

# VALIANT COMMUNICATIONS LIMITED



## VCL-Ethernet over SDH (Ethernet over STM-1)

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### Product Brochure & Data Sheet

#### INDIA

##### Valiant Communications Limited

71/1, Shivaji Marg, New Delhi - 110015, India  
**Phone:** +91-11 4105 5601, +91-11 4105 5602,  
+91-11 4105 5603, +91-11 2592 8415,  
**Fax:** +91-11 4105 5604, +91-11 2543 4300  
**E-mail:** [getinfo@valiantcom.com](mailto:getinfo@valiantcom.com)  
**Website:** <http://www.valiantcom.com>

#### U.S.A.

##### Valiant Communications & Technologies Inc.

4000 Ponce de Leon, Suite 470  
Coral Gables, FL 33146  
United States of America  
**E-mail:** [fl@valiantcom.com](mailto:fl@valiantcom.com)  
**Website:** <http://www.valiantcom.com>

#### U.K.

##### Valiant Communications (UK) Ltd

1, Acton Hill Mews, 310-328 Uxbridge Road,  
London W3 9QN  
United Kingdom  
**E-mail:** [uk@valiantcom.com](mailto:uk@valiantcom.com)  
**Website:** <http://www.valiantcom.com>

## Product Overview

Valiant's VCL-Ethernet-over-SDH provides a simple, cost effective and compact solution to convert 10/100BaseT data interface on the user side and transport Ethernet traffic over a STM-1 SDH link and reconstruct the data back to ethernet frame format, at remote end. The converter is an effective method for converting and transporting 10/100BaseT ethernet data over an STM-1 (SDH) link.



**VCL-Ethernet over SDH**

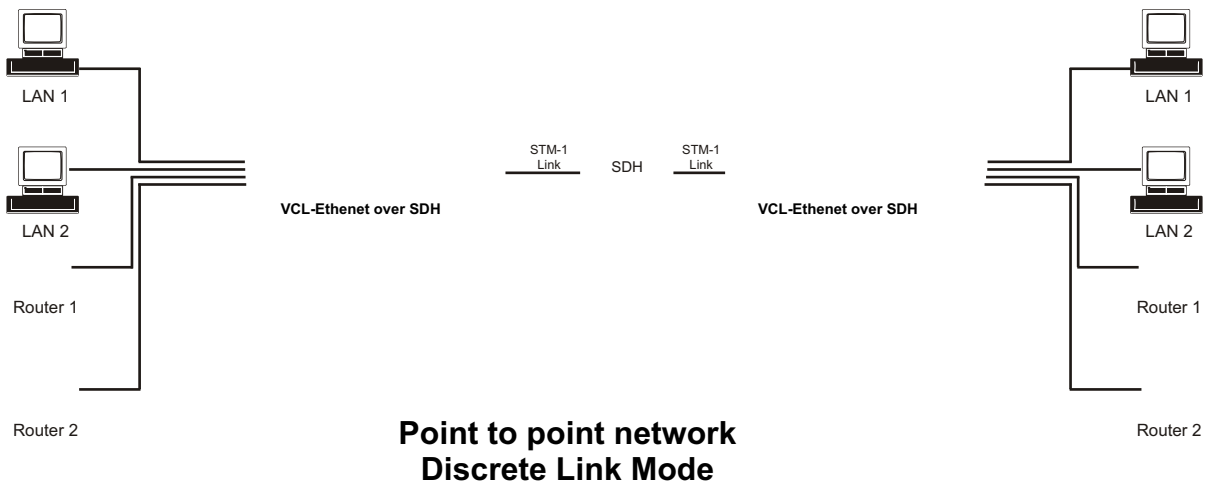
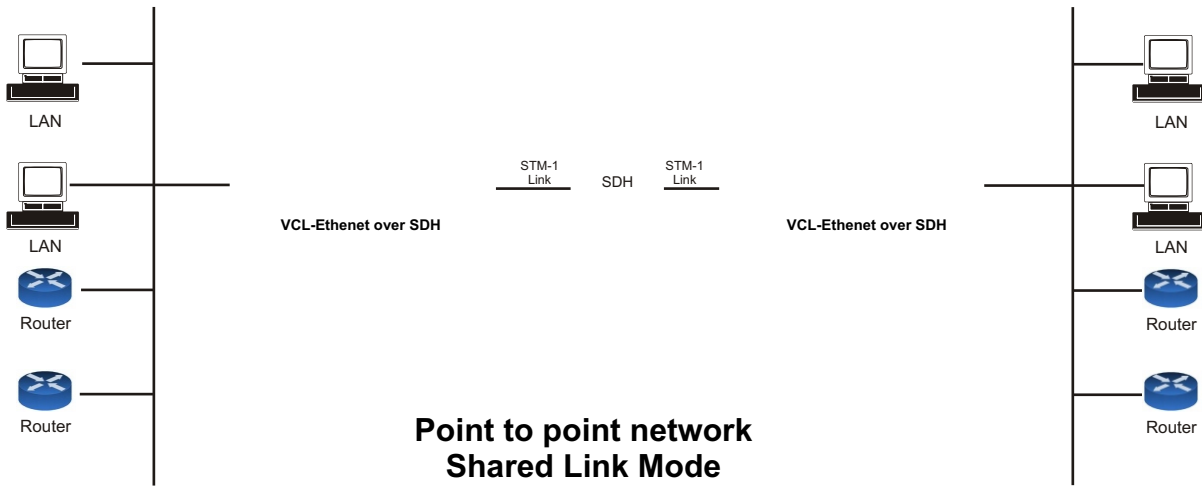
## Features and Highlights:

- Compact 1U height, 19-Inch standard chassis ideal for rack mounting
- Service interfaces
  - 2 x STM-1 optical interfaces, SFP optical module (LC connector)
  - 2 x STM-1 electrical interfaces, SFP electrical module (Mini BNC connector) (optional)
  - 4 x 10/100BaseT Ethernet (electric) interface
  - 1 x GigE (GigaBit) Ethernet (optical) interface (optional)
- Management and Maintenance Interfaces
  - TCP/IP Management Interface for Telnet and SNMP
  - RS232 Serial Management Interface
  - SNMP based NMS inbuilt with Windows XP / Windows Vista compatible Graphical User Interface (GUI)
  - SNMP V2 Management and Monitoring
  - Engineering Order Wire (EOW) Interface (RJ-11)
- Timing mode
  - Synchronization with STM-1 line timing
  - External timing source option - 120 Ohms 2MBps (External Bits Clock)
  - External timing source - 120 Ohms 2MHz (External TTL Clock)
  - Internal Clock - ITU-T G.813 internal oscillator
  - The timing source can be auto-switched according to default or operator programmed settings
- Ethernet Standards Conformity:
  - Generic Framing Procedure GFP-F compliant with ITU-T G.7041
  - VCAT compliant with ITU-T G.707 and LCAS compliant with ITU-T G.7042
  - Ethernet flow control on WAN Port and LAN Port
  - Maximum Frame Size : 1536 bytes
  - Auto MDI/MDI-X for Ethernet Interfaces.

**Features and Highlights:**

- Supports 1+1 Line Protection and Automatic Protection Switching (APS) with less than 50ms recovery
- Supports Remote Power Down Detection (RPD) and Auto Laser Shutdown (ALS)
- Supports STM-1 loop-back for troubleshooting
- Supports management based on CLI commands via RS232 interface and TELNET
- Redundant power supply (-48V DC) option available
- Power consumption less than 20W
- Providing standard STM-1 Electrical interface compliant to G.664 standard
- 4 x Ethernet Ports - electrical
- Supports 802.1Q based VLAN tagging
- Supports Port based VLAN tagging
- Dual or single fiber transmission supported
- 1310nm wavelength and 1550nm wavelength supported
- Ethernet mapping adopts GFP/VC-12 virtual concatenated technology; according with MSTP criterion
- Provides Ethernet over SDH mapping through standard GFP and VC-12 virtual concatenation (VCAT).
- EoS bandwidth can be adjusted between 2M~100M by set the number of VC-12s (1~48) through management software.
- Supports MAC Address list filtration, learning and updating function
- Easy to operate

## Network Application



**Technical Specifications:**

Item		Criterion
Interface	STM-1 SDH Optical Port	G.957, framing G.707
	Electrical Ethernet Port	IEEE 802.3 100Base-Tx
Timing	SDH	G.813, G.825

<b>Network topology</b>	Point to point network
<b>Service interface</b>	STM-1 SDH single optical or double optical ports (1+1 protection) supported - 10/100BaseT Ethernet
<b>Clock mode</b>	Line clock or internal high precision oscillation can be selected

**SDH signal interface:**

<b>Bit rate</b>	155520 kbit/s (STM-1 G.957, framing G.707)
<b>Line code</b>	Scrambled NRZ
<b>Optical ports</b>	1 or 2 optical ports selected

