Product Overview:

VCL-MX-5010-R, router is an intelligent MPLS (Multiprotocol Label Switching) router which can be used to securely inter-connect multiple LAN networks over a WAN link using a choice of secure routing protocols including MPLS VPN and IPsec. The VCL-MX-5010-R is a ruggedized routing equipment that is embedded with advanced routing and cyber security features which make it suitable for installations in critical infrastructure such as utilities, sub-stations, smart-grid distribution systems, airports and railways that require high reliability industrial equipment. It may also be installed in IT networks of financial institutions such as banks and corporate networks for Wide Area Applications.

VCL-MX-5010-R is password protected with capabilities that meet and exceed the most demanding cyber-security requirements, including the currently applicable NERC specifications.

Interfaces:

Configuration # 1:

8 x 1G Optical SFP / SFP+
4 x 10/100/1000BaseT RJ-45
2 x 10/100BaseT RJ-45
1 x RS-232
1 x GE RJ45
Secure Management Port

Configuration # 2:

4 x 1G Optical SFP / SFP+
8 x 10/100/1000BaseT RJ-45
2 x 10/100BaseT RJ-45
1 x RS-232
1 x GE RJ45
Secure Management Port

Configuration # 3:

12 x 10/100/1000BaseT RJ-45	2 x 10/100BaseT RJ-45
1 x RS-232	
1 x GE RJ45 Secure Management Port	

Throughput:

Router :	**23.5 Gbps**
IPsec :	**11.3 Gbps**
MPLS :	**20.7 Gbps**

Highlights:

- High-reliability hardware
- Suitable for installation in sub-stations, SCADA and industrial networks / harsh environments
- Supports for Ethernet, Fast Ethernet, Gigabit Ethernet, Optical Ports
- Secure Boot
- MPLS VPN
- High security across WAN connection includes Encrypted Tunneling
- DNS Forwarding, Dynamic DNS, DNS Repeater
- DHCP Server and Relay
- IP based access control
- Centralized management for easier deployment
- Network Flow Monitoring
- Easy installation and management
- LDAP user authentication support for OpenVPN Clients
- Export logs locally or on a Syslog server
- L2TPv3, L2VPN, L3VPN
- VXLAN
- Packet forwarding rate: 24 MPPS
- SPAN (port mirroring)
- Supports frame size from 64 to 9216 bytes

- MACVLAN - Pseudo Ethernet
- Conntrack Sync
- Link Aggregation
- Integrated threat control includes prevention of network attacks
- Intelligent protection of endpoints includes authentication, authorization and control
- On-demand network services
- Improved user experience
- Telnet
- SSH (Secure Access Control) with encrypted password
- High Availability & 1+1 Hardware Failover Redundancy using VCL-SafeComm-OE
- VCL-MX-5010-R offers a wide range of VPN technologies ranging from modern SSL VPN's to IPsec. Site-to-Site setups are possible and with the integrated OpenVPN client configuration exporter. The client can be configured remotely within minutes
- Granular control over state table
- Infrastructure neutral
- Network Emulator
- Supports out of band management through management port / console.

Routing Features and Capabilities:

- CLI based
- IPv4 and IPv6
- OSPF v2 and v3
- BGPv4, IS-IS
- RIP v1, RIP v2 and RIPng
- ARP, IP Forwarding
- VRRP redundancy protocol
- IGMP v1, v2 and v3, Multicast
- PIM SSM (Protocol Independent Multicast – Source Specific Multicast)
- QoS, Traffic Shaper – supported algorithms: Drop Tail, Fair Queue, FQ-CoDel
- Layer 3 Routing
- Static IPv4 routing, Static IPv6 routing, Inter-VLAN based routing
- MPLS dynamic (LDP) and static
- RSVP (MPLS-TE)
- TCP/IP, UDP, DHCP, MPLS, WRED
- Supports 802.1Q VLAN
- System access authentication via RADIUS
- Detailed system logging
- Multiple IP address supported
- LLDP, NTP, PPPoE, STP, SNMP, NAT
- BFD (Bidirectional forwarding detection)
- DHCPv4 and DHCPv6 prefix delegation
- Q-in-Q
- Router Reflector (Add software Option)
- 6in4 (SIT), IPIP, IPIP6, IP6IP6
- EAPoL (802.1x)

