



# ORION TELECOM NETWORKS INC.

## **DS3 Fail-Over (DS3 Protection) Switch**

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### **Data Sheet & Product Brochure**

**Headquarters: Phoenix, Arizona**

**Orion Telecom Networks Inc.**

20100, N 51st Ave, Suite B240,  
Glendale AZ 85308  
Phone: +1 480-816-8672  
Fax: +1 480-816-0115  
**E-mail:** [sales@oriontelecom.com](mailto:sales@oriontelecom.com)  
**Website:** <http://www.oriontelecom.com>

**Regional Office: Miami, Florida**

**Orion Telecom Networks Inc.**

4000 Ponce de Leon Blvd. Suite 470,  
Coral Gables, FL 33146 U.S.A.  
Phone: 1-305-777-0419,  
**Fax:** 1-305-777-0201  
**E-mail:** [sales@oriontelecom.com](mailto:sales@oriontelecom.com)  
**Website:** <http://www.oriontelecom.com>

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### Product Overview

Orion DS3 Protection (Fail-Over) Switch allows the user to connect a single DS3 line from the telephone company to an "active", as well as to a "standby" DS3 terminal, such as data server, router etc. at the customer premises. In the event of the failure of the active (main) a terminal equipment at the customer premises, the DS3 Protection (Fail-Over) Switch automatically "switches" the DS3 line from the service provider to the standby (working) DS3 terminal.

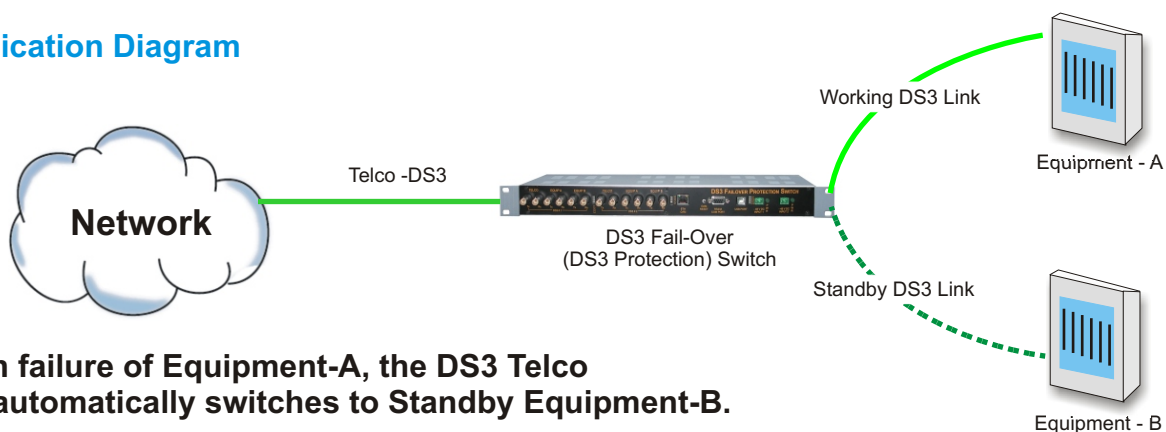


### DS3 Protection (Fail-Over) Switch

### How It Works ?

In the event of the failure of the data server / router connected to the "A / active" port of the DS3 Protection (Fail-Over) Switch, the DS3 line from the telephone company shall automatically be "switched" to the data server / router on the "B / standby" port of the DS3 Protection (Fail-Over) Switch. This ensures minimum downtime - which would have otherwise occurred due to equipment failure connected to the "A / active" port. This equipment may be used to enhance the reliability and the efficiency of the customer's data network.

