Product Overview:

VCL-MX-5040-R-ES is an integrated Router with Enhanced Security which has advanced features that may be installed to secure critical infrastructure such as utilities, sub-stations, smart-grid distribution systems, airports and railways as well as IT Networks of financial institutions such as banks and corporate networks.

VCL-MX-5040-R-ES is password protected with capabilities that meet and exceed NERC as well as all mandatory requirements of password protection and control as provided in the GR-815-CORE-2 specifications.

IPSEC VPN	**ROUTER WITH E-SEC**
135 GBPS	**252 GBPS**#
NGFW	**THREAT PROTECTION**
252 GBPS	**230 GBPS**

#*At Maximum Configuration*

Interfaces:

- 4/8/16 x 10 Gbps (SFP+) Fiber Optic ports
- 4/8/16 x 1 Gbps Ethernet ports.

Additional features of GUI:

- User controlled GUI
- Logs accessible anytime
- Live Threat and traffic monitoring tools
- View network Usage
- Change Credentials
- Smart quick search.

Captive Portal in VCL-MX-5040-R-ES

Captive Portal allows the customer to force authentication, or redirection to a click through page for network access. This is commonly used in hotspot networks and corporate networks for an additional layer of security on wireless or internet access.

Routing Features and Capabilities:

- OSPF v2 and V3
- RIP v1, RIP v2
- BGPv4
- ARP, IP Forwarding
- Static routing, VLAN based routing, NATL1, CARP redundancy support tracking
- 802.1Q VLAN
- ACL Layer 2/3 Security
- Layer 2/3 Routing, Dynamic Discovery Routing
- TCP/IP, UDP, DHCP
- SNMPv2/v3
- Remote access authentication via RADIUS
- IEEE 1613
- IEC 61850-3, IEC 60068-2-27, IEC 60068-2-6 compliance
- QoS
- IP Forwarding
- Detailed system logging
- Multiple IP address supported.

Highlights:

- Ruggedized, IEC-61850-3 compliant firewall
- High-reliability hardware
- Suitable for 1+0 non-redundant and 1+1 redundant installation with automatic failover
- Designed to be installed in sub-stations, SCADA networks and industrial / harsh environments
- Secure Boot
- Firewall Security:
  - Inclusion Policy - Access Control based upon White List IP addresses, MAC address and IP Domain
  - Exclusion Policy - Access Control based on Black-List Continuous monitoring of the TLS connection to nullify MitM attacks.
- Brute Force attack mitigation
- Content filtering
- Non-volatile Access Log with capability to "fingerprint" all successful and failed log-in attempts and keep a log of the IP addresses of all successful and failed logins / login attempts.
- Resistance to Denial of Service (DoS) Attack
- Prevention of DDoS & DoS-added
- SSH (Secure Access Control) with encrypted password protection
- SYN cookie protection
- Zone based IP spoofing
- Malformed packet protection
- DNS guard features
- Antivirus, Anti-worm, anti-spam and anti-spyware protection
- Anti-APT (or Anti BOT), Adv Persistent Threat

VCL-MX-5040-R-ES offers a wide range of VPN technologies ranging from modern SSL VPN's to IPsec. Site-to-Site and road warrior setups are possible and with the integrated OpenVPN client exporter, the client can be configured within minutes.

Security - Features and Capabilities:

