Datasheet

OSM

OSM105

## Optical Termination Unit

OSM105

Overview

OSM105 is an Ethernet Access small footprint carrier class Optical Terminate Unit (OTU) that provides flexible and secure fiber connectivity so important to carrier class Ethernet broadband providers.

It can be implemented as a high-end CPE platform for data communications and telecommunications applications covering FTTX. Its small physical dimensions and low heat signature make it ideal for the deployment of robust and secure networking and connectivity services using sophisticated Ethernet, QoS and Traffic Shaping hardware mechanisms. A variety of broadband WAN interfaces include 100Base-FX Fiber (single fiber, singlemode as well as multimode) and 10/100Base-TX Copper, and makes it fully adaptable to meet the connectivity needs of the broadband provider.

To address carrier-class management needs, OSM 105 incorporates an uprecedented secure management suite that ensures secure control and provision. In addition ,OSM 105 incorporates a special diagnostics technology for reducing maintenance expenses.

Applications

- Metro Access - Fiber to the X (FTTX)
- Multi Tenant Unit (MTU) application
- IP-TV for MDU
- Daisy chain transportation (highways, railways)
- Utility carrier (SCADA)
- Optical point to point lines
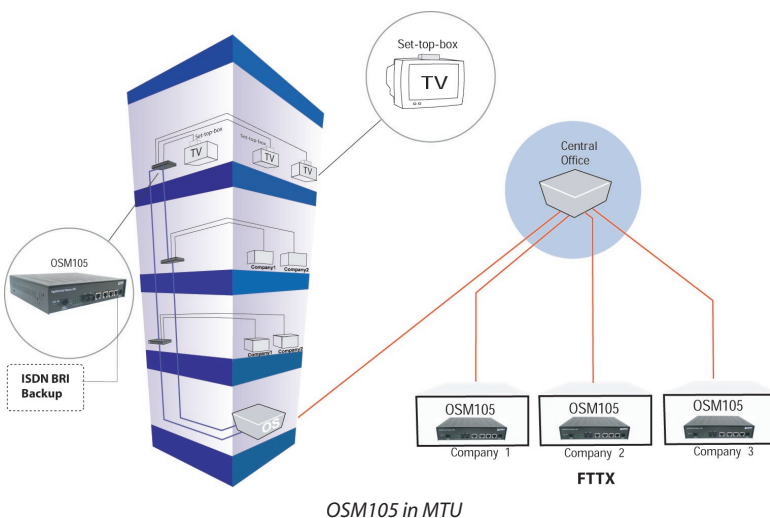
Advanced Ethernet Features

- Fixed 10/100Base-T (Auto MDI/MDIX) and 100Base-FX ports to up to 150 km for broadband WANs
- IEEE 802.1Q VLAN support for up to 64 VLANs
- VLAN Stacking VPN (VMAN)
- Outbound traffic shaping to WAN interface
- Rate limit protection for Unicast/Multicast/Broadcast packets
- QoS with four priority queues per port for management voice, video and data, with SLA support
- Queuing algorithms SP, WRR
- Classification by physical port IEEE 802.1p (VPT), ToS, DiffServ
- IPv6 traffic classification (ready platform)

IP Services

- Routing: IPv4, static routes, dynamic routing RIPv1, v2 and OSPF
- Scheduling of Access Control Lists (IP/TCP/UDP Source and Destination)
- Virtual Redundant Routing Protocol

Security

- Stateful inspection firewall
- Multi-user access to WAN – NAT/NAPT(PAT) for shared access
- SNAT - SNMP NAT , RTSP NAT

Management & Diagnostics Tools

- Layer 1 OAM for customer's connections
  - VCD™ (Virtual Cable Diagnostics TDR) on all RJ45 ports
- Remote port loopback
- CLI, Telnet, SSH v2, SNMPv1/v2c/v3, RMON 4 groups
  - Remote alarm and performance monitoring
- Ping, Trace route, DNS lookup, TCP dump (built-in sniffer)
- Management ACL for provider trusted connections
- Hierarchical Administration policy
- RADIUS AAA for management sessions
- Configuration load/save via TFTP
- NTP – Network Time Protocol
- Logging - Rsyslog
- DHCP Server/Client/Relay
- Event Scheduler