### Application Diagram



**Upon failure of Equipment-A, the DS3 Telco line automatically switches to Standby Equipment-B.**

### Features

- Allows the user to connect a DS3 line from the Telephone Company and to switch it automatically between an active and a standby DS3 terminal at the customer premises
- LOS (Loss of DS3 Signal) is the switching criterion between "Active" and "Standby" DS3 Ports
- Fail-Safe switching of the Telco line to the Main (Port A) in to event of equipment or power failure
- Available in a single DS3 line and a two DS3 line version
- Independent switching for each DS3 line (in the two, DS3 line version)
- Built-in real-time clock / real-time logging maintains a history of all events
- Provides USB Serial Port and RS232 COM Port for local management
- Remotely accessible over a TCP-IP networks. Allows the user to access and carry out maintenance, or / and switch the DS3 line between the "active" and "standby" DS3 terminals, remotely, if required
- SNMP V.2
- Dual AC (1+1 AC) or Dual - 48V DC (1+1 DC) power input.

### Benefits

- Allows the users to install and maintain active / standby / duplicate customer premises data networks / data servers, without bearing the recurring \$\$ expense of leasing additional expensive DS3 lines from the telephone company
- Automatically switches the DS3 link from the Telephone Company between the "active" and "standby" DS3 equipment at the customer premises, according to the customer-defined criterion
- Improves equipment and data security.
- Allows the user to co-locate the "backup / standby" equipment in a different room / building and prevent any data loss arising out of conditions of natural calamity such as fire, flooding etc
- Increases the reliability of the customer's data / IT networks without having to bear the recurring and additional cost of leasing additional DS3 lines from the telephone company. The equipment may be used to create secondary / backup systems at the customer premises to provide virtually uninterrupted service.

### Application Note

The DS3 Fail-Over Switch should be used when the customer wishes to connect redundant (active and standby) DS3 equipment (such as Routers) at the customers premises to a single DS3 service line from the telephone company.

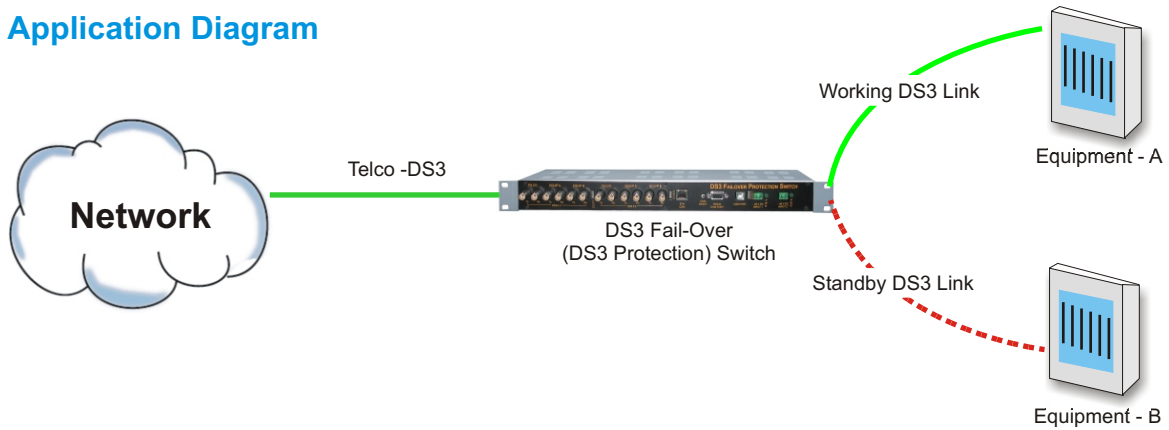
The DS3 Fail-Over Switch shall automatically switch the DS3 service line from the telephone company between the ACTIVE DS3 data server / router and the STANDBY DS3 data server / router. Should and whenever the ACTIVE DS3 data server / router fail (or be removed from service), the DS3 line from the telephone company automatically switches to the STANDBY DS3 data server / router without requiring any customer or user intervention.

The DS3 Fail-Over Switch may also be accessed remotely by the user to allow forced / manual switching between the two DS3 terminals through user executable software commands using Telnet.