- Next Generation Firewall (NGFW)
- Allows firewall rule creation for each port, independently.
- May be installed in non-redundant 1+0 or redundant 1+1 in an automatic failover* configuration. Support active-active mode.
- Deep Packet Inspection (DPI)
- Point-to-Point and Point-to-Multipoint applications
- IPv4 & IPv6 support.
- Unified NMS – Up to 1000 devices may be configured and managed through unified NMS.
- HTTP based smart GUI for individual nodes
- Per-frame/packet authentication
- Support NAT, PAT & Policy based NAT/PAT, Mapped IP (MIP), Virtual IP (VIP), VoIP protocols
- Authentication protocols: RADIUS, LDAP support
- Supports IKE, IKEv2, PKI (X.509)
- Maximum Concurrent Sessions: 33,500,000
- New Concurrent Sessions per second: 540,000
- 802.1Q VLANs : 4,094
- Filtering of protocols like FTP, SMTP, HTTP, HTTPS, SNMP, UDP, ICMP, RPC, DNS, DHCP, ARP, TCP, POP3
- Security:
  - Port based, MAC based, IP Address based
  - IP Domain based
  - Protocol type
  - URL based
- Whitelist and blacklist options:
  - Allows traffic based on user configured rules
- Two-factor Authentication with time-based OTP for secure access
- Traffic Shaper
- Forward Caching Proxy (transparent) with Blacklist support
- Virtual Private Network (OpenVPN site to site and remote VPN client support)
- Supports upto 500 IPSec Site to Site Tunnels
- High availability and hardware ethernet failover*
- Intrusion Detection and Prevention
- Built-in reporting and monitoring tools including real-time graphs
- Network Flow Monitoring
- DNS Server, DNS Forwarder, Dynamic DNS
- DHCP Server and Relay
- Stateful inspection firewall
- Granular control over state table
- MAC layer filtering
- VXLAN supported
- Infrastructure neutral
- Transparent to network and applications
- Easy installation and management
- LDAP user authentication support
- Export logs locally or on a server.
  Redundant device Failover switching with VCL-Ethernet Failover Switch.

Ingress / Egress Firewall rules:

- Port based, MAC based, IP Address based
- IP Domain based
- Protocol based filtering: FTP, SMTP, HTTP, HTTPS, SNMP, UDP, ICMP, RPC, DNS, DHCP, ARP, TCP, POP3
- URL based
- Detect and protect based on geo location.

Encryption Algorithms:

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

Hash Algorithms:

- MD5, AES-XCBC, SHA 1, SHA 256, SHA 384, SHA 512.

Typical VCL-MX-5040-F 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	Internal, soldered 16GB High Performance SATA Drive
Additional Storage	M.2 SATA - 120GB, 240GB, 500GB and 1TB SSD Options
Power Supply	Dual (1+1) Redundant Power Inputs * (Power Supply Options)
Indicators and Alarms	2 x Power Supply Indicators 1 x System Alarm
Processor	12 Cores
RAM (DDR 3L)	32GB
Performance	Rugged System
MTBF (hours)	210240
IP Level Protection	IP20
Power Consumption @ 80~240, 50/60Hz VAC	450 Watts

Environmental:

Operating Temperature	-4°F ~ 131°F (-20°C ~ 55°C)
Storage Temperature	-22°F ~ 167°F (-30°C ~ 75°C)
Operating Humidity	10%~95% relative humidity, non-condensing
Storage Humidity	10%~95% @40°C; non-condensing

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 61000-4-8
IEC 61000-4-3 (Radiated Immunity)	IEC 61000-4-2	IEC 61000-4-11
IEC 61000-4-4		

CE Compliance:

- Low Voltage Directive 2014/35/EU (48V DC Version)
- Electromagnetic Compatibility 2014/30/EU.

Other Regulatory Compliances:

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

Physical Dimension:

- 19 inch, 3U High Rack Mount
- D x W x H: 300mm x 484mm x 178mm
- Net Weight: 8.0 Kgs
- Gross Weight: 12 Kgs.

Ordering Information:

Part#	Description
VCL-MX-5040-R-ES-ACR	VCL-MX-5040-R-ES, Router & Firewall Equipment 19-inch, Rack Mount version [supports upto 7 cards] - 2 x 220V AC power supply [Redundant] - Management: Graphical User Interface (GUI) - Installation Kit: System Core Cables, Mounting Hardware, Documentation, User Manual *** Add Network Interface Option**

* Add Network Interface Option:

VCL-5004	VCL-5004 (4X1G Electrical Ports) (7 Cards (Max) per Chassis)
VCL-5005	VCL-5005 (4X1G Optical Ports) (SFP Based) (7 Cards (Max) per Chassis)
VCL-5007	VCL-5007 (4X10G Optical Ports) (SFP Based) (7 Cards (Max) per Chassis)

* Add SFP and SFP+:

VCL-EMOD 0206	1.25Gbps SFP Transceiver, Duplex LC, 850nm, 550m, MM (Multi-Mode)
VCL-EMOD 0205	1.25Gbps SFP Transceiver, Duplex LC, 1310nm, 10Km, SM (Single-Mode)
VCL-EMOD 0456	10Gbps SFP+ transceiver, 10Km, SM, DDM

Technical specifications are subject to changes without notice.
Revision – 1.3, August 25, 2023

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