Set-top-box

TV

Set-top-box

TV TV TV

Central Office

OSM105

ISDN BRI Backup

Company1 Company2

OSM105 | OSM105 | OSM105
Company 1 | Company 2 | Company 3

FTTX

OSM105 in MTU

Demarcation Services

OSM105 enables a clear demarcation point between the user's and the service provider's networks, facilitating end-to-end Ethernet services with service level enforcement. Intelligent customer's service can be provisioned remotely from Network Operations Center (NOC) with configurable granular rates of up to 100Mbps. Incremental scalable bandwidth is achieved by performing traffic shaping on the WAN optical interface and offers predictable network traffic into the provider edge network.

VLAN/VMAN Services

Provider's Ethernet services differentiated and logically separated by means of the VLAN technology.

OSM105 offers VLAN stacking (Q-in-Q) that allows transparent LAN services by mapping the customer's VLAN traffic into the provider's service VLAN. This functionality provides layer 2 transparencies and eliminates the need of VLAN configurations coordination between the provider and the customer.

Differentiated Services

OSM105 used as a demarcation point for customer traffic will inspect various traffic flows and respect the marked traffic that can be queued to corresponding service level. This can be used to differentiate between packets that need fast and low delay processing, and between lower priority packets that can suffer longer delay in treatment (usually non realtime applications)

Security Services

OSM105 enables user-to-provider security services with a rich stateful inspection, and Network/Port Address Translation (NAT/PAT).

The statefull engine creates session flows based on source and destination addresses, dynamical sequence, port numbers and maintains information for each session flow in the connection table entries.

OSM105 facilitates two real-time video applications:

1. IP TV services (video multicasting)
2. Video on Demand services (real-time video streaming)

IP TV Services

IGMP multicast proxy feature and session flow maintainability are used extensively for delivering video content to a large number of subscribers over Fiber-to-the-Premises (FTTP). These networks typically have a single location called a head-end where all video content are processed, aggregated, encapsulated into IP (IP TV) and delivered to multiple destination hosts or video subscribers. In this application, each multicast group corresponds to a particular broadcast video channel. As subscribers watch different channels on their televisions, they tune their Set-Top-Boxes (STB), leaving or joining multicast groups that are associated to the various video channels. OSM105 functions as a snooping and proxy device. As a snooping device, it ensures that only the customer requesting the service receives it. As a proxy device, it snoops for 'join' and 'leave' requests of customers, builds a summary of required channels, and forwards the summary to the IGMP querier. This considerably reduces traffic load on the network. Thus a network can continue to function properly even for a large number of such groups.

Video on Demand Services

OSM105 can operate as an application level gateway for the Real Time Streaming Protocol (RTSP). RTSP is an application-level protocol for control over the delivery of data with real-time properties. RTSP provides a new generation video methodology to enable controlled, on-demand delivery of real-time data, such as audio and video. Sources of data can include both live data feeds and stored clips. For example, a typical network scheme will be Video on Demand (VoD) in which Set-Top-Boxes use Real Time Streaming Protocol (RTSP) and are configured with private IP addresses.

OSM105 session flow maintainability will assist in functioning as a gateway in NAT/PAT for private IP address translation, and as a proxy of dynamic application's ports used by the RTSP protocol for streaming content traversal.

Scheduling Services

OSM105 internal event scheduler offers time-based (time/day) automatic commands operation (touchless) that facilitates activation of security policy and maintenance events without human intervention.

