

Desktop / DIN Rail Version

Product Overview

VCL-SafeComm-E is a family of Ethernet Failover Protection Switches that provide 1+1 Automatic Ethernet Failover / AB Fallback Protection between an "active" and "standby" equipment; or between "main" and "standby" networks which are connected to the network through an Ethernet interface.

VCL-SafeComm-E-D – 10/100BaseT Fast Ethernet Failover (Compact DIN-Rail) unit which supports a maximum of 100MBits/sec. data throughput on its primary and standby interfaces. The unit is powered from a 12VDC power source with the option of an external AC-DC adapter.

Number of interfaces available in Fast Ethernet version: Three

- 1 x 10/100 Ethernet Interface: Network A (Primary)
- 1 x 10/100 Ethernet Interface: Network B (Standby)
- 1 x 10/100 Ethernet Interface User (Protected)

Use Case # 1: The VCL-SafeComm-E, Ethernet Failover equipment provides 1+1 Automatic Ethernet Failover Switching / Fallback Protection between two, Main and Standby Switches, Servers, RTUs or any other similar terminals to provide equipment redundancy in applications which require 99.99% terminal equipment up-time. The Ethernet 1+1 fail-over protection automatically switches to the "standby" terminal equipment in the event of failure of the "primary" terminal equipment to ensure that the 99.99% terminal equipment up-time requirements are always being met.

Use Case # 2: The VCL-SafeComm-E, Ethernet Failover equipment provides 1+1 Automatic Ethernet Failover / AB Fallback Switch provides protection between an "active" and "standby" IP / Ethernet / MPLS Networks (including "active" and "standby" Gateways and Routers) to provide 1+1 automatic ethernet fail-over protection between two distinctly separate networks through an ethernet interface.

VCL-SafeComm-E-D providing 1+1 Equipment Failover Protection:

- Provides 1+1 Ethernet Equipment Fail Over Protection
- Failsafe: Never becomes a point of failure. Automatically reverts and connects to the primary equipment even in power down condition
- Fast automatic equipment switching upon equipment failure. Eliminates Equipment Downtime
- Completely eliminates re-routing of Ethernet cables. Ethernet cables are automatically moved to the available equipment port
- Essential for any application that requires 1+1 Terminal / Equipment redundancy such as Corporate Networks, Industrial Installations, Sub-Station, Airports and Air Traffic Control Centres, Railway Signalling Networks etc., requiring minimum service interruption due to equipment failure
- Disaster Recovery.



Salient features:

- Fail-Safe. The equipment never becomes a point of failure. It automatically reverts to and reconnects the "primary network" / even in a power down condition.
- The Ethernet Failover equipment monitors end-to-end link connectivity.
- User configurable test parameters
- User configurable switching parameters
- Built-in real-time clock / real-time logging maintains a history of all events
- Serial Management Interface (USB) for local access
- Remote access over TCP-IP networks. Allows the user to access and carry out maintenance, or / and switch the links remotely, if required
- Password Controlled Access. Maintains a complete log of all logins
- Script Assisted Switching. Automatically initiates switching upon the receipt of the scripted message / SNMP Trap
- Manual Switching through front-panel buttons.

Applications:

- Enhances equipment availability and reliability
- Eliminates equipment downtime by automatically / seamlessly switch to the "backup" / "standby" equipment in the event of the failure of the primary/ active equipment
- Disaster Recovery. To provide automatic failover protection in mission critical applications requiring minimum equipment downtime
- To switch between and automatically re-route IP traffic to the "standby" terminal equipment upon the failure of the "primary" terminal equipment
- VCL-SafeComm-E-D may be used to provide automatic fail-over protection and switching between two terminal equipment such as Routers, Servers, Gateways, RTUs, SCADA Servers, Railway Signalling Equipment, Data Terminal equipment (any type of Ethernet device) etc.
- Automatic Test Feature. Concurrently tests both "active" and "standby" equipment, for "end-to-end" link and terminal equipment availability
- Alerts the user upon the failure or unavailability of any one of the two "active" / "primary", or "secondary" / "standby" terminal equipment.