Firewall Features and Capabilities:

- Policy-based routing (PBR)
- Rule based firewall with IP, port-based matching criteria
- Zone based firewall for Layer 2/3 Security
- IPsec Site-to-Site Tunnels, GRE
- Access lists
- Per Frame / Packet Authentication
- Supports VoIP Protocols
- Whitelist and Blacklist Options
- Stateful Inspection Firewall
- MAC Layer Filtering
- VPN
- Protection from DDoS and SYN attacks

Ingress / Egress Firewall rules:

- Port based, MAC based, filtering of packets based on source address and destination address
- IP domain based
- Protocol based filtering: FTP, SMTP, HTTP, SNMP, UDP, ICMP, DNS, DHCP, ARP etc.
- URL based

Hash Algorithms:

- MD5, AES-XCBC
- SHA 1, SHA 256, SHA 512

Encryption Algorithms:

- AES-128, AES-192, AES-256
- 3DES, DES
- 256 bit AES-GCM with 256 bit ICV
- Camellia 128, 192, 256
- Blowfish 128, 192, 256

Typical deployments:

- Utilities - Power, Oil and Gas Installations
- Industrial Applications
- Campus IP Networks, for all types of data, voice and video over IP applications
- Meshed networks
- Metro Ethernet and VPLS networks
- Cloud applications

Technical Specifications:

Integrated Storage Drive	16GB High Performance SATA Drive
Additional Storage Options	M.2 SATA - 256GB, 512GB, 1TB SSD
Power Supply	Dual (1+1) Redundant Power Inputs * (Power Supply Options)
Indicators	2 x Power Supply Indicators
Processor	Quad Core up to 2.4 GHz
DDR	4GB
Performance	Ruggedized System
MTBF (hours)	101292
IP Level Protection	IP20
Max. Power Consumption @ 48V DC	< 30 Watts
Max. Power Consumption @ 80~240, 50/60Hz V AC	< 34 Watts

Environmental:

Operating Temperature	-4°F ~ 149°F (-20°C ~ 55°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	10%~95% relative humidity, non-condensing
Storage Humidity	10%~95% @40°C; non-condensing

CE Compliance:

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

Other Regulatory Compliance:

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

EMI, EMC, Surge Withstand and other Compliances

EN 50081-2	EN 50082-2	IEC 60068-2-29
IEC 61000-4-6 (Conducted Immunity)	IEC 60068-2-1	IEC 60068-2-2
IEC 60068-2-78	IEC 60068-2-14	IEC 60870-2-1
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 61000-4-4	IEC 61000-4-5	IEC 61000-4-8
IEC 61000-4-3 (Radiated Immunity)		IEC 61000-4-2
Telcordia GR-1089 Surge and Power Contact		

Physical Dimension:

- 19 Inch, 2U High Rack Mount
- D x W x H: 260mm x 477mm x 90mm
- Net Weight: 5.0 Kgs
- Gross Weight: 10.7 Kgs

Ordering Information:

Part #	Description
VCL-MX-5010-R	VCL-MX-5010-R, MPLS Router 19 Inch 2U High Rack Mount Installation Kit: System Core Cables **Add *Power supply options**

* Power Supply Options:

AC088~265R	2 x 88~265V AC Power Supply Input [1+1 Redundant Power Supply]
DC012~060R	2 x 12~60V DC Power Supply Input [1+1 Redundant Power Supply]
DC080~150R	2 x 80~150V DC Power Supply Input [1+1 Redundant Power Supply]
DC125~373R	2 x 125~373V DC Power Supply Input [1+1 Redundant Power Supply]