



ORION TELECOM NETWORKS INC.

**64 Port T1 VCL-MegaConnect Groomer
for Hi-Z Non-Intrusive Monitoring**

Product Brochure & Data Sheet

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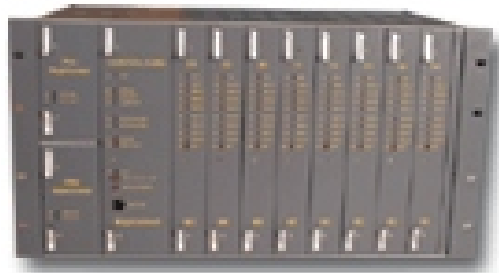
Introduction

The 64 Port T1 VCL-MegaConnect Groomer is suitable for non-intrusive monitoring of upto 30, "live" T1 traffic links, bidirectionally (i.e. in both transmit and receive directions through it's 60 T1 receivers) through a high impedance (Hi-Z) path.

Additionally the equipment also provides 4 T1 Ports that shall connect the aggregated time-slots

which have been non-intrusively "monitored" from the 30, "live" T1 traffic links to test equipment protocol analysers/test probes etc.

64 Port T1 VCL-MegaConnect Groomer for Non-intrusive Monitoring



Description

The VCL-MegaConnect™, 64 Port T1 Groomer, occupies only a 6U high rack-space and is a compact 19-inch stand-alone unit. The unit operates on a -48VDC input power-supply. An AC input adapter is also optionally available for AC mains operation.

The equipment is provided with both, RS232 Serial Interface for COM Port connection and as well as a TCP/IP LAN Interface (10BaseT) for providing equipment access through telnet over a LAN/TCP/IP link. The user may select and use either of these ports for executing HyperTerminal text commands for configuration etc. The access for configuration and system management is provided through CLI (Command Line Interface) text commands which may be executed either from a serial (COM) Port of a PC, or through the TCP/IP 10/100BaseT LAN Interface. The 10/100BaseT LAN Interface allows the equipment to be connected on a TCP/IP network for remote access for configuration and monitoring over LAN/TCP/IP link, remotely. The system is also supplied with an easy to use Windows (95,98,Me,XP) Graphical User Interface that provides the user a complete control to prepare multiple configuration "maps" and store them. Dry contact relay alarm output is also available at rear of the system to connect the system to external audio/visual alarm output through a dry relay contact.

In bidirectional mode the groomer is capable of non-intrusively monitoring upto 30 "live" T1 links and then groom the selected time-slots to the 4 T1 Ports provided in the equipment. The 60, T1 receivers of the groomer shall connect to the 30, T1 "live traffic" links which are to be monitored, non-intrusively.

The Groomer is capable of monitoring a -20dBdsx (0.3Volt Pulse) T1 signal through a Hi-Z path, without in any way affecting or disturbing the "live" T1 traffic that is required to be monitored.

The equipment offers the user with complete flexibility to choose and select time-slots from each of the 30 T1 links that are being monitored, without limitation or restrictions, through the internal TSI non-blocking switch (data received by the equipment's 60 T1 receivers) and then aggregate the selected time-slots to the 4 T1 ports that shall connect to the test equipment, such as protocol analysers/test probes, billing servers etc.

In unidirectional mode the Groomer is capable of non-intrusively monitoring upto 60 "live" T1 links and then groom the selected time-slots to the 4 T1 Port provided in the equipment. The 60, T1 receivers of the Groomer shall connect to the 60, T1 "live traffic" links which are to be monitored, non-intrusively.

Applications

- Monitoring and billing-non-intrusive line traffic monitoring for “Listen-Only”
- Network monitoring, fraud management and billing applications

Highlights

- Stratum 3 Clock for extremely high clock stability
- Remote TCP/IP Access for configuration and monitoring
- Text based user friendly CLI for easy configuration
- Remotely accessible through Telnet

