

# VALIANT COMMUNICATIONS LIMITED



## VCL-SafeComm™ 8 E1 Links (24 E1 Ports) (1+1 Automatic Protection Switch)

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### Product Brochure & Data Sheet

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## Product Description

The VCL-SafeComm™, 8 E1 Links (24 E1 Ports), 1+1 Automatic Protection Switching Equipment may be used to protect upto 8 E1 Links (24 E1 Ports), point-to-point links and provide an alternate communication route to each E1 Link between any two E1 points. In the event of the failure of the primary (Main) E1 communication route, the VCL-SafeComm, 8 E1 Links (1+1 Automatic Protection Switching Equipment) automatically switches the E1 traffic to a secondary (standby) E1 route. The VCL-SafeComm, 8 E1, 1+1 Automatic Protection Switching equipment is available in a 2U high chassis which may be mounted in any DIN standard, 19-Inch rack.

### VCL-SafeComm, 8 E1 Links (24 E1 Ports) 1+1 Automatic Protection Switching (APS)



Front View

This product allows the user to design 1+1 (protected) redundant E1 routes on similar (fiber-fiber), or complementing (fiber-radio) transmission mediums.

The criterion for switching between the primary (main) and the secondary (protected/standby) routes is user programmable. Criterion for switching between the primary (main) and the secondary (protected/standby) routes may be Loss-Of-Signal on E1 links, or AIS (All-Ones AIS alarm) condition. The criterion for switching time and recovery time between the primary (main) and the secondary (protected/standby) routes is user programmable.

Data transported on the E1 Links is transparent and protocol independent.

## Features and Highlights

- High density protection switching equipment (upto 8 E1 Links i.e. 24 E1 Ports)
- To provide an independent point-to-point, protected E1 Link between two "E1 USER PORTS" on similar (example fiber-fiber), or dissimilar (fiber-radio) mediums
- To provide 1+1 E1 redundancy support to higher order multiplexers e.g. E2,E3
- System configuration and management interface through "CLI" text based commands
- Transport A-bis Interface on redundant E1 links
- Provide 1+1 Protection Routing/Path between BSC and BTS
- These ensure that mission critical voice, data, control and management traffic are properly supported and maintained even during E1 backhaul facility outages. When the primary (working) link fails, the E1 traffic is automatically switched to the standby (secondary) link to ensure maximum uptime.

## Features and Highlights

- Through the comprehensive remote configuration and alarm management capabilities of the VCL-SafeComm, 8 E1, 1+1 Automatic Protection Switching Equipment the product may be used to improve network reliability and control.
- Traffic Protection
- Alternate Facility Advantages
- Service Differentiation Agreements
- Increased Network Reliability Resilience
- Media and Path Diversity
- Remote Management
- Alarm logging and monitoring.

## Benefits

- Customer Relations
- Competitive
- Service Level
- Back-haul Network
- Technology Migration
- User Programmable 1+1 Protection Parameters:
  - a) Loss of Signal
  - b) AIS (All Ones Alarm)

