Product Overview:

VCL-MX-5050-R-ES Enhanced Security Router is an integrated IEC-61850 compliant industrial router with firewall equipment. With secure connectivity options over both wired Gigabit Ethernet and GSM LTE networks, supported by a comprehensive suite of routing and security capabilities, the VCL-MX-5050-R-ES is designed to excel in critical infrastructure installations such as utilities, railways, airports as well as IT Networks of financial institutions such as banks and corporate networks.

VCL-MX-5050-R-ES 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.

IPSEC VPN	ROUTER + FIREWALL
10.4 GBPS	**15.2 GBPS**
NG-FIREWALL	THREAT PROTECTION
15.2 GBPS	**14.4 GBPS**

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

Backup Wireless Interface:

1 x GSM LTE with Dual SIM (SIM and eSIM)
1 x LTE Antenna
1 x GNSS Antenna

Routing Features and Capabilities:

- GUI and CLI based
- Static and Dynamic IP addressing for physical and logical interfaces
- IPv4 and IPv6 IP addressing format supported
- Support for multiple IP address
- ARP, IP forwarding
- Static routing, Default routing, VLAN based routing, CARP redundancy
- Routing Protocols: RIPv1, RIPv2, OSPFv2 and OSPFv3, BGPv4
- Layer 2, Layer 3 routing
- TCP/IP, UDP, DHCPv4, DHCPv6
- SNMPv2, SNMPv3
- ACL Layer 2, Layer 3 Security
- QoS, Traffic Shaper
- Supports 802.1Q VLAN
- System Authentication and remote access via RADIUS
- SSH (Secure Access Control) with encrypted password protection.

Highlights:

- Industrial, IEC-61850-3 compliant firewall
- High-reliability hardware
- Easy installation and management
- Infrastructure neutral
- Supports for Ethernet, Fast Ethernet, Gigabit Ethernet, Optical Ports
- Backup support for wireless interfaces of SIM and eSIM with dual Antenna
- Built-in reporting and monitoring tools including real-time graphs
- Suitable for 1+0 non-redundant and 1+1 redundant installation with automatic failover
- High availability functionality with Active-Active and Active-Passive features
- Intrusion Detection System (IDS) and Intrusion Prevention System (IPS)
- Designed to be installed in sub-stations, SCADA networks and industrial / harsh environments
- Firewall Security:
  o Inclusion Policy - Access Control based upon White List IP addresses, MAC address and IP Domain
  o Exclusion Policy - Access Control based on Black-List Continuous monitoring of the TLS connection to nullify MitM attacks.
- Resistance to Denial of Service (DoS) Attack
- Prevention of DDoS & DoS-added
- Content filtering and Brute Force attack mitigation
- 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.
- Detailed system logging
- SYN cookie protection
- Zone based IP spoofing
- Malformed packet protection
- DNS guard features
- Software and Hardware Token Supported (TOTP)
- Secure Boot
- Antivirus, Anti-worm, Anti-spam and Anti-Spyware protection
- IEEE 1613
- IEC 61850-3, IEC 60068-2-27, IEC 60068-2-6 compliance.

VCL-MX-5050-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.

Captive Portal in VCL-MX-5050-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.

GUI Features:

- Comprehensive Dashboard for centralized overview of diagnostics, monitoring, device health, system status, and key metrics
- Smart quick and efficient search functionality for streamlined user experience
- Detailed system information, Interface status and monitoring, and network overview
- Granular user management with role-based access control for secure system access
- Real-time surveillance for identifying and responding to live threat and network fluctuations
- Comprehensive functionality for tracking and logging system, network and user activities and events.

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.
- High availability functionality with Active-Active and Active-Passive features
- Deep Packet Inspection (DPI)
- Point-to-Point and Point-to-Multipoint applications
- 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
- Supports IKE, IKEv2, PKI (X.509)
- Maximum Concurrent Sessions: 8,300,000
- New Connections per second: 150,000
- 802.1Q VLANs : 4,094
- Stateful inspection firewall
- Virtual Private Network (OpenVPN site to site and remote VPN client support)
- Supports up to 500 IPSec Site to Site Tunnels
- Filtering of protocols like FTP, SMTP, HTTP, HTTPS, SNMP, UDP, ICMP, RPC, DNS,DHCP,ARP, TCP,POP3
- Security and traffic filtering:
  o Port based, MAC based, IP Address based
  o IP Domain based
  o Protocol type
  o URL based
- Whitelist and blacklist options:
  o Allows traffic based on user configured rules
- MAC layer filtering
- Two-factor Authentication with time-based OTP for secure access
- Forward Caching Proxy (transparent) with Blacklist support
- Network Flow Monitoring
- DNS Server, DNS Forwarder, Dynamic DNS
- DHCP Server and Relay
- Granular control over state table
- VXLAN supported
- Transparent to network and applications
- LDAP user authentication support
- Export logs locally or on a server.
  *Redundant device Failover switching with VCL-Ethernet Failover Switch.

Typical VCL-MX-5050-R-ES Deployments:

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

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
- RSA, ECDSA
- 3 DES, CAST 128, DES

Hash Algorithms:

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

Physical Dimension:

19 inch, 1U High Rack Mount

- D x W x H: 305mm x 483mm x 44mm
- Weight: 2.40 Kgs
- Gross Weight: 5.0 Kgs

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 2 x Antenna LED 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

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 61000-4-11	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

Ordering Information:

Part#	Description
VCL-MX-5050 -R-ES	VCL-MX-5050-R-ES, Router with Enhanced Security 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]

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