Daisy chain transportation
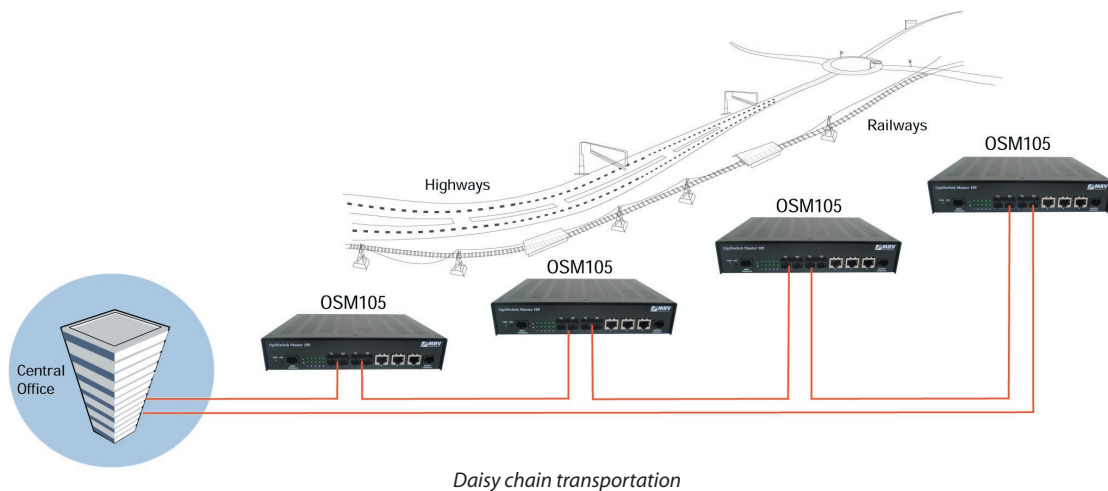
Monitoring Services

Network monitoring is an essential tool to debug network occurrences. OSM105 offers remote network monitoring and statistics collection of Layer 2 Ethernet frames and RMON 4 groups of network performance counters. In addition, layer 1 testing is incorporated by Virtual Cable Diagnostics (VCD™) a special tool that uses the time domain reflectometry (TDR) to diagnose cable and link problems on the OSM105's customer copper port. Because the L1/L2 aspects of Ethernet are closely coupled together, it is often not possible with today's Ethernet equipment to isolate at which layer a problem has occurred. This results in truck rolls to swap out equipment, cables, or interfaces in an attempt to fix the problem without really knowing what/where it is.

This dramatically increases operation costs and decreases the value proposition of Ethernet to service providers. The objective of VCD™

is to better manage and troubleshoot Ethernet circuits between the carrier's CPE and the customer's premises, so called the last 100m 100TX copper line. The VCD™ offers a simple command with which we can remotely analyze the copper lines and get a clear status of the following possible problems:

1. Report of cable shorts
2. Cut on a cable and its location
3. Impedance problems (connectors or bad quality cable)

OSM105 offers full remote access to the demarcation point, to remotely check the condition of the device , perform software upgrades and add new features to minimize OPEX (operational expenses).
This capability offers visibility into the customer premises to eliminate technician visits to customer's sites.

