VALIANT COMMUNICATIONS

Network Isolation (Kill) Switch

Introduction:

Network Isolation (Kill) Switch: What is a Network Isolation Switch and why does an organization require it?

VCL provides a comprehensive "Beyond the Firewall" cyber security solutions that designed to assist organizations to prevent and secure their network against firewall breaches and cyber-attacks in real-time. The Network Isolation (Kill) Switch is one such element that forms a part of the cyber security suite of products that are offered by VCL.

Most network administrators rely solely on a "Firewall" to secure their IP networks. Some network administrators go one step further and also deploy an additional "Network Traffic Sniffer" which monitors and flags the transmitted and received data anomalies. However, very few network administrators actually plans for an eventuality after a "Firewall" has been breached and the "Network Traffic Sniffer" has recorded anomalies in the data that is being transmitted and received.

The "Network Isolation (Kill) Switch" provides the last-line-of-defence in the event of a network security breach. The "Network Isolation (Kill) Switch" can be used in conjunction with a "Firewall", "Network Traffic Sniffer" and multiple VCL-2143 "Network-MouseTrap(s)™ / Advanced Honeypot" to automatically initiate a series of defensive actions that would have been planned by the network administrator, in the event of a network security breach.

Such actions would include:

i. Disconnecting the Local Area Network (LAN) from the Wide Area Network (WAN).
ii. Disconnecting only a specific data storage device (SAN / NAS), or Server from the local network.
iii. Generating "Audio-Visual Alarms",
iv. Sending "SNMP Traps",
v. Sending "Network Security Alerts" to a centralized NMS,
vi. Intrusion Detection Alarm indicator
vii. Power LED indication.

The Essential Last-Line-of-Defence for Securing the Data Network:

The VCL "Beyond the Firewall" cyber security suite of products do not negate or invalidate the role of the "Firewall" in any manner. The Firewall still remains the primary element of defence against cyber-attacks. However, cyber-attacks succeed because firewalls get breached, or are compromised from within by Trojans or similar malware. The deployment of the VCL "Beyond the Firewall" cyber-security solutions provide the next line of defence against firewall breaches to provide enhanced network security and resilience against cyber-attacks.

The Network Isolation Switch becomes an indispensable tool to deploy defensive "counter-measures" that are to be automatically initiated in real-time, in accordance with the organization's network security policy, in the event of a catastrophic network security breach.

VCL-2702: 1G (RJ45) Electrical Ethernet Network Isolation Switch

VCL-5052: 1G/10G (LC) Optical Ethernet Network Isolation Switch

VCL-5054: 4 x 1G/10G or 1 x 40G Optical Ethernet Network Isolation Switch

Features & Highlights:

Fail-Safe. Never itself becomes a point of failure.

i. The equipment maintains data connectivity if the port was put in the operational mode, even in power down condition or upon control card failure.
ii. The network port shall continue to remain in isolated mode if the port was put in the isolation mode prior to power down or control card failure.

The Network Isolation (Kill) Switch is available in three variants.

i) Single Port Network Isolation (Kill) Switch,
- 1U, 19-Inch Rack Mount substance chassis
- May be used where only one port is required to be isolated from the network
- Available with 1G Electrical (RJ45), 1G Optical (LC) and 10G (LC) Optical Interfaces

ii) Quad Port Network Isolation (Kill) Switch,
- 2U, 19-Inch Rack Mount substance chassis
- May be used where up to four ports are required to be isolated from the network
- Available with 1G Optical (LC), 10G (LC) Optical and 40G (LC) Optical Interfaces

"Network Isolation (Kill) Switch" provides manual and automatic isolation of the Local Area Network from Wide Area Network, in an event of a network security breach / cyber-attack.

The "Network Isolation (Kill) Switch" can be used in conjunction with a "Firewall" and a "Network Traffic Sniffer"; as well as with multiple VCL-2143, "Network-MouseTrαp(s)™ / Advanced Honeypot" (Network Decoy Servers) to isolate the network in the event of the detection of a network intrusion / breach in the cyber-security perimeter of the network's demilitarized zone.

The "Network Isolation (Kill) Switch" helps to create and segregate operational zones in an organization, building or a campus network, with a purpose of securing them and individually isolating them from the external network in the event of the detection of a network intrusion or a cyber-attack.

Network Isolation initiation parameters include:

- External triggers (such as the closing of an external, dry-contact alarm relay).
- Script assisted switching by network isolation command through its serial (RS485) interface.
- SNMP trap generated by any one of the honey-pots (decoy servers).
- All events are time-stamped, logged and stored by the Network Isolation (Kill) Switch in its non-volatile memory. The System log and Audit log may be viewed by the network administrator at any time for security audits and analysis.
- Manually Operated Switch.