**Optic interfaces available**

Type	Wavelength (nm)	Mean launched power (dBm)	Receiver sensitivity (dBm)	Receiver overload (dBm)	Connector	Configuration
Double fibers ,two directions	1310	-8 ~ -12	- 36	-3	SC	Standard (S1.1)
	1310	0 ~ -5	- 36	-3	FC or SC	Selected (L1.1)
Single fiber, one direction	1310 / 1550	-8 ~ -14	- 30	-3	FC or SC	Selected
	1310 / 1550	0 ~ -5	- 30	-3	FC or SC	Selected

**STM-1 electrical interface**

Data Rate	155.52 Mbps
Standard	ITU-T G.703 Compliant
Line Code	CMI
Physical Connector	Mini BNC
Automatic 1+1 line protection	Less than 50 ms switching / recovery

**STM-1 optical interface**

Data Rate	155.52 Mbps
Standard	ITU-T G.967 compliant
Bit rate	155.520Mbps
Coding	NRZ
Connector	LC
Light source	Class 1 Laser
Wave length	1310nm or 1550nm (optional)
Transmit power	S 1.1, L 1.1, L 1.2 (- 11 dBm to - 2.5 dBm - as may be ordered)
Receive sensitivity	S 1.1, L 1.1, L 1.2 (- 28 dBm to - 34 dBm - as may be ordered)
Automatic 1+1 Line Protection	Less than 50 ms switching / recovery
Automatic Laser Shut Down Option	User selectable options

**Ethernet Interface Specification: 10/100BaseT (Electrical)**

Interface Types	10/100BaseT
VCAT Compliance	ITU-T G.707
LCAS Compliance	ITU-T G.7042
GFP-F	ITU-T G.7041
Frame Size	1536 bytes
Transmission Bit Rate	10/100BaseT
Connectors	RJ-45 (10/100 BaseT Electrical)

**Ethernet data port**

<ul style="list-style-type: none"> <li>• 4 100Base-Tx Ethernet ports. Comply with IEEE 802.3 specifications</li> </ul>
<ul style="list-style-type: none"> <li>• 10M/100M, Half duplex/full duplex auto-adapted</li> </ul>
<ul style="list-style-type: none"> <li>• Ethernet data rate can be adjusted from 2M to 100M</li> </ul>
<ul style="list-style-type: none"> <li>• MDI and MDI-X auto-adapted (automatic cross-parallel cable recognition)</li> </ul>
<ul style="list-style-type: none"> <li>• Connectors: RJ-45 socket</li> </ul>
<ul style="list-style-type: none"> <li>• 802.1Q MAC packet transparent transmission supported</li> </ul>
<ul style="list-style-type: none"> <li>• Maximum size: 1536 byte</li> </ul>

**Clock Synchronization Options :**

Clock Synchronization options	Internal Clock
	STM-1 line clock
	External 2 Mbps clock source
	External 2 MHz clock source

**Engineering Order Wire (EOW) :**

Engineering Order Wire (EOW)	RJ-11 connector
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**NMS:**

Windows XP / Windows Vista compatible
SNMP V2 based NMS

**Power Supply Options:**

DC Mains Input	- 48VDC (range 40V DC to 60V DC)
Power Consumption	< 20 Watts

**Operating Conditions:**

Ambient temperature	-20°C ~ +65°C
Relative humidity	<90% (Non condensing)

**Mechanical Specifications**

Rack Mounting	Standard 19 Inch. DIN Rack
Height	44 mm.
Depth	256 mm.
Width	440 mm.
Weight	3.5 kg

**Ordering Information**

<b>VCL-Ethernet over SDH</b>			
<b>S. No.</b>	<b>Part #</b>	<b>Product Description</b>	<b>Qty</b>
1.	VCL-STM-1-o-ETH	STM-1 Optical, Ethernet over SDH transmission unit	1
2.	VCL-STM-1-e-ETH	STM-1 Electrical, Ethernet over SDH Transmission unit	1

Technical specifications are subject to changes without notice.

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**INDIA****Valiant Communications Limited**

71/1, Shivaji Marg, New Delhi - 110015, India  
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**E-mail:** [getinfo@valiantcom.com](mailto:getinfo@valiantcom.com)  
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4000 Ponce de Leon, Suite 470  
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**Website:** <http://www.valiantcom.com>

**U.K.****Valiant Communications (UK) Ltd**

1, Acton Hill Mews, 310-328 Uxbridge Road,  
London W3 9QN  
United Kingdom  
**E-mail:** [uk@valiantcom.com](mailto:uk@valiantcom.com)  
**Website:** <http://www.valiantcom.com>