User programmable criterion for switching between Primary and Standby (Protected) Terminal Equipment:

- Automatically switches between “active” and “standby” equipment upon failure of the “connected” equipment.
- Completely eliminates the need to move (reconnect) cables. Automatically re-routes the traffic to the “available” equipment.
- Failsafe: Never becomes a point of failure. Automatically reverts to and reconnects the primary equipment even in power down condition.
- Switching criterion is completely user programmable.
- Automatic Failover Switching criterion includes:
 - Loss of Signal
 - Loss of Link; Loss of end-to-end connectivity with the terminal equipment
 - Heartbeat;
 - Script (Message) based switching
 - User programmed timed switching based upon “Wall-Clock” (Time of Day)
- Manual Failover Switching:
 - Manual Switching through front-panel buttons.

Application Diagrams

VCL-SafeComm-EF-D providing 1+1 Network Protection

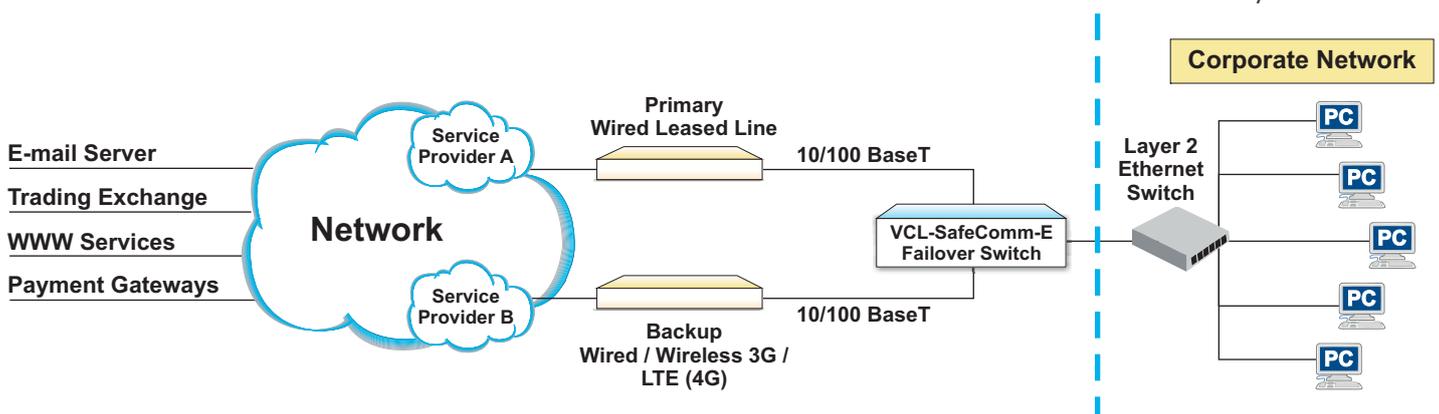
1. Provides 1+1 Ethernet Equipment Fail Over Protection
2. **Failsafe:** Never becomes a point of failure. Automatically reverts and connects to the primary equipment even in power down condition.
3. Fast automatic equipment switching upon equipment failure. Eliminates Equipment Downtime.
4. Completely eliminates re-routing of Ethernet cables. Ethernet cables are automatically moved to the available equipment port.
5. Essential for any application that requires 1+1 Terminal / Equipment redundancy such as Sub-Stations, Airports and Air Traffic Control Centers, Railway Signaling Networks and Industrial Installations etc., requiring minimum service interruption due to equipment failure.
6. Disaster Recovery.

VCL-SafeComm-EF-D - Chassis Description:

The VCL-SafeComm-EF-D, Ethernet Failover Switch is available in a small form factor, compact DIN Rail / Desktop version for various applications that provides access to all external interfaces, including User and Network side Ethernet Interfaces, Access and Management ports.

Switching parameters include:

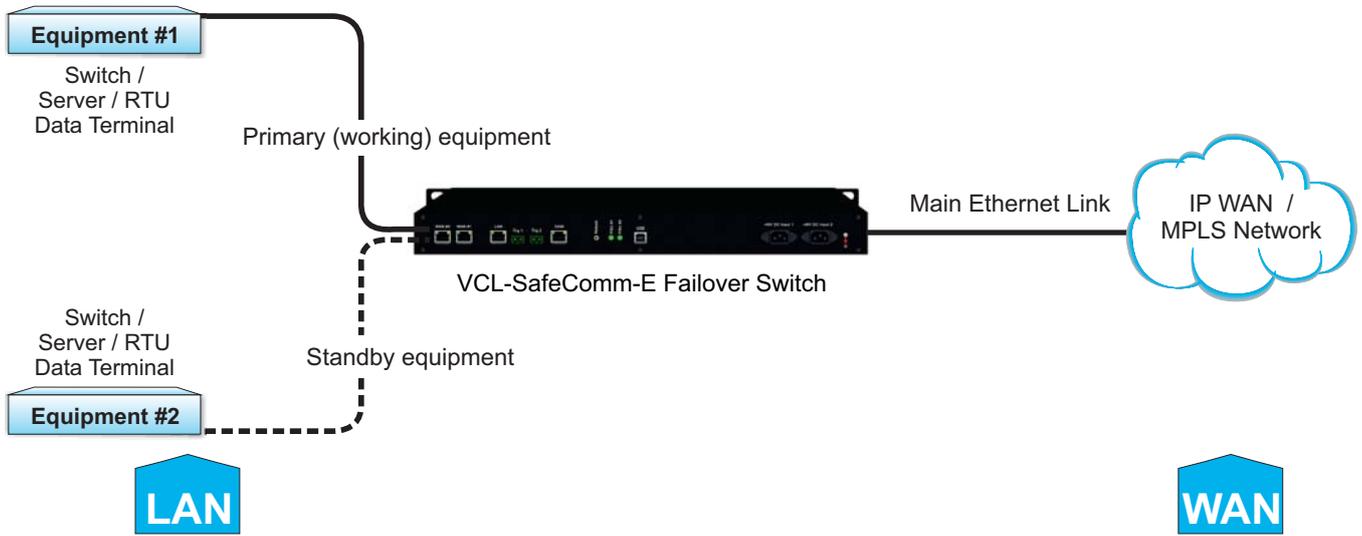
- Network Interface(s) to go down. Loss of signal on the network interface.
- Gateway(s) (Routers) to go down and the routers(s) are unreachable.
- External triggers (such as the closing of an external alarm relay of your either of your routers). The user may use / may not use this option.
- Script assisted switching (and SNMP trap generated by any one of your routers to initiate switching due to router / network failure). The user may use / may not use this option.
- The actual network to become unreachable. This is done by programming a network target IP address in the Safecomm-E-D. The network target IP address is the last point (or an omnipresent point) in a network that can be programmed by the user which can be a Google DNS server (such as 8.8.8.8), or user's corporate server (such as 161.170.140.127), if you are working in protected VPN. If, in the event, the connectivity between Safecomm-EF-D and the user programmed network target IP address is lost through the “primary” network / route, the Safecomm-E-D automatically switches to the “standby” network / route.
- All switching events are time-stamped and logged in Safecomm's non-volatile memory. The logs may be viewed by the network administrator at any time for network quality analysis.
- Recovery / fallback parameters to the primary route / primary network is also user programmable. These can be “automatic recovery to the primary network” upon the restoration of the primary route / primary network, or upon the failure of the standby / alternate network . One note to add here is the Safecomm-EF-D simultaneously tests both active and standby routes so the system is always aware of the status of both networks. Switching to a “dead” route shall never occur under any condition.



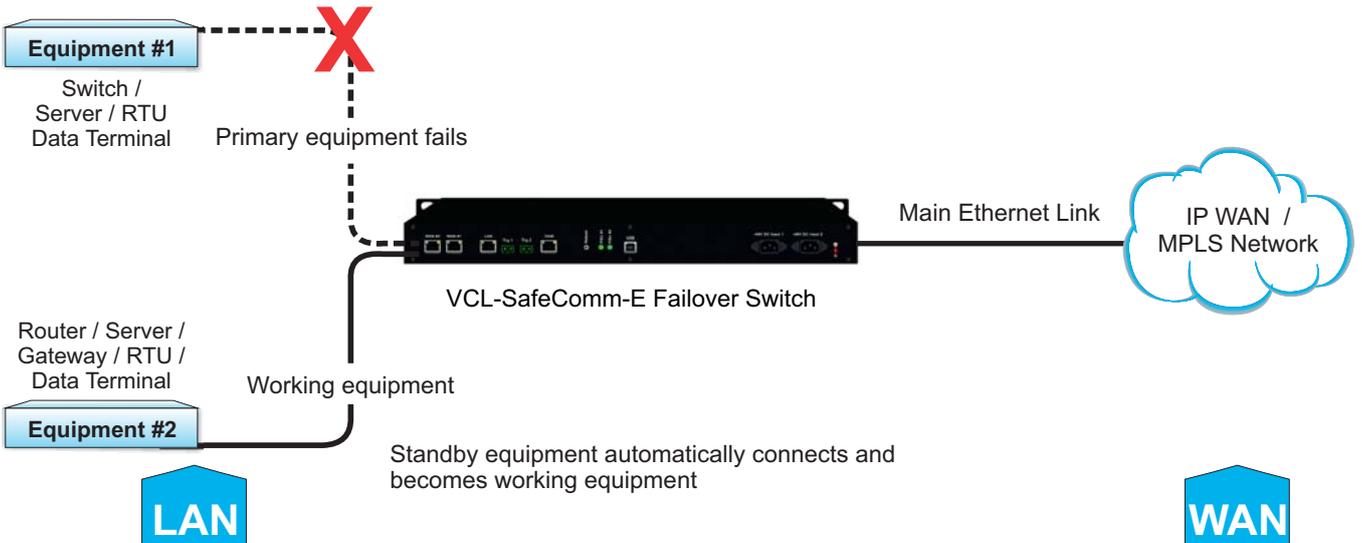
Application Diagrams:

To provide 1+1 Terminal / Equipment Failover Protection

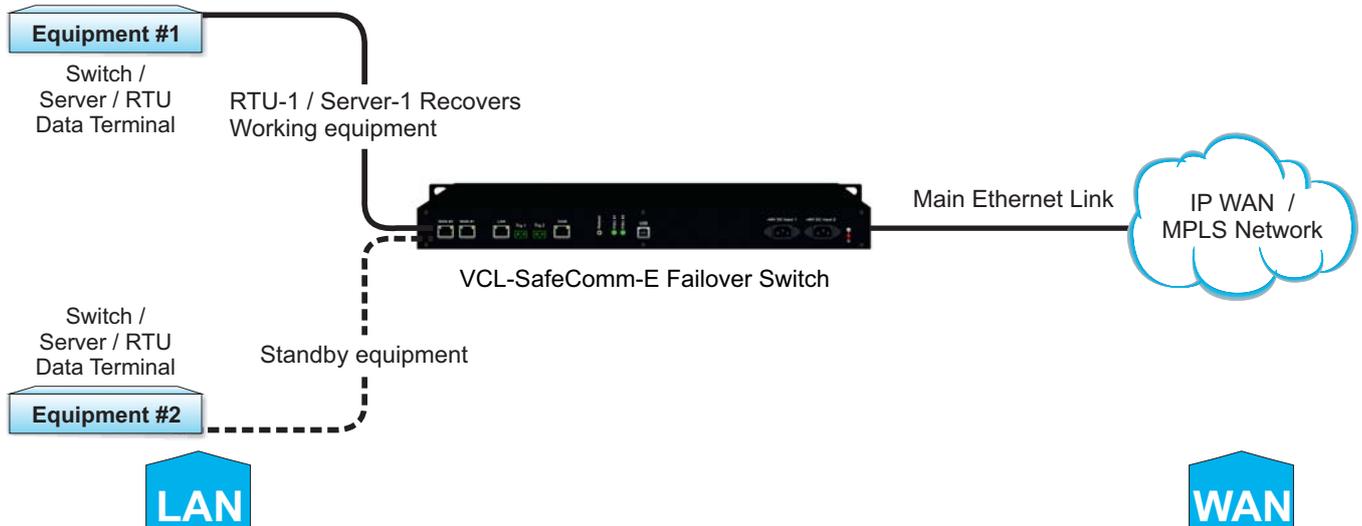
Ethernet link is connected to Routers, Servers, Switches, RTUs, Data Terminals (any terminal equipment) etc.



Equipment 1 fails. Ethernet link automatically switches to Routers, Servers, Switches, RTUs, Data Terminals (any terminal equipment) etc.



Equipment 1 recovers - Ethernet link automatically reverts and reconnects to Routers, Servers, Switches, RTUs, Data Terminals (any terminal equipment) etc.r-1



Technical Specifications

Specifications:

Number of Ethernet Interfaces	3
	- 1 x 10/100 Ethernet Interface: Network A (Primary)
	- 1 x 10/100 Ethernet Interface: Network B (Standby)
	- 1 x 10/100 Ethernet Interface User (Protected)
Guaranteed Maximum Data Throughput	100Mbps
Interface Type	10/100BaseT
Conformity	IEEE-802.3

Management and Control Ports:

- Serial Management Port - RS232 COM Port and USB Port
- 10/100 BaseT for remote management

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).