## Applications

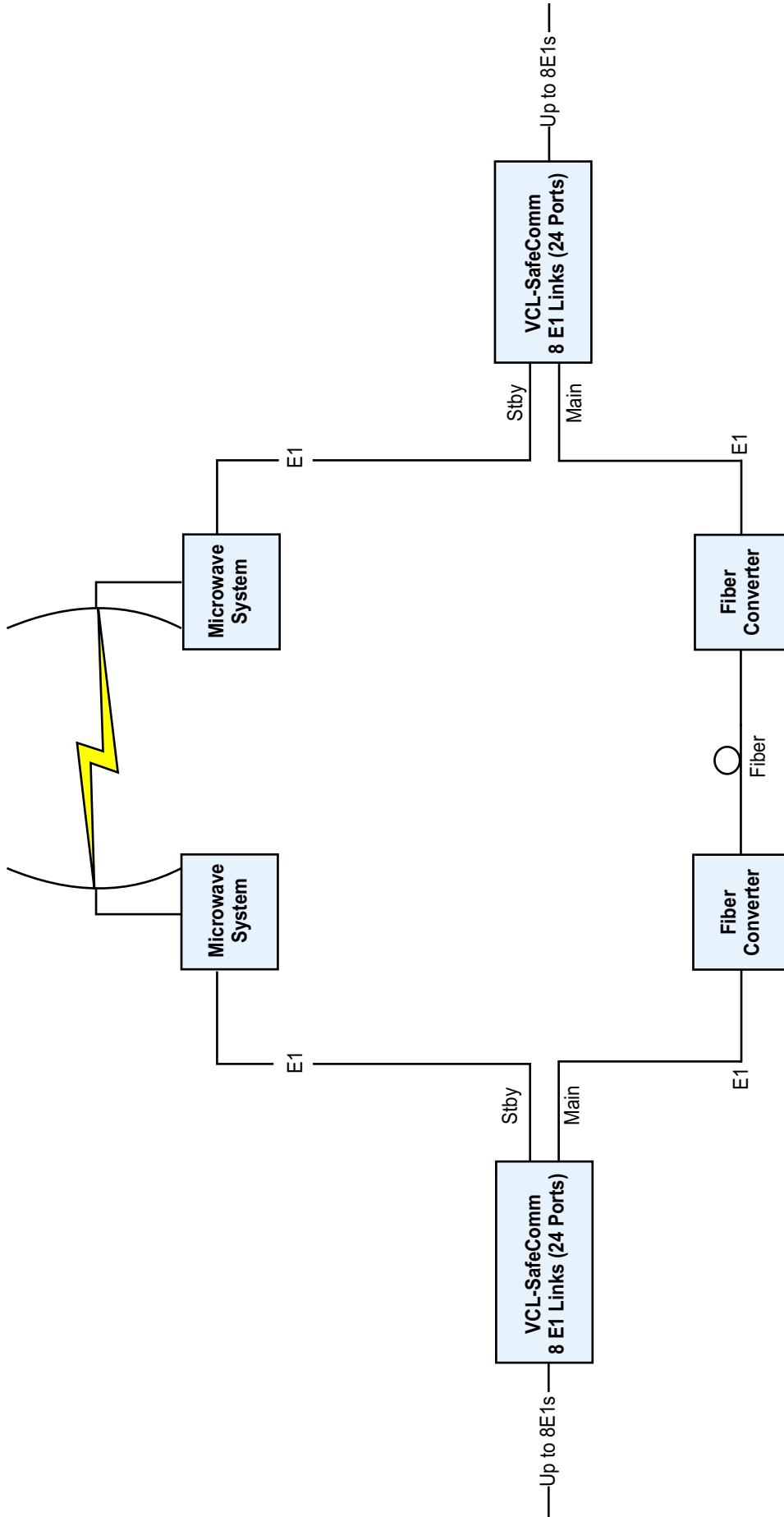
Providing 1+1 alternate paths between any two Transmission mediums (active+standby). e.g:

- Fiber/Fiber
- Radio/Fiber
- Radio/HDSL
- Fiber/HDSL etc.

**Example:** The user may deploy the VCL-SafeComm, 8 E1, 1+1 Automatic Protection Switching Equipment to provide an alternate communication route between an optical fiber link and a radio link between any two points. In the event of the failure of the primary (optical fiber) link the E1 is automatically switched to the alternate route over the E1 radio, thus ensuring maximum uptime on all such 1+1 protected E1 Links.

Once the primary (optical fiber) E1 Link on the optical fiber is restored, the VCL-SafeComm, 8 E1, 1+1 Automatic Protection Switching Equipment automatically restores the communication to the primary (optical fiber) E1 Link. The switching and restoration criterion is user programmable.

