

### Product Overview

Orion's VCL-1043-STM-1/4 SDH Multiplexer and GigE-SDH Aggregator' is the compact Multi-Service Access Platform (MSAP) that offers Gigabit (Optical and Electrical ports), Ethernet (FE), STM-1, STM-4 and E1 aggregation functions. The Gigabit and SDH uplink (network side) interfaces can provide simultaneous services.

The VCL-1043-STM-1/4 SDH Multiplexer and GigE-SDH Aggregator complies to relevant ITU-T standards. This cost-effective and flexible multi-service platform supports STM-1 / STM-4 level uplink (networks side) ports and various optional downlink (customer side) ports to provide E1, optical, Ethernet over SDH and Ethernet over PDH traffic access and aggregation.

The TDM traffic in SDH/MSTP network and the packet traffic in IP network can be distributed and aggregated in the STM-1/4 SDH Multiplexer and GigE-SDH Aggregator.

The VCL-1043-STM-1/4 SDH Multiplexer and GigE-SDH Aggregator allows time-slot cross-connection and IP data switching facility. With the ability of connecting various network topologies, reliable self-healing mechanism and unified intelligent management system, the product is suitable for enterprise access, private network interconnection, mobile base stations connection and video monitoring applications.



### Highlights

- ✓ Supports Four Gigabit Ethernet interfaces (UTP / SFP)
- ✓ Supports GFP (G.8040, G.7041 / Y.1303), VCAT (G.7043) and LCAS (G.7042) encapsulation
- ✓ Supports Non-blocking switching for granularity VC-12/ TU3/ VC4
- ✓ Supports MEF-9 and MEF-14 compliant for EPL, EVPL, E-LAN
- ✓ Supports Enhanced Ethernet traffic management with hierarchical QoS, includes:
  - ✓ DSCP based QoS
  - ✓ 802.1p based QoS
  - ✓ VLAN based QoS
  - ✓ Port based flow control.

### Features

- **Structure**
  - › 3U height, 19 Inch width standard, 9 card slots.
  - › LVDS clock-free backplane, independent SDH bus and GE bus architecture
- **Ethernet uplink (network side) cards**
  - › Up to 2 GE optical ports and 2 GE electrical ports.
  - › Aggregate 1000M Ethernet traffic from up to 3 downlink (customer side) cards
- **SDH uplink (network side) cards**
  - › Up to 2 x STM-1 / STM-4 interfaces.
  - › 32VC4 x 32VC4, 96TU-3 x 96TU-3, 2016VC12 x 2016VC12 non-blocking cross-connect.
  - › Single / double terminal 1+1 linear Multiplex Section Protection and SNCP Protection.
  - › Point-to-point, chain and ring network topology support.
- **Downlink (customer side) cards**
  - › SDH optical tributary, E1, Ethernet over SDH and Ethernet over SDH downlink (customer side) cards.
  - › Communication with the remote Ethernet media converter, SDH and MSTP terminals.
  - › Supports 1+1 path protection.
  - › Supports embedded E1 BERT testing function.
- **Timing**
  - › Traces any timing source of STM-1/4 uplinks or STM-1 optical tributaries, or external timing source.
  - › Supports External timing output.
  - › The timing source can be switched manually or automatically.
  - › Supports free-running, tracing and hold-over modes.
- **System Management**
  - › Supports network management system.
  - › Supports DCC and EXM (Extended E1 interface for management) channel for communication between gateway and elements.
  - › Supports DCN channel for the communication between gateway and server.
  - › Supports SNMP\_V1 and SNMP\_V2 protocol.
  - › Supports local and remote firmware online update without disturbing existing traffic.
  - › Provides top-mounted aural-visual alarm output.
- **Applications**
  - › STM-1 SDH Multiplexer
  - › STM-4 SDH Multiplexer
  - › Gigabit Ethernet Uplink / Downlink Aggregator
  - › FE / Gigabit Ethernet over SDH
  - › IP Video Aggregator
  - › Media Converter Aggregator.

## Technical Specifications

### Network Topology

- Point to point
- Chain
- Mesh
- Ring

### Network Element Configurations

- Add-Drop Multiplexer (ADM)
- Digital Cross-Connect (DXC)
- Terminal Multiplexer
- Regenerator

### Uplink (Network Side) Interfaces

- STM-1: S1.1, L1.1, L1.2
- STM-4: S4.1, L4.1, L4.2
- Gigabit Ethernet Optical
- Gigabit Ethernet Electrical

### Downlink (Customer Side) Tributary Interfaces

- STM-1: S1.1, L1.1, L1.2 (Upto 200 Kms.)
- STM-1e
- E1 (Both 120 Ohms and 75 Ohms)
- 10 / 100 Base-Tx (Fast Ethernet Electrical)
- 100 Base-Fx (Fast Ethernet Optical)
- 1000 Base-T (Gigabit Ethernet Electrical)
- 1000 Base-Lx / 1000 Base-Fx (Gigabit Ethernet Optical)

### Electrical Interfaces

- PDH Interfaces: E1
- Data Interfaces: 10/100/1000 Ethernet Interfaces (Both EOS and EOP technology)

### Cross-Connect

- 32 x 32 - VC4
- 96 x 96 - TU3
- 2016 x 2016 - VC12
- Fully non-blocking at VC-12, TU-3 and VC-4 granularity
- Line-to-Line, Line-to-Tributary, Tributary-to-Line, Tributary-to-Tributary
- Power consumption - less than 200W

### Power Supply

- -48V DC nominal, -36V to 72V (1+1 redundancy option available)
- 220V AC nominal, 85V to 264V (1+1 redundancy option available).

### Network Protection

- Single/double terminal 1+1 linear Multiplex Section Protection and SNCP protection.

### Operations Interface

- Network Management platform based on C/S architecture
- DCC and EXM (Extended E1 interface for management) channel for communication between gateway and elements
- DCN channel for the communication between gateway and server
- SNMP\_V1 and SNMP\_V2 protocol
- External alarm interface and indicators.

### Maintenance

- Higher-order and Lower-order POH, SDH/SONET level alarms
- Performance monitoring as per ITU-T Rec. G.826 and G.784
- Loop-back function
- Embedded E1 BERT function
- Remote firmware update.

### Physical Dimensions

- 3U high, 19" Width

### Optional Hardware Redundancy

- Power Supply redundancy

### Timing & Synchronization

- Timing & Synchronization of System as per ITU-T Rec. G.813
- Free-running, Tracing and Hold-Over modes
- Traces any timing source of STM-1/4 uplinks or STM-1 optical tributaries, or external timing source
- External timing output.

### User Data Channel

- User (RS232) data channel

### Environmental

- Operating Temperature: -5°C to 50°C
- Storage Temperature: -40°C to 70°C
- Relative Humidity: 10% to 95%, non condensing.

Technical specifications are subject to changes without notice.

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Revision 1.3 - Jan 04, 2014

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