AC Power Supply Specifications:

Range of input AC	100V~240V AC, 50Hz / 60Hz.
	Voltage

DC Power Supply Specifications:

Input DC voltage	12V DC (nominal)
Range of input voltage	9V to 14V DC Input
Input voltage reversal Protection	Provided
Short circuit protection	Provided

110VDC~220VDC Power Supply Specifications:

Input DC voltage - Dual Input	110VDC; or 220VDC (nominal)
Range of input voltage	85VDC to 290VDC
Input voltage reversal Protection	Provided
Short circuit protection	Provided

Power Supply Options:

- AC power (100 to 240V AC, 50/60 Hz)
- DC Power 12V DC; 110V DC; 220V DC

Power Consumption:

- < 10W at ambient (steady state 24°C)

Local / Remote Management and Monitoring Ports:

- USB
- 10/100BaseT Ethernet RJ45

Local / Remote Communication Options:

- CLI Control Interface (HyperTerminal or Vt100)
- Telnet / SSH (option to disable clear text communication to comply with NERC security requirements)

Security and Protection:

- Password Protection with password strength monitor
- SSH

Environmental (Equipment):

Operational:	0C to +50C (Typical: +25C)
Cold start	0C
Storage	-20C to +70C
Humidity	95% non-condensing
Cooling	Convention Cooled. No cooling fans are required.

Mechanical Specifications:

Height	34 mm
Width	154 mm
Depth	134 mm
Weight	220 g

Command Language:

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

MTBF and Equipment MTBF::

- Never becomes a point of failure
- Per MIL-HDBK-217F: ≥ 17 years @ 24C
- Per Telcordia SSR 332, Issue 1: ≥ 26 years @ 24C

Compliance:

- 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.

Ordering Information

Core Unit without PSUs

S. No.	Part No.	Product Description
1	VCL-SafeComm-E-D-2420-DC012	<p>Automatic Ethernet Failover Switch</p> <ul style="list-style-type: none"> - Provides 1+1 Automatic Ethernet Failover Protection between two (Main and Standby) Ethernet Switches, Gateways, Terminals, Servers, Routers, RTUs, etc - DIN Rail version <p>Supports:</p> <ul style="list-style-type: none"> - 3 x Ethernet [100Mbps RJ45 (F)] [1 for Network A, 1 for Network B, 1 for User] - 1 x 12V DC Power Supply Input - Management: Telnet (RJ45 (F) Port), Serial Port (USB), EMS, Graphical User Interface (GUI) - Installation Kit: System Core Cables, Mounting Hardware, Documentation, User Manual

*Add Power Supply Options

1	VCL-EMOD 0423-AC220	<p>Power Supply (External) AC to DC Converter, DIN Rail Mount,</p> <ul style="list-style-type: none"> - 1 x AC Input [90-240VAC, 50-60Hz] - 1 x DC Output [12VDC~2.1A, 25.2W]
2	VCL-EMOD 0423-DC220	<p>Power Supply (External) DC to DC Converter, DIN Rail Mount,</p> <ul style="list-style-type: none"> - 1 x DC Input [110-250VDC] - 1 x DC Output [12VDC~2.1A, 25.2W]
3	VCL-EPCB 2892-DC048	<p>Power Supply (External) DC to DC Converter, DIN Rail Mount,</p> <ul style="list-style-type: none"> - 1 x DC Input [48VDC] - 1 x DC Output [12VDC~2.1A, 25.2W]
4	VCL-EPSA 0004	<p>Power Supply (External) AC to DC Converter, Portable Adapter Version, PW-024A-1Y120K0,</p> <ul style="list-style-type: none"> - 1 x Universal AC Input [90~264VAC, 47 - 63Hz] - 1 x DC Output [12VDC~2.00A 24W]
5	VCL-EPSA 0005	<p>Power Supply (External) AC to DC Converter, Portable Adapter Version, PW-024A-1Y120KZ,</p> <ul style="list-style-type: none"> - 1 x Universal AC Input [90~264VAC, 47 - 63Hz] - 1 x DC Output [12VDC~2.00A 24W] <p>Equiped with interchangeable AC clips</p>

Technical specifications are subject to changes without notice.

Revision 3.0 - January 06 , 2020

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

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

INDIA

Valiant Communications Limited
71/1, Shivaji Marg,
New Delhi - 110015,
India

E-mail: mail@valiantcom.com