Technical Specifications Table

Standards Compliance	FCC part 15 Class A;CE-89/336/EEC,73/23/EEC
Environment	Operating Temp: 0 to 55⁰C/134⁰F for DC 0 to 50⁰C/122⁰F for AC
Humidity	95% maximum , non-condensing
Diagnostic LEDs	Port Status LEDs: port activity , link status. Global Status LEDs: Power status
Mounting	Wall- mount, 19" rack special trails
MTBF/ 25°C	OSM105-F 176051 Hr OSM105-2F 153097 Hr OSM105-T 205905 Hr
Physical Dimensions	OSM105-F/x: WxDxH (mm/in): 159.6 x 164.01 x 43.6 mm / 6.28 x 6.46 x 1.72 in. Weight (kg/lb) : 0.6 kg/1.71 lb OSM105-2F/x: WxDxH (mm/in): 185.9 x 173 x 43.6 mm / 7.32 x 6.81 x 1.72 in. Weight (kg/lb) : 0.6 kg/1.71 lb
Power Specifications	Power consumption(W) Max : 6W
Networking Standard compatibility	IEEE802.3 Ethernet IEEE802.3u Fast Ethernet IEEE802.1q VLAN Tagging IEEE802.1p Priority Queuing IEEE802.3x Flow Control	RFC 2475 An Architecture for DiffServ RFC 2597 Assured Forwarding PHB Group RFC 768 UDP RFC 791 IP RFC 792 ICMP RFC 2131 DHCP relay RFC 793 TCP RFC 826 ARP RFC 1122 Host Requirements RFC 2131 DHCP server/relay RFC 1812 IP Router RFC 1519 CIDR RFC 1058,2453, 2082 RIP v1,2 MD5 RFC 3164 Syslog RFC 2328 OSPF interoperable with RFC 1583 RFC 1587 OSPF - NSSA RFC 2328 OSPF - DB Overflow RFC 2328 OSPF - Opaque LSA RFC 2338 VRRP	RFC 783 TFTP RFC 959 FTP RFC 854 Telnet RFC 2865 RADIUS Authentication RFC 2866 RADIUS Accounting RFC 1591 DNS client RFC 1157 SNMP v1,2 RFC 2571,2572, 2573,2574,2575 SNMPv3 RFC 1213 MIB II RFC 1643 Ethernet MIB RFC 1493 Bridge MIB RFC 2037 Entity MIB RFC 2863 IF.MIB RFC 1284 Etherlike RFC 1757 RMON 4 groups RFC 1724 RIP MIB RFC 1850 OSPF MIB RFC 2787 VRRP MIB

Optical Interfaces Specifications

Fast Ethernet DSC/M	Min. Out Power (dBm)	Min. Out Power (dBm)	Receiver Sensitivity (dBm)	Receiver Saturation (dBm)	Wavelenght (nm)	F/O Power Budget (dBm)	Distances (Km)	Cable
Fast Ethernet DSC/M	-20	-14	-30	-14	1310	5	0 - 2	MM
Fast Ethernet DSC/S1	-15	-7	-31	-7	1310	13	0 - 25	SM
Fast Ethernet DSC/S2	-5	0	-31	-5	1310	23	25 - 50	SM
Fast Ethernet DSC/S3	-5	0	-34	-4	1550	26	50 -100	SM
Fast Ethernet DSC/S4	0	3	-37	-3	1550	34	50 -150	SM
Fast Ethernet - Single Fiber (13) /S1	-15	-8	-33	-3	1310/1550	13	0 - 20	SM
Fast Ethernet - Single Fiber (15) /S1	-15	-8	-33	-3	1550/1310	13	0 - 20	SM

Ordering Information	**Ethernet Access OTU - 5 10/100Base-Tx ports**	
	OSM105-T	Ethernet Access OTU-5 10/100Base-TX, AC power supply
	Ethernet Access OTU - 4 10/100Base-Tx ports and 100Base-FX Fiber	
	OSM105-F/#	Ethernet Access OTU - 4 10/100Base-TX LAN and 1 100Base-FX WAN , AC power supply
	Ethernet Access OTU - 3 10/100Base-Tx ports and 2 100Base-FX Fiber	
	OSM105-2F/#	Ethernet Access OTU - 3 10/100Base-TX LAN and 2 100Base-FX WAN , AC power supply
	Ethernet Access OTU - 4 10/100Base-Tx ports and 1 100Base-FX Single Fiber	
	OSM105-SF3S1	Ethernet Access OTU - 4 10/100Base-TX LAN and 1 100Base-FX Single Fiber (SM; Tx 1310nm, Rx 1550nm; 0-20km; SC), AC power supply
	OSM105-SF5S1	Ethernet Access OTU - 4 10/100Base-TX LAN and 1 100Base-FX Single Fiber (SM; Tx 1550nm, Rx 1310nm; 0-20km; SC), AC power supply
	Accessories	
	EM105-WBR	Wall mounting bracket
	EM105-BR	19" mounting bracket

\#   MM, S1, S2, S3, S4 100Base Fx DSC optics (please refer to distances and optical spec table)
*   For DC power supply please add /DC to above part number
    DC options : 12VDC, 24VDC, 48VDC