Features

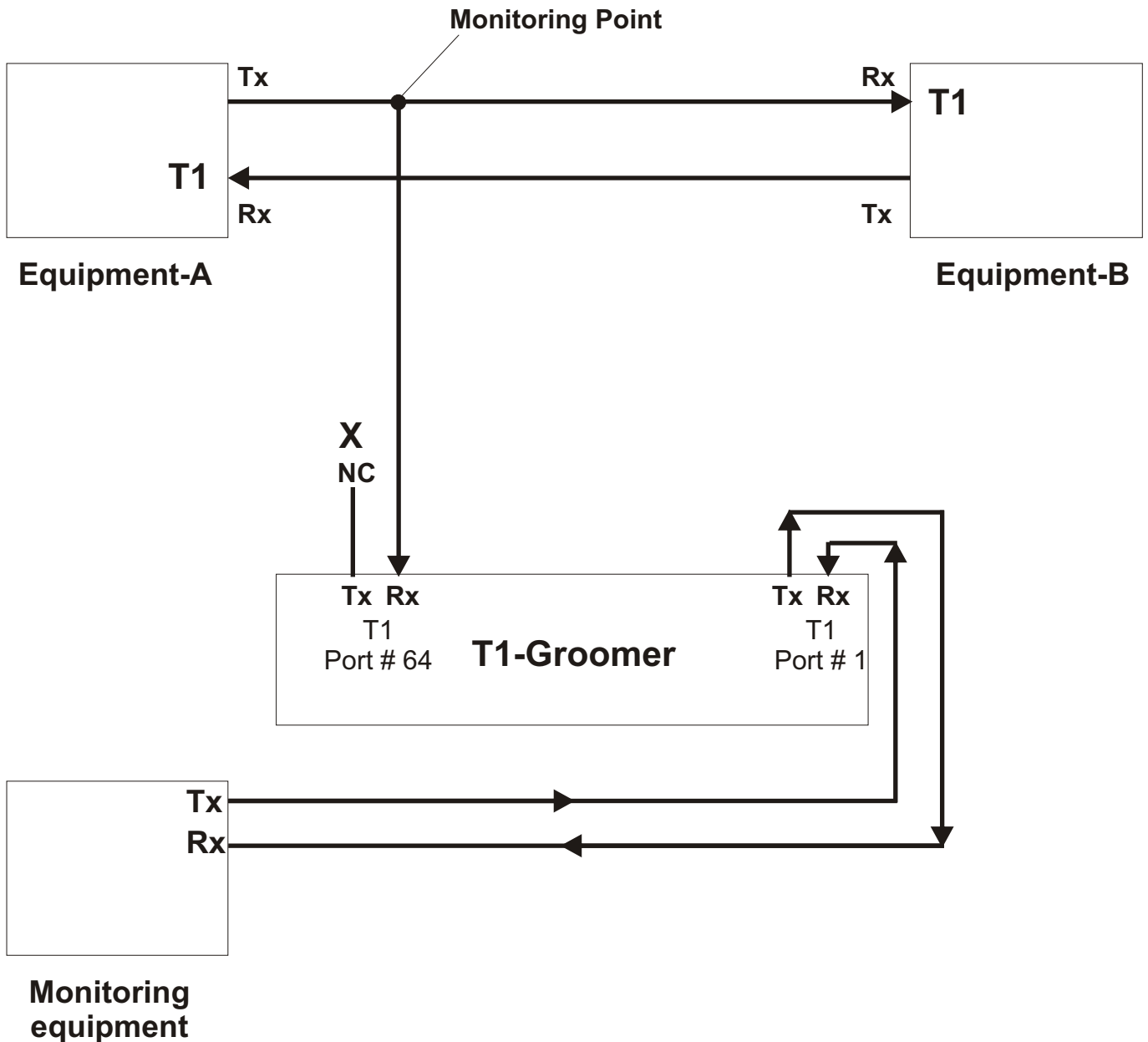
- Scalable
- Provides DS0, "n"x64Kbps and Fractional T1 grooming for all 64 T1 Ports without restriction
- Rear access
- User friendly CLI (text based) commands
- Telnet (10/100 BaseT) option
- Easy to install
- May be equipped from 8 T1 Ports to 64 T1 Ports depending on user requirements
- LED Indications on the front panel for alarms and status

Benefits

- Reduce access costs by combining partially loaded T1s to a single T1
- Rear access wiring
- Improves wiring and cable management
- Support Nx64Kbps fractional T1 operation and grooming
- For (non-intrusively) connecting to monitoring/billing equipment for Live-Traffic monitoring and cross connect functions
- Easy to install and simple to use

