

Introduction:

The **VCL-9709, E1 to Optical Converter** is a ruggedized and robust, sub-station-hardened converter that converts E1 data to Optical data. VCL-9709 supports point-to-point application.



1U high, standard 19-inch Rack Mount Version

VCL-9709, E1 to Optical equipment includes precise clock recovery and clock re-generation functions which allows the transmission of E1 channel over an Optical link for error free transmission.

VCL-9709 is available in DIN Rail mount version and 1U high, standard 19-inch rack mount version.



DIN Rail Mount Version

The most common application for the VCL-9709 converter is for augmenting legacy E1 data transmission over an Optical link between two sub-stations / sites. By installing a VCL-9709 converter, the existing E1 interface from one end to another end can be transmitted over the Optical link without incurring large capex.

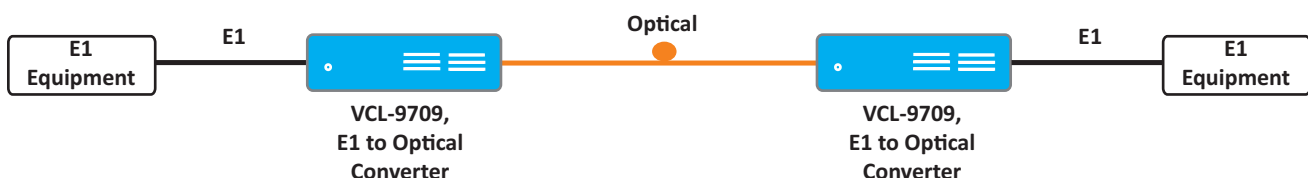
- Number of E1 interface: 1 E1 (2.048 Mbit/s) Interface (Electrical G.703)
- Number of Optical interface: 1 x SFP based

VCL-9709 meets and complies with the EMI, EMC, Surge and Temperature specifications making it suitable for sub-station installations to provide uninterrupted service even in the most demanding and harsh environments.

Chassis:

- DIN Rail Mounting
- 1U high, 19-inch Rack Mounting

Application Diagram:



Technical Features:

Connectors:

- Power: Terminal Block, 2-PIN Supply Connector
- Optical Interface: LC Connector (SFP)
- E1 Interface: RJ45 (F) / BNC (F) Connector

Power Supply:

- Internal: 48V DC (18V to 60V DC)
- External Adapters: 110V DC, 220V DC, 100~240V AC

Optical Interface Specifications:

Interfaces per card	1
Type of Transmitter	Class 1 Laser
Transmitter power	≥ -3dBm, ≥ -6dBm, ≥ -9dBm, as per selected SFP
Bit rate	155Mbps
Wavelength	820nm/850nm Multi-Mode 1310nm/1550nm Single-Mode
Optical connector	LC/PC
Fully Compliant with ITU-T G.957, G.958 Specification	
Class 1 Laser Product, Compliant with IEC 60825-1	
Compliant with Telcordia (Bellcore) GR-468-CORE	

E1 Interface Specifications:

Number of interfaces	1 E1 Interface
Conformity (electrical)	G.703
Frame structure	As per ITU (CCITT) G.704
Code	HDB3, 50% Duty Cycle
Nominal Impedance	120 Ohms balanced / 75 Ohms Unbalanced
Nominal pulse width	244 ns
Pulse mask	As per ITU (CCITT) Rec. G.703
Jitter tolerance	As per ITU (CCITT) G.823
Frame alignment	As per ITU (CCITT) G.732

Regulatory Compliances:

- RoHS
- CE Marking
- Complies with FCC Part 68 and EMC FCC Part 15
- Telcordia GR-1089 Surge and Power Contact

MTBF:

- Per MIL-HDBK-217F: ≥ 37 years @ 24C
- Per Telcordia SSR 332, Issue 1: ≥ 42 years @ 24C

Technical Specification:**Environmental:**

Operating Temperature	-20°C to +60°C
Maximum Operating Humidity	95% R.H., Non-Condensing
Maximum Operating Altitude	Up to 3,000 meters above sea Level
Operation	ETS 300 019 Class 3.2
Storage Temperature	-40C to +70C
Storage	ETS 300 019 Class 1.2
Maximum Storage Humidity	98% R.H., Non-Condensing
Maximum Storage Altitude	Up to 3,000 meters above sea Level
Transportation	ETS 300 019 Class 2.3

EMI, EMC, Surge Withstand and other Compliances:

EN 50081-2	EN 50082-2	IEC 60068-2-29
IEC 61000-4-6 (Conducted Immunity)	IEC 60068-2-2	
IEC 60068-2-78	IEC 60068-2-1	IEC 60068-2-14
CISPR 32 / EN55032 Class A (Conducted Emission and Radiated Emission)		
IS 9000 (Part II Sec. 1-4, Part III Sec. 1-5, Part IV, Part 14 Sec. 1-3)		
IEC 60870-2-1	IEC 61000-4-5	IEC 61000-4-2
IEC 61000-4-3 (Radiated Immunity)	IEC 61000-4-8	IEC 61000-4-4
Telcordia GR-1089 Surge and Power Contact		

Electromagnetic Standards Compliance:

- EN 50081-2, EN 50082-2
- IEC 61000-6-2 (Immunity)
- IEC 61000-6-4 (Emission)
- Complies to IEEE and IEC standards

CE Compliance:

- Low Voltage Directive 2014/35/EU
- Electromagnetic Compatibility 2014/30/EU

Mechanical Specifications:**DIN Rail Mount Version**

- H x W x D: 72.0mm x 190.0mm x 177.0mm
- Weight: 1.5 KG

1U, 19-inch Rack Mount Version

- H x W x D: 44.0mm x 484.0mm x 177.0mm
- Weight: 3.0 KG

© Copyright: Valiant Communications

Technical specifications are subject to changes without notice.

Revision – 2.1, May 17, 2021

Ordering Information:

Part No.:	Description
VCL-9709-DIN	E1 to Optical Converter DIN Rail Mount Version - 1 x SFP based (without SFP) (SFP to be ordered separately)
VCL-9709-RAC	E1 to Optical Converter 19-Inch, Rack Mount Version - 1 x SFP based (without SFP) (SFP to be ordered separately)

[# Add E1 and Power Supply]

- Management: Serial Interface (USB)
- Installation Kit: System Core Cables, Mounting Hardware, Documentation, User Manual

Select SFP option from below:

VCL-EMOD 0193	SFP Transceiver, Duplex LC, 13dB 1310nm, 9 Miles / 15Km, SMF
VCL-EMOD 0194	SFP Transceiver, Duplex LC, 29dB 1310nm, 25 Miles / 40Km, SMF
VCL-EMOD 0217	SFP Transceiver, Duplex LC, 29dB, 1550nm, 49 Miles / 80Km, SMF
VCL-EMOD 0402	SFP Transceiver, Duplex LC, 36dB, 1550nm, 99 Miles / 160Km, SMF

Add E1 Option (Any One):

120	1 x E1 (120 Ohms, RJ45 F) port
075	1 x E1 (75 Ohms, 2xBNC F) port

Add Power Supply Option - DIN Rail:

DC018060	1 x 18~60V DC (48V DC nominal) Power Supply Input
----------	--

Add Power Supply Option - 19-inch Rack: (Any One)

AC220	1 x 110~240V AC Power Supply Input
AC220R	2 x 110~240V AC Power Supply Input [Redundant]
DC048	1 x 48V DC Power Supply Input
DC220	1 x 110~250V DC Power Supply Input
DC048R	2 x 48V DC Power Supply Input [Redundant]
DC220R	2 x 110~250V DC Power Supply Input [Redundant]

Add Power Supply Option - DIN Rail (Optional):

VCL-EMOD 0444-AC220	External Power Supply - DIN Rail Mount Power Supply (External) AC to DC Converter, DRL30-24-1, DIN Rail Mount: - Input: 1 x AC Input [90~240V AC, 50-60Hz] - Output: 1 x DC Output [24VDC~1.25A, 30W]
VCL-EMOD 0444-DC220	External Power Supply - DIN Rail Mount Power Supply (External) DC to DC Converter, DRL30-24-1, DIN Rail Mount: - Input: 1 x DC Input [110~250V DC] - Output: 1 x DC Output [24VDC~1.25A, 30W]

U.S.A.

Valcomm Technologies Inc.
4000 Ponce de Leon Blvd.,
Suite 470, Coral Gables,
FL 33146, U.S.A.

E-mail: us@valiantcom.com

U.K.

Valiant Communications (UK) Ltd
Central House Rear Office
124 High Street, Hampton Hill
Middlesex, TW12 1NS, U.K.

E-mail: gb@valiantcom.com

INDIA

Valiant Communications Limited
71/1, Shivaji Marg,
New Delhi - 110015,
India

E-mail: mail@valiantcom.com