

STM SDH 1/4/16 ADM Multiplexers

Spectrum next-generation SDH/SONET equipment offer state-of-the-art STM-1, STM-4 and STM-16 multiplexers with full-drop capabilities in each product. MADM (Multi-Add Drop Multiplexer) capabilities allow a single Network Element to replace multiple ADMs (Add Drop Multiplexers), allowing the service provider to build a simplified network. All products are based on the same software base, thus simplifying network management and share the same tributary cards, thus easing inventory management. The above features allow the service providers to build the most optimal network to suit their current requirements and to make easy upgrades (software and hardware) to their network in the future.

Type of Interfaces available

- E1/DS1
- DS3
- STM-1e (STM-1 electrical)
- STM-1/4
- STM-4/16
- GigE (Gigabit Ethernet)
- E3
- 10/100 Mbps Ethernet
- STM-1o (STM-1 optical)
- STM-4
- STM-16

Product Highlights

- Compliant to latest ITU-T standards- Standards-based Ethernet-over-SDH/SONET
- Same platform supports both SDH and SONET standards Support for Low-order and High-order Virtual Concatenation (VCAT), GFP& LCAS
- All products are wideband(VT1.5/VC12) cross connects
- Embedded software intelligence supporting auto-discovery of network topology, automated end-to-end provisioning and Customer Network Management (CNM) through an easy-to-use Network Management System (NMS)
- Common tributary cards that can be shared across multiple platforms
- Support for data features such as Packet Switching and Multi Protocol Label Switching (MPLS) encapsulation
- Support for wide variety of optics (including SFPs)
- Support for various management/interoperability options such as DCC,F1, F2/F3, VC12 or E1 management
- High-end Data capabilities Integrated Layer-2 functionality - Solution for Ethernet transport over SDH/SONET supports layer-2 Switching, thus no separate Ethernet switch is required.
- Designed to meet global safety/EMI standards

Product Applications

Spectrum products have a wide range of applications, for Optical transport as well as the Digital Cross Connect market. Spectrum products are currently being extensively used for applications in

- Access networks
- Regional Backbone
- Wireless backhaul
- Ethernet LAN over SDH WAN
- Customer Premise equipment carrying TDM as well as Ethernet traffic
- Multiple-ADMs (MADM) and Wideband DXC for superior bandwidth management and utilization
- Optical transport for Digital Loop Carrier (DLC)

STM-1 Multi-Service Provisioning Platform

The VCL100MC-1 Multi-Service Provisioning Platform (MSPP) is a compact, leading edge, and yet practical bandwidth provisioning equipment designed to meet low or medium capacity bandwidth service demands.

This unique product is part of a family of Multi-Service Provisioning Platform and Access Nodes. The VCL100MC-1 MSPP also supports end-to-end provisioning and management of voice and data services across all the segments of the optical network - from the customer premises to the core. It combines innovative optical networking software with the intelligence of SDH to deliver a flexible solution to today's service providers.

The VCL100MC-1 can be configured as Terminal Multiplexers (TMUX) or Add-Drop Multiplexers (ADM), with mix-and-match tributary interfaces at E1, E3, DS3 or 10 Mbps Ethernet service interfaces. The product has a built in non-blocking cross connect at VC-3 and VC-12 granularity for efficient traffic grooming.

In view of the growing demand for packet services, VCL100MC-1 provides rate controlled 10/100 Base-T interfaces to carry inter-office traffic from corporate LANs, campus networks, or from Internet Service Providers.

STM-1/4 Multi-Service Provisioning Platform

The VCL100MC-4L is a carrier-class, cost-effective and modular bandwidth provisioning equipment designed to manage and derive services from the optical core to access. The product supports end-to-end provisioning and management of services across all segments of the optical network. It combines innovative optical networking software with the resilience of SDH to deliver a flexible solution to today's service providers.

The VCL100MC-4L can be configured as a Terminal Multiplexer (TMUX), Add-Drop Multiplexer (ADM), Regenerator, In-Line Amplifier or as a stand-alone Cross Connect (DXC). A variety of service interfaces such as E1/DS1, E3/DS3, E4, STM-1e/o and 10/100 Mbps Ethernet tributary interfaces and trunk interfaces at STM-1/4 rates are supported. The product features non-blocking cross connect at VC-3, VC-4, and VC-12 granularity and supports drop-and-continue functionality. A single 11U chassis can provide upto 252E1 drops or a 16x16 STM-1 DXC.