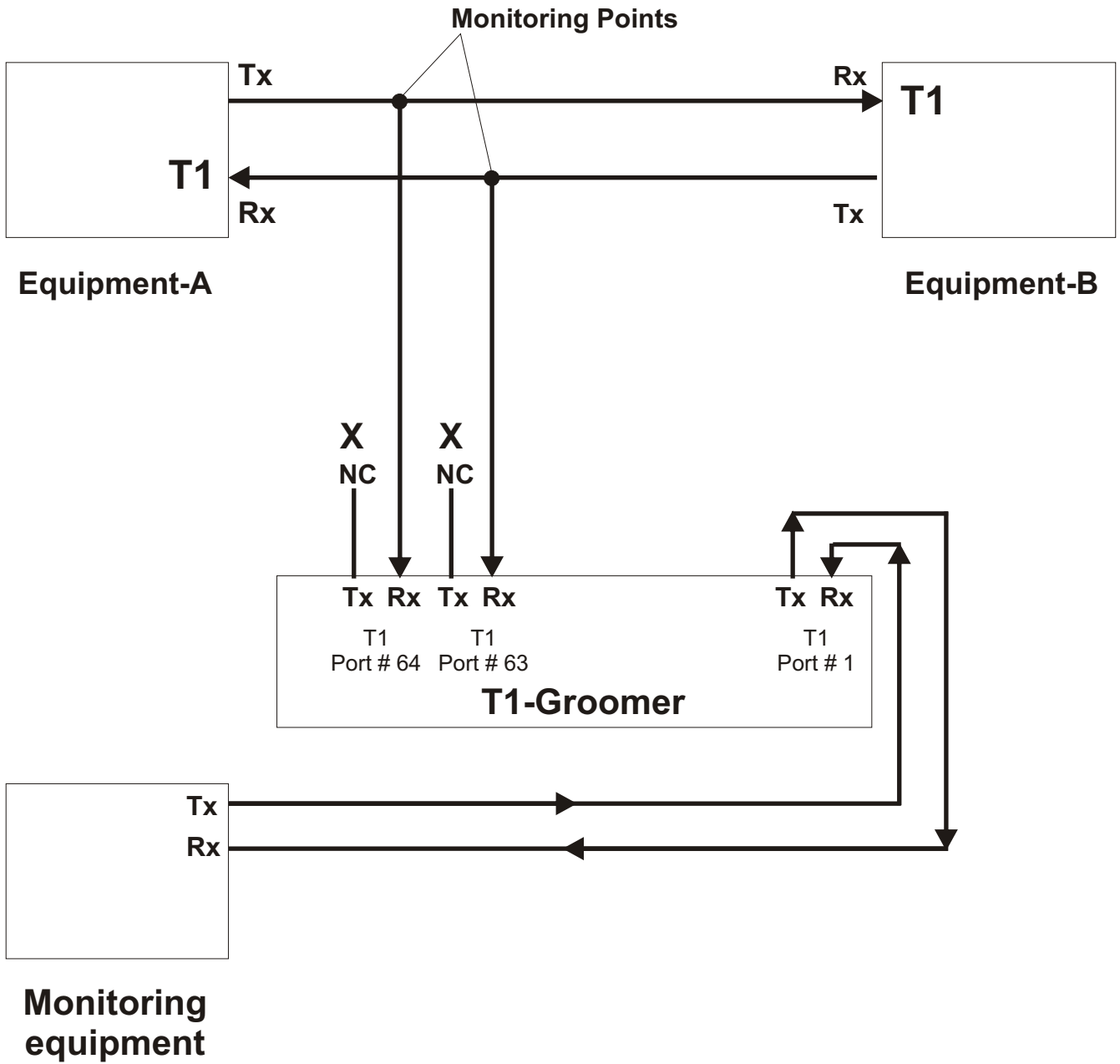
Combine traffic from fractional T1's to a single fully utilized T1 Hi-Z Non-Intrusive Monitoring Application

Hi-Z Unidirectional Monitoring



To monitor an T1 link in a single direction, you will need to connect one high impedance T1, RX pair of the Groomer, as it is only the Rx (**Receive**) pair that is capable of listening. Please leave the Tx (**Transmit**) pair un-connected.

Hi-Z Bidirectional Monitoring



To monitor an T1 link in both directions, you will need to connect two high impedance T1, RX pairs of the Groomer, i.e. use 1, Hi-Z T1 Ports.