Technical Specifications

1 x Port Electrical (RJ45) Network Isolation Switch: VCL-2702

Number of Ethernet Ports	2
Interface Orientation	1 x 1G Gigabit Ethernet Interface towards network
	1 x 1G Gigabit Ethernet Interface towards protected equipment
Guaranteed Maximum Data Throughput	1000 Mbps on 1G Port
Interface Types	10/100/1000 BaseT Electrical

1 x Port Optical (LC) Network Isolation Switch: VCL-5052

Number of Ethernet Ports	2
Interface Orientation	1 x 1G / 10G Gigabit Ethernet Interface towards network
	1 x 1G / 10G Gigabit Ethernet Interface towards protected equipment
Guaranteed Maximum Data Throughput	1000 Mbps on 1G Port 10,000 Mbps on the 10G Interface
Interface Types	1000Base-X Optical, 10GBASE-SR 10GBASE-LR, 10GBASE-ER 10GBase-LX4, 10GBase-WAN

4 x Port Network Isolation Switch: VCL-5054

Number of Ethernet Ports	4+4 x 1G / 10G or 1+1 x 40G Interfaces
Interface Orientation	Up to 4 x 1G/10G or 1 x 40G Gigabit Ethernet Interfaces towards network
	Up to 4 x 1G/10G or 1 x 40G Gigabit Ethernet Interfaces towards protected equipment
Interface Types	1000Base-X Optical, 10GBASE-SR 10GBASE-LR, 10GBASE-ER 10GBase-LX4, 10GBase-WAN

Communication Options:

- SSH / Telnet (option to disable clear text communication)
- CLI Control Interface (HyperTerminal or VT100)

Command Language:

- English text commands
- Graphical User Interface (GUI) – English

Security and Protection:

- SSH
- Password Protection with password strength monitor.

Management and Control Ports:

- Serial Management Port – USB (Out of band access)
- 10/100 BaseT for remote management
- 10/100 BaseT Control Interface – For switching using SNMP Traps SNMP v2 & v3
- Serial Control Interface – RS232 out of band access - For switching using scripted commands or Honeypot, Security server, firewall, snifferes, etc.
- Serial Control Interface – RS485 out of band access - For switching using scripted commands or Honeypot, Security server, firewall, snifferes, etc.

NMS (with Telnet) Specifications:

OAM Network Interface	RJ-45 Ethernet, 10/100BaseT
Compatibility	Ethernet Version 2.0 IEEE802.3
Monitoring and Management	Serial login, Telnet, SSH (With option to disable clear text login for users).

External Trigger Inputs:

Single Port Version	Quad Port Version
8 x External Alarm Trigger Inputs (Contact Open / Contact Close)	8 x External Alarm Trigger Inputs (Contact Open / Contact Close)

External Alarm Outputs:

Single Port Version	Quad Port Version
1 x 12V DC Visual Alarm and 1 x 12V DC Audio Alarm	1 x 12V DC Visual Alarm and 1 x 12V DC Audio Alarm

MTBF and Equipment MTBF:

- Never becomes a point of failure
- Per MIL-HDBK-217F: ≥ 37 years @ 24C

IEC Standards:

- IEC - EMC – Certified to EN 55032: CISPR 32, EN55024:2005
- IEC 61000-6-2 (Immunity), IEC 61000-6-4 (Emission)
- Complies to IEEE and IEC standards

Technical Specifications

Power Consumption:

Single Port Version	Quad Port Version
< 18W, Maximum at ambient (steady state 24°C)	< 22W, Maximum at ambient (steady state 24°C)

AC Power Supply Specifications:

Range of input AC	90V~240V AC, 50Hz / 60Hz. Voltage

48VDC Power Supply Specifications:

Input DC voltage - Dual Input	48V DC (nominal)
Range of input voltage	18V to 60V DC
Input voltage reversal Protection	Provided in the system
Short circuit protection	Provided in the system

110VDC~220VDC Power Supply Specifications:

Input DC voltage - Dual Input	110V DC or 220V DC (nominal)
Range of input voltage	85V DC to 290V DC
Input voltage reversal Protection	Provided in the system
Short circuit protection	Provided in the system

Power Supply Options:

- AC Power (90 to 240V AC, 50/60 Hz)
- DC Power 24V DC; 48V DC; 110V DC; 220V DC

Compliance & Regulatory:

- EMC FCC Part 15 Class 2
- Operation ETS 300 019 Class 3.2
- Storage ETS 300 019 Class 1.2
- Transportation ETS 300 019 Class 2.3

CE Compliance:

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

Environmental (Equipment):

Operational	-10C to +55C (Typical: +25C)
Cold start	0C
Storage	-20C to +70C
Humidity	95% non-condensing
Cooling	Convention Cooled. No cooling fans are required