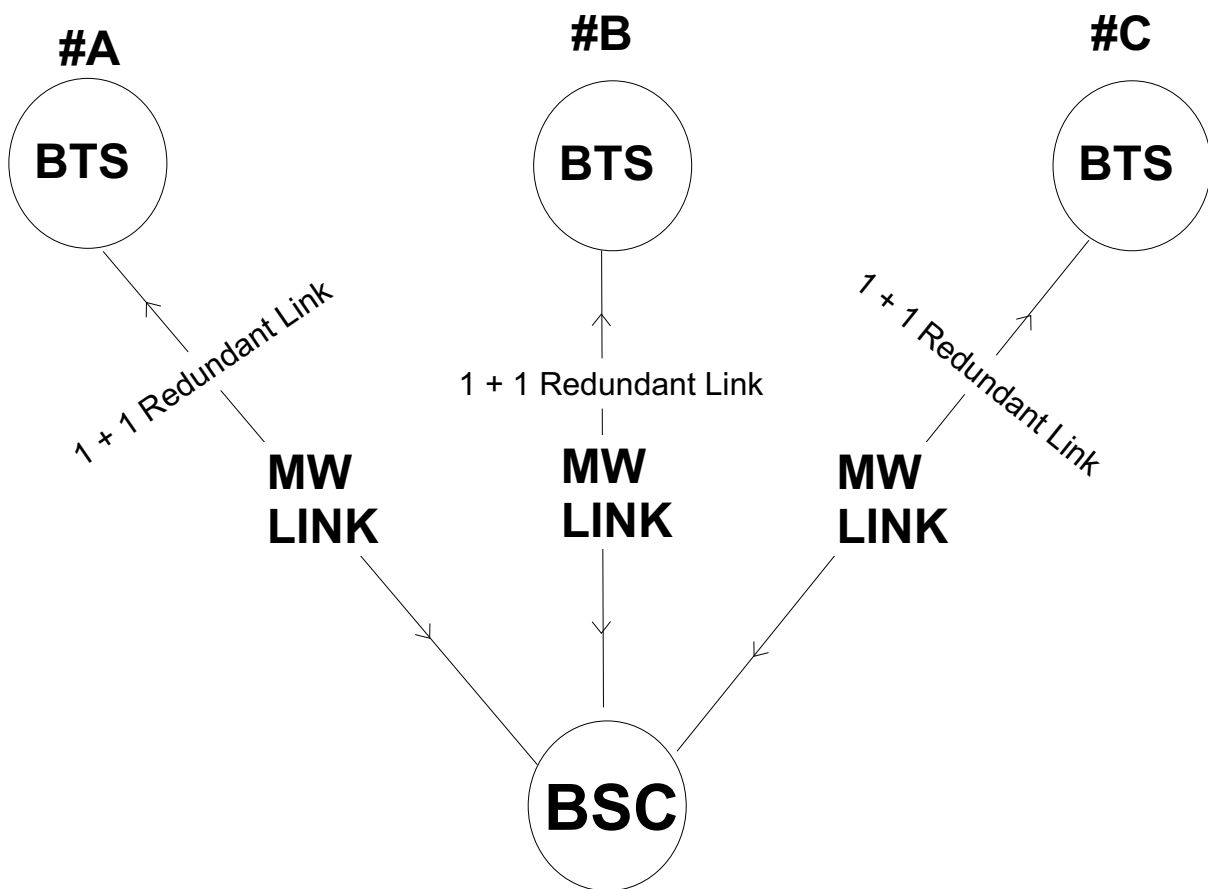
# Application Diagram



# Application # 1

## Application Diagram

### TYPICAL STAR CONFIGURATION

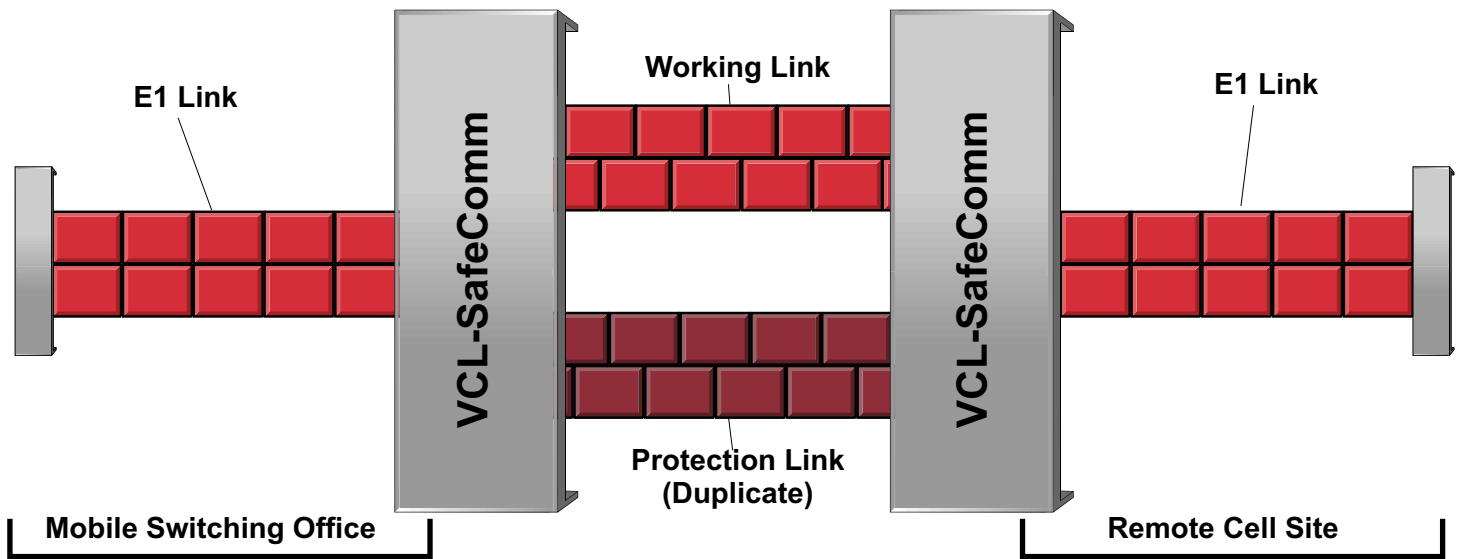


### Application # 2

#### Application 2

To provide 1 + 1 Redundant E1 Link(s) between BSC and BTS using diverse (complementary) E1 transport mediums.

## VCL-SafeComm™ (With Path Protection Switching) Normal Operation



During normal operation, VCL-SafeComm sends duplicate traffic across both the working and dedicated protection E1 facilities while continuously maintaining the performance of both links to determine which link shall be utilized.

## Technical Specifications

### E1 Interface

Number of Interfaces	Total 24 E1 interfaces 8 for Main E1 Links. 8 for Primary E1 Links. 8 for Secondary E1 Links.
Line Rate	E1 - 2.048 Mbps
Line Code	HDB3
Frame Structure	G.704
Bit Rate	2048 Kbps ± 50 ppm
Jitter Tolerance	As per ITU-T G.823
Output Jitter	< 0.05 UI (in the frequency range of 20 Hz to 100 KHz)
Pulse Mask	As per ITU (CCITT) Rec. G.703
Conformity (electrical)	G.703
Nominal Impedance	120 Ohms, balanced

### Clock

Transparent between the two points of the E1 Links.
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### Management and Control

Serial Management Port (RS232) - COM Port
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10/100 BaseT for Remote Management over a LAN
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10/100 BaseT Telnet over a TCP-IP Network
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### Specification and Regulation Compliance