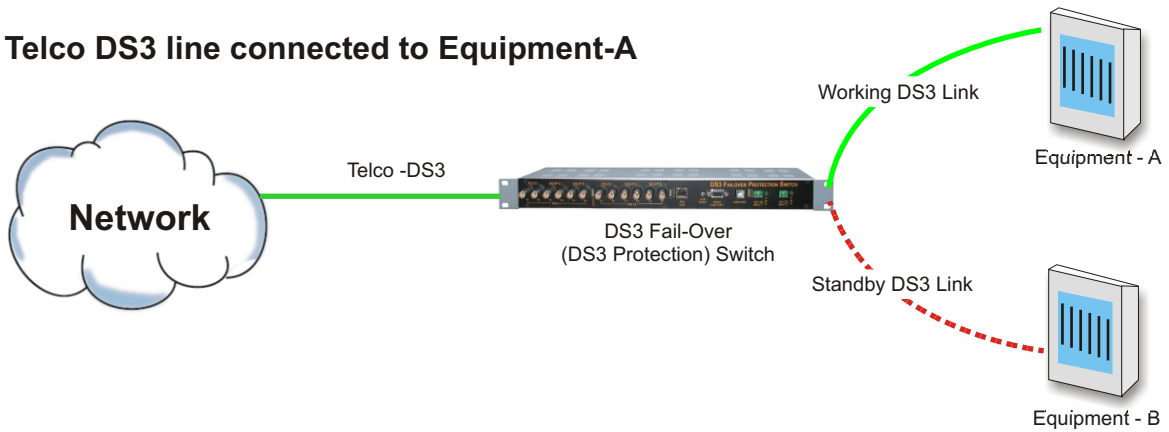
### User Programable DS3 Switching Parameters

Loss of DS3 Signal (LOS)	The Loss of Signal condition in a DS3 may occur due to:  a) The failure of the DS3 Port of the customer premises equipment. b) Or due to loss of power to the customer premises equipment. c) Or due to the disconnection of the DS3 cable between the protection Switch and the DS3 Port of the customer premises equipment.
DS3 Switching Time	Change over time from main port to standby port is user configurable from 10 ms to 3000 ms.  Recovery time from standby to main port is also user configurable from 10 ms to 9999 ms.