Mechanical Specifications

	Single-Port Version	Quad-Port Version
Height	44 mm (1U)	88 mm (2U)
Width	483 mm (DIN 19-inch)	483 mm (DIN 19-inch)
Depth	305 mm	305 mm
Weight	< 2.5 Kgs.	< 3.7 Kgs.
Rack Mount	19" Rack mounting	

Ordering Information:

Single-Port Network Isolation (Kill) Switch

Part No.	Product Description
VCL-2702-NKS	VCL-2702, Network Isolation Switch 19-Inch, Rack Mount Version Supports: - 1 x GigE IN (Electrical RJ45) - 1 x GigE OUT (Electrical RJ45) - Installation Kit: System Core Cables, Mounting Hardware, Documentation, User Manual [# Add Power Supply]
VCL-5052-NKS	VCL-5052, Network Isolation Switch 19-Inch, Rack Mount Version Supports: - 1 x 1G/10G IN (Optical) - 1 x 1G/10G OUT (Optical) (# Specify Optical Interface Type) - Installation Kit: System Core Cables, Mounting Hardware, Documentation, User Manual [# Add Power Supply]

Specify Optical Interface Option

Part No.	Product Description
VCL-EMOD 0565	1G/10G, Multi-Mode (MM), 850nm, LC
VCL-EMOD 0532	1G/10G, Multi-Mode (MM), 1310nm, LC
VCL-EMOD 0540	1G/10G, Single-Mode (SM), 1310nm, LC
VCL-EMOD 0541	1G/10G, Single-Mode (SM), 1550nm, LC

Add Power Supply Options

Part No.	Product Description
AC220	1 x 110~240V AC, 50/60 Hz, Power Supply Input
DC048	1 x 48V DC Power Supply Input
DC220	1 x 110~250V DC Power Supply Input
ACDC	1 x 110~240V AC, 50/60 Hz, Power Supply Input 1 x 48V DC Power Supply Input
AC220R	2 x 110~240V AC, 50/60 Hz, Power Supply Input [Redundant]
DC048R	2 x 48V DC Power Supply Input [Redundant]
DC220R	2 x 110~250V DC Power Supply Input [Redundant]

Add External Alarm (Optional)

Part No.	Product Description
VCL-EBUZ 0007	External Strobe Alarm RED 1W x 3 High Power LEDs, DC12V, 200mA, Flash 1X (20FPM), D 130 mm x H 93 mm, 3 holes flange Mount, Ip55 (10 meter cable included)

Ordering Information:

Quad-Port Network Isolation (Kill) Switch

Part No.	Product Description
VCL-5054-NKS-10G	VCL-5054, Quad Network Isolation Switch 19-Inch, Rack Mount Version Supports: - 4 x 1G/10G IN (Optical / Suitable for SFP/SFP+) - 4 x 1G/10G OUT (Optical / Suitable for SFP/SFP+) (# Specify Optical Interface Type) - Installation Kit: System Core Cables, Mounting Hardware, Documentation, User Manual [# Add Power Supply]
VCL-5054-NKS-40G	VCL-5054, Quad Network Isolation Switch 19-Inch, Rack Mount Version Supports: - 1 x 40G IN (Optical / Suitable for QSFP+ with breakout cable) - 1 x 40G OUT (Optical / Suitable for QSFP+ with breakout cable) (# Specify Optical Interface Type) - Installation Kit: System Core Cables, Mounting Hardware, Documentation, User Manual [# Add Power Supply]

Specify Optical Interface Option

Part No.	Product Description
VCL-EMOD 0565	1G/10G, Multi-Mode (MM), 850nm, LC
VCL-EMOD 0532	1G/10G, Multi-Mode (MM), 1310nm, LC
VCL-EMOD 0540	1G/10G, Single-Mode (SM), 1310nm, LC
VCL-EMOD 0541	1G/10G, Single-Mode (SM), 1550nm, LC

Add Power Supply Options

Part No.	Product Description
AC220	1 x 110~240V AC, 50/60 Hz, Power Supply Input
DC048	1 x 48V DC Power Supply Input
DC220	1 x 110~250V DC Power Supply Input
ACDC	1 x 110~240V AC, 50/60 Hz, Power Supply Input 1 x 48V DC Power Supply Input
AC220R	2 x 110~240V AC, 50/60 Hz, Power Supply Input [Redundant]
DC048R	2 x 48V DC Power Supply Input [Redundant]
DC220R	2 x 110~250V DC Power Supply Input [Redundant]

Add External Alarm (Optional)

Part No.	Product Description
VCL-EBUZ 0007	External Strobe Alarm RED 1W x 3 High Power LEDs, DC12V, 200mA, Flash 1X (20FPM), D 130 mm x H 93 mm, 3 holes flange Mount, Ip55 (10 meter cable included)

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