Meets CE requirements

Complies with FCC, Part 68 and Part 15 subpart A specifications

Safety - UL 1459 Issue 2

### Command Language

Command Line Interface (English text commands)

### Alarm Contact Closures

1 Alarm Relay,

Type - Form "C" relay

### Temperature

Operating 0°C to 50°C

Humidity 5% to 95% non-condensing

### Dimensions and Weight

Rack mounting	Standard 19-Inch. DIN Rack
Height	44.00 mm.
Depth	260.00 mm.
Width	477.00 mm.
Weight	4.00 kg.

### AC Power Supply Specifications

Output voltage of AC Adapter	100 - 240 Volt AC
Range of input AC voltage	100 V to 240 V AC, 50Hz / 60Hz.
System input voltage	7.5 V DC to 9.0 V DC, DC input polarity protection.
Maximum full load output current	2.5 A at 7.5 V DC/9.0 V DC
Input voltage reversal protection	Provided in the Card
Efficiency at full load	>86%

### DC Power Supply Specifications

Input DC voltage	- 48V DC (nominal)
Range of input voltage	- 40V to - 60V DC
System voltage	+ 3.3V
Input voltage reversal protection	Provided in the Card
Short circuit protection	Provided
Power Consumption	≤ 10W

## Ordering Information

Sr. No.	Product Description	Part No.
1.	8 E1 Links APS - 24 E1 Ports Automatic Protection Switching  19-inch Rack Mount, operates on - 48 V DC power input.	VCL-SafeComm-APS-8E1-DC
2.	8 E1 Links APS - 24 E1 Ports Automatic Protection Switching  19-inch Rack Mount, AC mains power input.	VCL-SafeComm-APS-8E1-AC

Technical specifications are subject to changes without notice.  
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