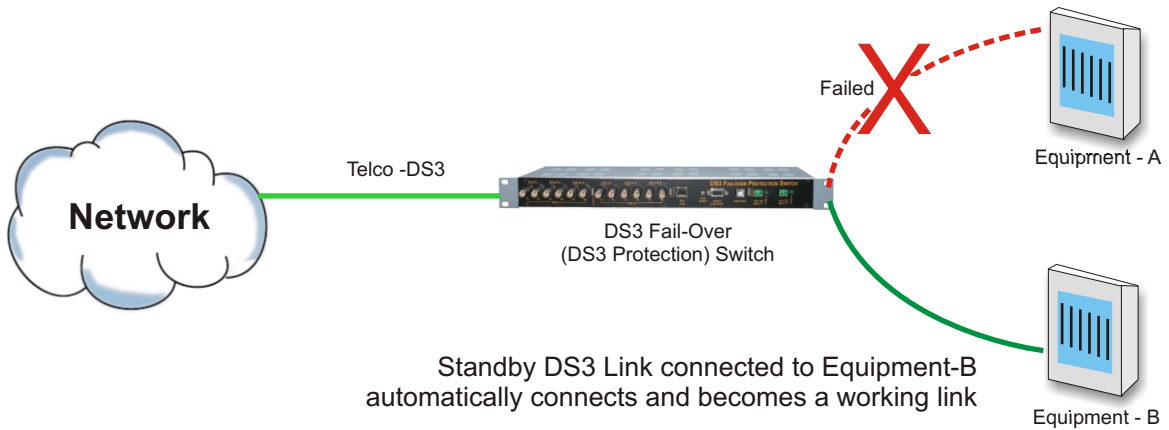
Application Diagram



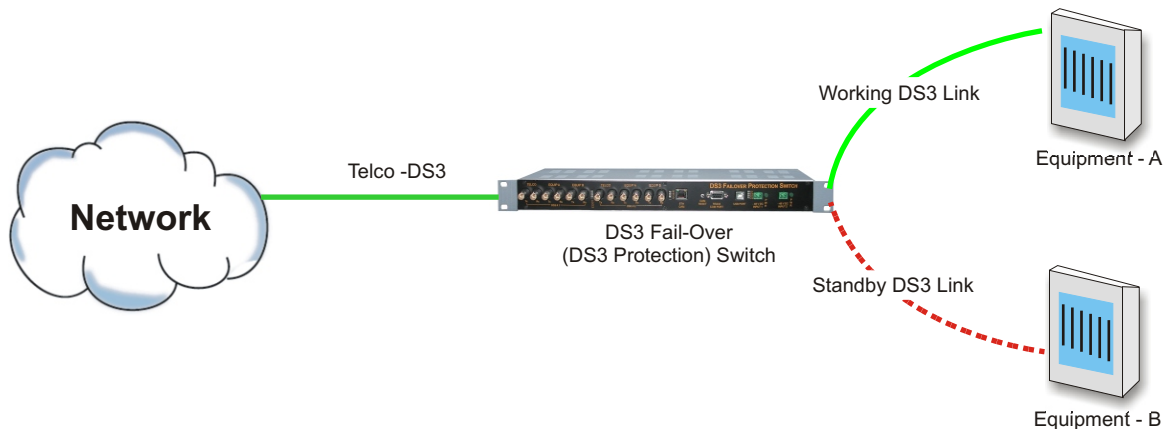
Telco DS3 line connected to Equipment-A



Equipment-A fails - Telco DS3 automatically switches to Equipment-B



Equipment-A recovers - Telco DS3 line automatically switches to Equipment-A



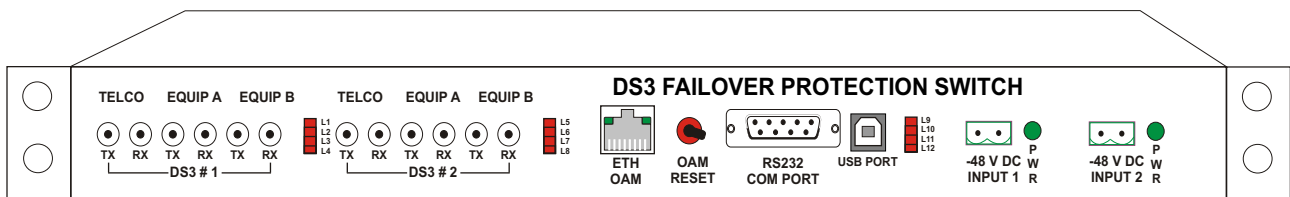
## DS3 Protection (Fail-Over) Switch

### Shelf Description

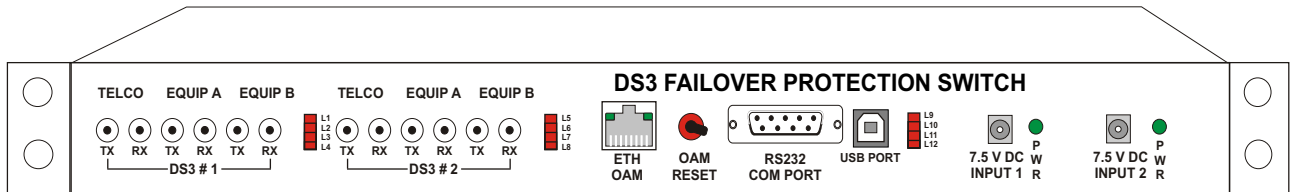
The DS3 Protection (Fail-Over) Switch is fitted in a 19-inch 1U shelf that provides access to all external interfaces.

The DS3 interface, power input access and Management Ports (RS232, USB serial port) and 10BaseT Ethernet interfaces) are accessible from the front panel.

### Front view of the shelf DC Power Version



### Front view of the shelf AC Power Version



### Mechanical Specifications

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

## Technical Specification

### DS3 (T3) Interfaces

Number of DS3 Interfaces - Telco	1 (in one DS3 line version) 2 (in two DS3 line version)
Number of DS3 Interfaces - Equipment	2 (in one DS3 line version) 4 (in two DS3 line version)
Bit rate	44.736 Mbps
Bit rate tolerance	+/- 20ppm
Line code	B3ZS
Framing	Transparent (M-13 and C-Bit supported)
Pulse shape	Meets ANSI T1.102-1993 and Bellcore GR-499-CORE
Connectors	BNC, Co-axial Un-balanced
Impedance	75 Ohms
Signal level to declare loss of signal condition	≤ 20mV
Signal level to clear loss of signal condition	≥ 90mV

