VCL-5051
10G, Optical repeater

ORION TELECOM NETWORKS

Introduction:

The VCL-5051, 10G Optical repeater is a ruggedized and robust, 3-R 10G Repeater that Re-Generates, Re-Shapes, and Re-Times the 10G optical signal so that it may be extended over long distances on optical links. VCL-5051 supports point-to-point applications.

The most common application for the VCL-5051 repeater is for transmitting (Re-Amplification, Re-Shaping and Re-Timing) of 10G optical signal over extended optical spans. By installing a VCL-5051, the existing 10G interfaces can be extended by a factor of "n" over multiple optical spans, with each optical span admeasuring approximately 100KM / 62 Miles.

VCL-5051, 10G Optical Repeater

VCL-5051 meets and complies with EMI, EMC, Surge and Temperature specifications making it suitable field / pole installations to provide uninterrupted service even in the most demanding and harsh environments.

Power Supply Options:

- 12V DC, solar powered battery bank (9V to 14V DC)
- 48V DC, nominal (18V DC to 60V DC)
- 110/220V DC
- 90~240V AC, 50/60Hz

Power Supply Specifications:

Voltage reversal protection	Protected
Short circuit protection	Protected
Power Consumption	<14W at ambient

Technical Specifications:

Connectors

Power	2-Pin Connector for DC Input 3-Pin, IEC 320-C14 Receptacle Connector for AC Input
10G Interface	2 x SFP+
Management	1 x USB Type-B Connector 1 x Ethernet (RJ-45) Connector
Alarm-IN	1 x Terminal Block, 2-Pin Connector
External Alarm	1 x Terminal Block, 3-Pin Connector
Alarm reporting	2 x RS232 / RJ-45 Connectors

Chassis:

- 19" Rack and Pole Mountable.

10G Interface Specifications:

Interfaces per unit	Two
Protocol	10G Ethernet
Optical Connector	LC (SFP+)
Optical Transmitter	LASER
Optical Transmit Power	As per selected SFP+ module
Optical Receive Power	As per selected SFP+ module

Technical Specifications:

Environmental:

Operating Temperature	-20^{0}C to +60^{0}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

Application Diagram:

Site A — 80 Km 10G — VCL-5051 — 100 Km 10G — VCL-5051 — 100 Km 10G — VCL-5051 — 40 Km 10G — Site B

Technical Specifications:

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 61000-4-3 (Radiated Immunity)	IEC 61000-4-8	
IEC 61000-4-2	IEC 61000-4-4	

Electromagnetic Standards Compliance:

- EN 50081-2, EN 50082-2
- IEC 61000-6-2 (Immunity)
- IEC 610000-6-4 (Emission)
- Complies to IEEE and IEC standards

CE Compliance:

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

Other Regulatory Compliances:

- RoHS, Meets CE requirements
- Complies with FCC Part 68 and EMC FCC Part 15

Local Management:

- 1 x RJ45 Interface (10/100BaseT)
- Telnet
- 1 x Serial USB.

Remote Management:

- GSM, out-of-band - Optional Extra

Mechanical Specifications:

19" Rack Mountable

- H x W x D: 44 x 482 x 199 mm
- Weight: 2.9 Kgs.

Pole Mountable

- H x W x D: 380 x 280 x 175 mm
- Weight: 6 Kgs.

Ordering Information (Base Unit):

Part No.	Description
VCL-5051	VCL-5051, 10G, Optical repeater Supports: - 2 x 10G SFP+ port (without SFP+) - Management: Telnet (RJ45 (F) Port), Serial Port (USB), Graphical User Interface (GUI) - Installation Kit: System Core Cables, Mounting Hardware, Documentation.

Mounting Options:

R	19-Inch Rack Mount - may be ordered with all AC and DC power supply options
P	Pole Mounting - may only be ordered with the 12V DC (9V to 14V DC) power supply option.

Power Supply Options (for 19-Inch Rack Mount):

- 48V DC, nominal (18V DC to 60V DC)
- 110/220V DC
- 90~240V AC, 50/60Hz

*10G SFP+ Options:

VCL-EMOD 0552	10G SFP+ Transceiver 10Gigabit Ethernet, Duplex LC, Tx- Min: -3.0dBm, Max: +1.0dBm Receiver Sensitivity -14.4dBm 1310nm, 11.4dB, 20Km, SMF, RoHS
VCL-EMOD 0553	10G SFP+ Transceiver 10Gigabit Ethernet, Duplex LC, Tx- Min: +1.0dBm, Max: +5.0dBm Receiver Sensitivity -15.0dBm 1310nm, 16dB, 40km, SMF, RoHS
VCL-EMOD 0554	10G SFP+ Transceiver 10Gigabit Ethernet, Duplex LC, Tx- Min: -4.7dBm, Max: +4.0dBm Receiver Sensitivity -15.8dBm 1550nm, 11.1dB, 40Km, SMF, RoHS
VCL-EMOD 0555	10G SFP+ Transceiver 10Gigabit Ethernet, Duplex LC, Tx- Min: 0.0dBm, Max: +5.0dBm Receiver Sensitivity -23.0dBm 1550nm, 23dB, 80Km, SMF, RoHS
VCL-EMOD 0556	10G SFP+ Transceiver 10Gigabit Ethernet, Duplex LC, Tx- Min: +1.0dBm, Max: +5.0dBm Receiver Sensitivity -25.0dBm 1550nm, 26dB, 100Km, SMF, RoHS

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