Product Overview:

Introducing the VCL-MX-5050-R MPLS Router, a cutting-edge solution built to address the evolving connectivity needs of modern networking environments. With secure connectivity options over both wired Gigabit Ethernet and GSM LTE networks, supported by a comprehensive suite of routing and security protocols with MPLS capabilities, the VCL-MX-5050-R is designed to excel in critical infrastructure installations such as utilities, railways, airports, and beyond.

VCL-MX-5050-R is a password protected, industrial router and its embedded cyber security features with currently applicable NERC specifications ensure reliability and data integrity in the most demanding environments, making it the router of choice for safeguarding network communications.

VCL-MX-5050-R is available in a 1 U high, standard 19-inch rack mount version.

Wired Interfaces:

4 x 1G Optical SFP Ports
4 x 10/100/1000BaseT RJ45 Ethernet Ports
1 x 10/100/1000BaseT RJ45 Secure Management Port
1 x RS-232 (RJ45) Port

Throughput:

Router :	**15.2 Gbps**
IPsec:	**10.4 Gbps**
MPLS:	**14.6 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
- Backup support for wireless interfaces of SIM and eSIM with dual Antenna
- 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: 9.5 MPPS
- SPAN (port mirroring)
- Network Emulator
- IGMPv1, v2 and v3, Multicast

- 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
- Granular control over state table
- Infrastructure neutral
- High Availability & 1+1 Hardware Failover Redundancy using VCL-SafeComm-OE
- Supports out of band management through management port / console.

VCL-MX-5050-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.

Routing Features and Capabilities:

- CLI based
- Static and Dynamic IP addressing
- IPv4 and IPv6
- OSPFv2 and OSPFv3
- BGP, 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 2, 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, 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
- 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	Dual Core up to 1.6 GHz
RAM (DDR3)	4GB
Performance	Industrial 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

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	

Physical Dimension:

19 Inch, 1U High Rack Mount

- D x W x H: 305mm x 483mm x 44mm
- Weight: 2.4 Kgs

Ordering Information:

Part#	Description
VCL-MX-5050-R -RAC	VCL-MX-5050-R, MPLS Router 19 Inch 1U High Rack Mount - Graphical User Interface (GUI) - Installation Kit: System Core Cables **Add *Power supply options**

* Power Supply Options:

AC088~265R	2 x 88~265V AC Power Supply Inputs [1+1 Redundant Power Supply]
DC018~060R	2 x 18~60V DC Power Supply Input [1+1 Redundant Power Supply]
DC090~260R	2 x 90~260V DC Power Supply Inputs [1+1 Redundant Power Supply]

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