### AC Power Supply Specifications

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 with DC input polarity protection.
Power Supply Rating - Maximum full load output current	2.5 A at 7.5 V DC/9.0 V DC
Power consumption	14 watts
Input voltage reversal protection	Provided in the Card
Efficiency at full load	>86%
Feed connectors	Dual Feed - 2 AC Inputs

### DC Power Supply Specifications

Power supply	- 48V DC (-36V DC to -72V DC)
Input voltage reversal protection	Provided in the Card
Power supply	1+1 Protected Inputs
Power consumption	14 watts
Feed connectors	Dual Feed - 2 DC Inputs

### Command Language

Command Line Interface (English text commands)
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## System Management and Access

Windows XP and Windows 7 compatible GUI
Telnet - CLI (Command Line Interface)
SNMP V2 (MIB File provided with the equipment)

## Management and Control Port

Serial Management Port (RS232) - COM Port
USB Serial Interface - COM Port
10/100 BaseT for remote management over a LAN / TCP-IP network

## Ethernet Management Port (Telnet and SNMP) Specifications

Network Interface	RJ-45 Ethernet 10BaseT or 100BaseT-TX (auto sensing), MDI-X.
Compatibility	Ethernet Version 2.0 IEEE802.3
Protocols Supported	ARP, UDP/IP, TCP/IP, Telnet, ICMP, SNMP
Management	SNMP (read only), Telnet login
EMI Compliance	<ul style="list-style-type: none"><li>- Radiated and conducted emissions - complies with Class B limits of EN55022:1998</li><li>- Direct and Indirect ESD - complies with EN55024:1998</li><li>- RF Electromagnetic Field Immunity - complies with EN55024:1998</li><li>- Electrical Fast Transient/Burst Immunity - complies with EN55024:1998</li><li>- Power Frequency Magnetic Field Immunity - complies with EN55024:1998</li><li>- RF Common Mode Conducted Susceptibility - complies with EN55024:1998</li></ul>

## Clock

Synchronized to the network DS3 clock.
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## Chassis

1U High
19-inch rack-mounting shelf



### Compliance/Regulatory

• Meets CE emission requirements
• Complies with FCC Part 68 and 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

### Ordering Information

S. No.	Part No.	Product Description	Qty.
1.	VCL-DS3-DUAL-PRO-1455-2DC	DS3 Failover Protection Switch Dual DS3 Protection (Fail-Over) Switch 19" Shelf 1U High Rack-Mount Version Includes: - 6 x DS3 Interfaces (75 Ohm 2xBNCF) [2 for Common / Telco DS3, 2 for Active DS3, 2 for Standby DS3] - 2 x -48V DC Power Supply Input - 1 x System Core Cables, Installation, Documentation, System User Manual, System User Manual Disk etc (Set)	1
2.	VCL-DS3-DUAL-PRO-1455-1AC	DS3 Failover Protection Switch Dual DS3 Protection (Fail-Over) Switch 19" Shelf 1U High Rack-Mount Version Includes : - 6 x DS3 Interfaces (75 Ohm 2xBNCF) [2 for Common / Telco DS3, 2 for Active DS3, 2 for Standby DS3] - 1 x 100-240V AC Power Supply Input [Adapter option] - 1 x System Core Cables Installation, Documentation, System User Manual, System User Manual Disk etc (Set)	1
3.	VCL-DS3-DUAL-PRO-1455-2AC	DS3 Failover Protection Switch Dual DS3 Protection (Fail-Over) Switch 19" Shelf 1U High Rack-Mount Version Includes: - 6 x DS3 Interfaces (75 Ohm 2xBNCF) [2 for Common / Telco DS3, 2 for Active DS3, 2 for Standby DS3] - 2 x 100-240V AC Power Supply Input [Adapter option] - 1 x System Core Cables, Installation, Documentation, System User Manual, System User Manual Disk etc (Set)	1