STM-1/4/16 Multi-Service Provisioning Platform

The VCL100MC-16X is a cost-effective and modular STM-16 SDH multiplexer equipment designed to manage and derive services from the optical core to access. The product supports end-to-end provisioning and management of services across all segments of the optical network. It combines innovative optical networking software with the resilience of SDH to deliver a flexible solution to today's service providers. The product is well suited for backbone and high-speed links. As traffic demand grows, the product ensures a smooth upgrade by allowing support for DWDM interfaces as well.

The VCL100MC-16X can be configured as a Terminal Multiplexer (TMUX), Add-Drop Multiplexer (ADM), Regenerator or as a Cross Connect (DSC) in various configurations with E1/DS1, E3/DS3, E4, STM-1e/1o, STM-4 and 10/100/1000 Mbps Ethernet tributary interfaces and trunk interfaces at STM-4/16 rates. The product has built-in non-blocking cross connect at VC-3, VC-4 and VC-12 granularity equivalent to 128 x 128 STM-1's and supports drop-and-continue functionality. As transmission networks are being gradually dominated by data traffic, VCL100MC-16X provides 10/100/1000 Base-T interfaces to carry inter-office data traffic from a corporate LAN, traffic from an ISP, DSL or cable networks.

Network Management System (optional - Extra)

The powerful Point-and-click provisioning (PNCP) application tool enables service providers to roll out new revenue generating services in record time. This is accomplished through auto discovery of network elements as and when they are added to the network, and in addition, auto discovery of optimized network topology and path for a given end-to-end circuit.



