

Introduction:

IEEE C37.94 Optical Interface Card provides 4 x IEEE C37.94 compliant interfaces for the VCL-MX Version-6 E1 PDH Multiplexer. This card can be used to interface with current differential and distance protection relays.

VCL-MX Version 6 - 80 x E1 Multiplexer may be used for inter-connecting legacy voice and data networks, provisioning and managing bandwidth on a E1 channelized level as well as 64Kbps, DS-0 time-slot level and can be used as a digital-access cross-connect equipment. This solution also provides 4 x Binary (110VDC / 220VDC) Commands Teleprotection interface for providing Distance Protection and IEEE C37.94 optical (MM / SM) ports for providing Distance / Differential Protection.

IEEE C37.94 Card Provides Differential Protection using IEEE C37.94 Teleprotection Interface. 4 x C37.94 Optical Interfaces are provided per card. Each MUX supports up to 9 x C37.94 TP Cards (i.e., 36 x IEEE C37.94 Optical interfaces).

VCL-MX IEEE C37.94 interface card meets and complies with 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.



Front View - VCL-MX Version 6



IEEE C37.94 Teleprotection Card

By installing IEEE C37.94 Card, the existing IEEE C37.94 interfaces from differential and protection relays can be transmitted over the E1 network without incurring large capex, or without the tiresome task of having to replace or rewire the IEEE C37.94 Relays which need to be interconnected to the far end substations over E1 (SDH) transmission links.

Technical Specifications:

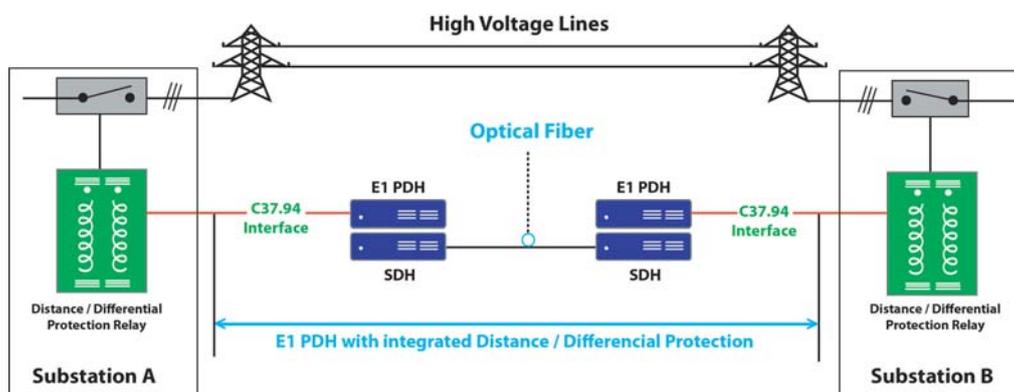
IEEE C37.94 Interface Specifications Option #1:

Interfaces per card	4 (4 Tx, 4 Rx)
Standards	IEEE C37.94
Optical connector	ST
Optical Transmitter	LED
Optical	820nm/850nm Multi-Mode

IEEE C37.94 Interface Specifications Option #2:

Interfaces per card	4 (4 Tx, 4 Rx)
Standards	Modulation as per IEEE C37.94
Optical connector	LC (SFP)
Optical Transmitter	Laser
Optical	820nm/850nm Multi-Mode 1310nm/ 1550nm Single Mode

Application Diagram



Technical Specification:**Environmental**

Operating Temperature	-20°C to +60°C
Maximum Operating Humidity	95% R.H., Non-Condensing
Maximum Operating Level Altitude	Up to 3,000 meters above sea level Altitude
Operation	Complies with ETS 300 019 Class 3.2
Storage Temperature	-40C to +70C
Storage Humidity	Complies with ETS 300 019 Class 1.2
Maximum Storage Level Altitude	Up to 3,000 meters above sea level Altitude
Transportation	Complies with 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 60068-2-6	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 61000-4-12
IEC 61000-4-3 (Radiated Immunity)	IEC 61000-4-8	IEC 61000-4-16
IEC 61000-4-2	IEC 61000-4-10	
IEC 61000-4-4	IEC 61000-4-11	

- ESD, Voltage and Surge Withstand: Meets and exceeds IEC 61000-4-2, IEC 61000-4-4, IEC 61000-4-5, Level 4 specifications.
- Immunity to Voltage Dips, Short Power Supply Interruptions and Voltage Variations meets and exceeds IEC6 1000-4-11, Level 1 specifications.

Other Regulatory Compliances:

- RoHS
- CE marking
- Complies with FCC Part 68 and EMC FCC Part 15

Ordering Information:

Part No.	Description:
VCL-MX-1564-04-MM-ST	Integrated, 4 x Ports, C37.94 Interface Card, Multi-Mode, 820nm/850nm, 1.5Km, ST Connector (May be used to multiplex and connect up to 4 x C37.94 Protection Relays or 4 x VCL-TP Teleprotection Terminals with C37.94 Optical Interfaces. Supports: - 4 x C37.94, Tx, 820nm/850nm, MM, ST - 4 x C37.94, Rx, 820nm/850nm, MM, ST
VCL-MX-1554-04	4 Port, Integrated IEEE C37.94 Optical, SFP based Teleprotection Interface Card, used to connect up to 4 x C37.94 Protection Relays or 4 x VCL-TP Teleprotection Terminals (without SFPs) Supports: - 4 x C37.94 protocol Optical Interface (SFPs to be ordered separately)

Select SFP option from below:

VCL-EMOD 0469-C37	SFP Transceiver, Duplex LC, 14dB, 850nm, 1.24 Miles / 2Km, MM (Multi-Mode)
VCL-EMOD 0294-C37	SFP Transceiver, Duplex LC, 12dB, 1310nm, 1.24 Miles / 2Km, MM (Multi-Mode)
VCL-EMOD 0193-C37	SFP Transceiver, Duplex LC, 13dB, 1310nm, 9.32 Miles / 15Km, SM (Single-Mode)

Add Accessories:

VCL-HRNS 1273	Optical Patch Cord Connectorized Cable [2LC-2LC, 3m, MM]
VCL-HRNS 1301	Optical Patch Cord Connectorized Cable [2ST-2LC, 3m, MM]
VCL-HRNS 1229	Optical Patch Cord Connectorized Cable [2LC-2LC, 3m, SM]

Technical specifications are subject to changes without notice.

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