622Mbit/s</td>
<td>4 ports 10/100BaseT, 1 port 10/100/1000BaseT or 100/1000BaseX SFP</td>
<td>1:1 100/1000BaseT or 1:1 100/1000BaseX SFP</td>
</tr>
</tbody>
</table>

**ITU-T standards:** 1) G.8040, 2) G.7043, 3) G.7042, 4) G.7041, 5) G.707

## NATIVE ETHERNET

<table>
<thead>
<tr>
<th>Application</th>
<th>Service IF</th>
<th>Network IF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intelligent Ethernet service demarcation and extension for fiber-fed medium/large businesses and Multi-Tenant Units (MTU) with stringent SLA requirements</td>
<td>1 port 10/100/1000BaseT or 100/1000BaseX SFP</td>
<td>1:1 100/1000BaseT or 1:1 100/1000BaseX SFP</td>
</tr>
</tbody>
</table>

## ADVA OPTICAL NETWORKING SOLUTIONS

- Long haul transport
- Metro core transport
- Packet optical transport
- Wireline backhaul
- Wireless backhaul
- Ethernet access
- Grid/Cloud computing
- SAN connectivity
- Corporate backbone
The ADVA FSP 150 family of Ethernet access products provides devices for Ethernet demarcation, extension and aggregation to support delivery of intelligent Ethernet services both in-region and out-of-region.

The FSP 150CC-825 provides Ethernet extension over fiber for service providers who are looking to deploy a more intelligent differentiated Ethernet service offering. The product includes a rich set of remote Operations, Administration and Maintenance (OAM) capabilities designed to eliminate truck rolls and provide remote visibility into Service Level Agreement (SLA) conformance. The devices can work in book-end applications, with ADVA Optical Networking aggregation devices and with industry-standard data switches, routers and other aggregation devices.

The FSP 150CC-825 can be used to support MEF-based services such as EPL, EVPL, E-LAN and E-tree both on-net and off-net. It is ideal for retail business Ethernet services, as well as wholesale services such as wireless backhaul. Low-touch provisioning capabilities ensure that un-skilled craft can install and turn-up services without any on-site provisioning.

With five Ethernet service ports and advanced service definition capabilities, the device is capable of supporting multiple customers and multiple services over a shared GbE or 100FX optical connection. Optional 1:1 WAN protection and redundant power supplies ensure high service availability for mission-critical applications. Individual customers and services are separated within the WAN utilizing a sophisticated UNI function that includes support for VLANs and Ethernet Virtual Circuits (EVCs). Small form-factor pluggable (SFP) optical devices address a wide range of optical fibers, reaches and wavelengths.

**ETHERJACK®**
ADVA Optical Networking’s patent-pending Etherjack technology allows a carrier to deploy profitable Ethernet services by providing an intelligent Ethernet demarcation point that includes an 802.1ag-, Y.1731-, RFC 2544- and 802.3ah-compliant Network Interface Device (NID) or Network Termination Equipment (NTE) unit for OAM functionality, plus an MEF-certified User Network Interface (UNI) for providing advanced services definition. The NID supports Etherjack Service Assurance (ESA) and Y.1731 for in-service Ethernet frame delay, delay variation, dropped frames and service availability to support stringent service level agreements (SLAs). The Etherjack service UNI provides service intelligence necessary for defining CIR, EIR and burst size of individual ports, priorities or VLANs. ADVA Optical Networking’s unique demarcation function enables carriers to provide differentiated profitable Ethernet services.

**FEATURES + BENEFITS**

- Ideal for EPL, EVPL E-LAN and E-tree services such as internet access, private line/LAN, VoIP, video, wireless backhaul, etc.; enables MEF-certifiable services

- Etherjack Service Assurance (ESA) and Y.1731 provide in-service measurement of Ethernet frame delay, delay variation, dropped frames and service availability to support stringent service level agreements (SLAs)

- 1:1 protected (LACP) WAN interfaces and redundant power supplies ensure high service availability (99.999%)

- Can operate as both a UNI at customer premises and as an NNI for inter-carrier or inter-maintenance region hand-offs; reduces the number of products required to deliver wholesale services

- Integrated RFC 2544 testing to verify SLA throughput, delay and delay variation under fully loaded worst-case conditions; ensures services are carrier-class

- In-band and out-of-band management options for remote management (CLI, GUI and SNMP) eliminate the need for truck rolls
For more information please contact an ADVA Optical Networking consultant or visit us at www.advaoptical.com