VCL100MC-1



VCL100MC-4



VCL100MC-16X

VCL100MC-1	VCL100MC-4	VCL100MC-16X
STM-1 SDH Add-Drop Multiplexer	STM-1/4 SDH Add-Drop Multiplexer	STM-1/4/16 SDH Add-Drop Multiplexer
<p>Network Topology</p> <ul style="list-style-type: none"> Linear, Ring <p>Network Element Configurations</p> <ul style="list-style-type: none"> Add-Drop Multiplexer (ADM) Terminal Multiplexer (TMUX) <p>Aggregate Interfaces</p> <ul style="list-style-type: none"> 2 x STM-1 e/o S1.1, L 1.1, L 1.2 (ITU-T G957 compliant) <p>Tributary Interfaces</p> <ul style="list-style-type: none"> E1/DS1, E3/DS3 STM-1o/e <p>Ethernet Interfaces</p> <ul style="list-style-type: none"> 8 port 10/100 Ethernet LCAS GFP/ X.86 Lower and Higher Order Virtual Concatenation Full/half duplex, auto-negotiation <p>Cross Connect</p> <ul style="list-style-type: none"> 252x252VC-12 4x4 STM-1 Fully non-blocking Line-to-Line, Line-to-Tributary, Tributary-to-Line, Tributary-to-Tributary <p>Timing & Synchronization</p> <ul style="list-style-type: none"> Timing & Synchronization of System as per ITU-T G.813 Internal oscillator capable of supplying an ITU-T G.813 compliant Stratum -3E <p>Protection</p> <ul style="list-style-type: none"> SNCP/1+1 MSP (as per ITU-T G.841) VC-12 level path protection <p>OrderWire Support, Alarms and User Data Channel</p> <ul style="list-style-type: none"> E1/E2 bytes used optionally for Express OrderWire (Omnibus/Selective calling facilities) F1 byte for user data channel Five potential-free outputs and two potential-free inputs <p>Physical Dimensions</p> <ul style="list-style-type: none"> Dimensions (H x W x D): 132 mm x 438 mm x 230 mm Weight: 5.5 Kg (max. Configuration) <p>Environmental</p> <ul style="list-style-type: none"> Operating Temperature: 0°C to 50°C Relative Humidity: 10% to 90%, non condensing <p>Power Supply</p> <ul style="list-style-type: none"> - 48V DC nominal, - 36V to - 60V Power consumption – less than 35W (without Ethernet interfaces) 	<p>Network Topology</p> <ul style="list-style-type: none"> Linear, Ring, Mesh <p>Network Element Configurations</p> <ul style="list-style-type: none"> Digital Cross Connect (DXC) Add-Drop Multiplexer (ADM) Terminal Multiplexer (TMUX) In-Line Amplifier Regenerator <p>Aggregate Interfaces</p> <ul style="list-style-type: none"> 2 x STM-1/4 1310 or 1550 nm (ITU-T G.967 compliant) S/L 1.1, S/L 1.2, S/L 4.1, S/L/W/U 4.2 <p>Tributary Interfaces</p> <ul style="list-style-type: none"> E1/DS1, E3/DS3, E4 STM-1o/STM-1e 10/100 Ethernet Interfaces <p>Cross Connect</p> <ul style="list-style-type: none"> 1008 x 1008 VC-12 Fully non-blocking Line-to-Line, Line-to-Tributary, Tributary-to-Line, Tributary-to-Tributary <p>Protection</p> <ul style="list-style-type: none"> SNCP, 1+1 MSP (as per ITU-T Rec.G.841) VC-12, VC-3 level path protection Optional hardware redundancy: Power Supply, System Control Unit, Cross-connect and Aggregate Card 1:3 E1 tributary protection <p>Power Supply</p> <ul style="list-style-type: none"> Power Input: - 48V DC nominal, - 40V to - 60V DC Power consumption – less than 70W <p>Timing & Synchronization</p> <ul style="list-style-type: none"> Timing & Synchronization of System as per ITU-T Rec. G.813 Internal oscillator capable of supplying a G.813 compliant Stratum - 3 SEC <p>OrderWire Support</p> <ul style="list-style-type: none"> E1/E2 bytes used for Express OrderWire (Omnibus/Selective calling facilities) F1 byte for user data channel <p>Physical Dimensions</p> <ul style="list-style-type: none"> Dimensions (H x W x D): 485 mm x 435 mm x 268 mm can be mounted on a 19" or 23" or 600 mm rack Weight: 6kg (12 kg fully loaded) <p>Environmental</p> <ul style="list-style-type: none"> Operating Temperature: -5°C to 50°C Relative Humidity: 10% to 90%, non condensing 	<p>Network Topology</p> <ul style="list-style-type: none"> Linear, Ring, Mesh, Bus <p>Network Element Configurations</p> <ul style="list-style-type: none"> Add-Drop Multiplexer (ADM) Terminal Multiplexer (TMUX) Regenerator STM-1/4/16 Cross Connect <p>Aggregate Interfaces</p> <ul style="list-style-type: none"> STM-16: S16.1, L16.1, L16.2, DWDM STM-4: S4.1, L4.1, L4.2 STM-1: S1.1, L1.1, L1.2 <p>Electrical Interfaces</p> <ul style="list-style-type: none"> PDH Interfaces: E1/DS1, E3/DS3, E4 SDH Interfaces: STM-1e Data Interfaces: 10/100/1000 Interfaces <p>Cross Connect</p> <ul style="list-style-type: none"> Up to 128 x 128 STM-1 equivalent Fully non-blocking at VC-12, VC-3 and VC-4 granularity Line-to-Line, Line-to-Tributary, Tributary-to-Line, Tributary-to-Tributary <p>Power Supply</p> <ul style="list-style-type: none"> -48V DC nominal, -36V to -60V -40Vto -60V DC Power consumption – less than 300W <p>Physical Dimensions</p> <ul style="list-style-type: none"> (H x W x D): 620 mm x 435 mm x 290 mm Can be mounted on a 19" or 23" or 600 mm rack <p>Network Protection</p> <ul style="list-style-type: none"> SNCP, 1+1 MSP MS-SPRing VC-12, VC-3 level path protection <p>Optional Hardware Redundancy</p> <ul style="list-style-type: none"> Power Supply redundancy Cross Connect, Timing and Control System Redundancy <p>Timing & Synchronization</p> <ul style="list-style-type: none"> Timing & Synchronization of System as per ITU-T Rec. G.813 Internal oscillator capable of supplying a G.813 compliant Stratum - 3 SEC <p>Environmental</p> <ul style="list-style-type: none"> Operating Temperature: -5°C to 50°C Relative Humidity: 10% to 90%, non condensing