64 Port T1 VCL-MegaConnect Groomer

Shelf Description:

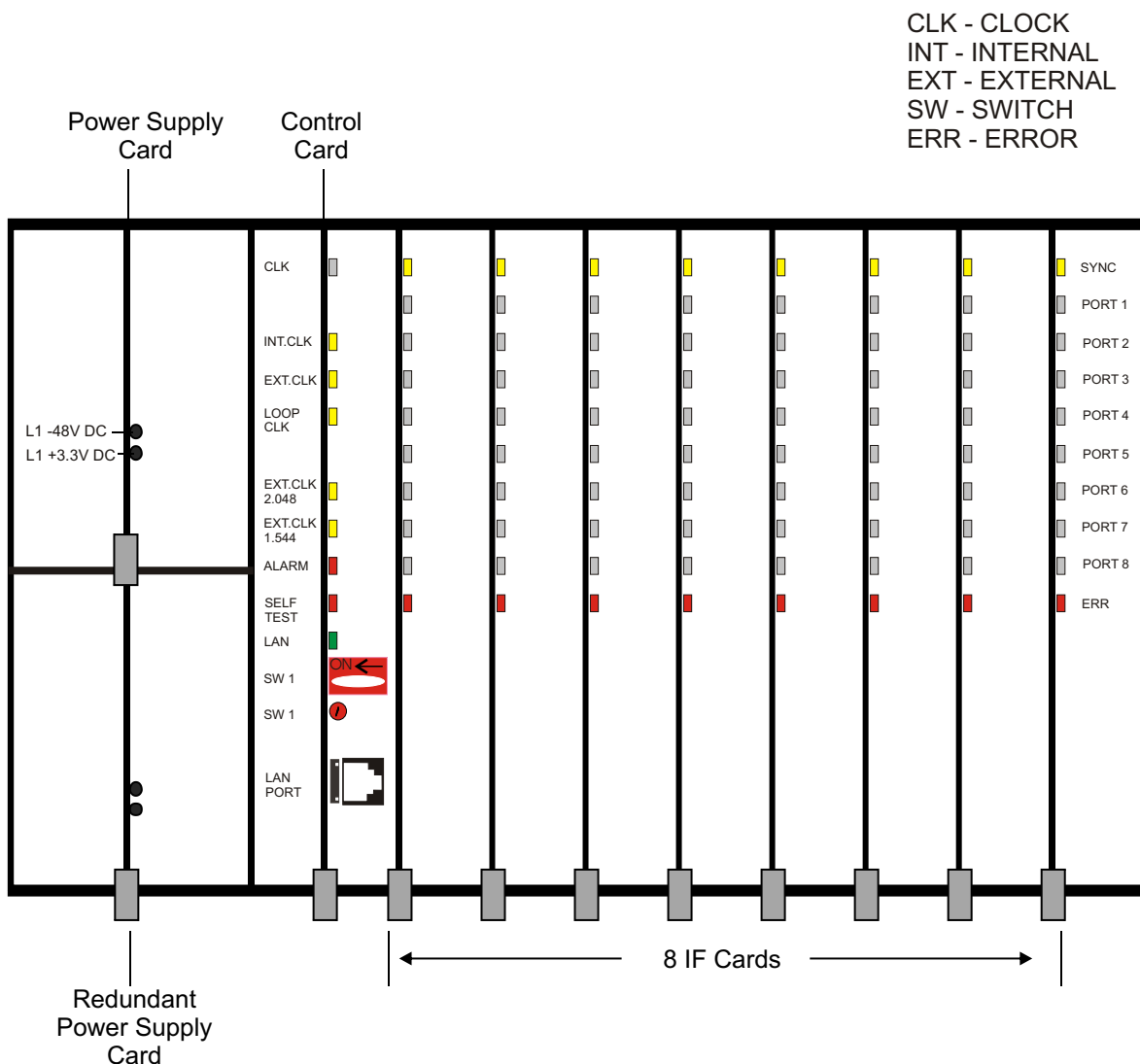
6U high standalone system

The 64 Port T1 VCL-MegaConnect Groomer unit is a 6U, 19 Inch Shelf, fitted with a backplane that provides rear access of all external interfaces. The 1.544 Mbps electrical I/O, power input, alarm extension and the NMS Port are all accessed from the backplane.

The 1.544Mbps T1 Interfaces are 100 Ohms twisted pair RJ-45 connectors.

64 Port T1 VCL-MegaConnect Groomer

Front view of the shelf

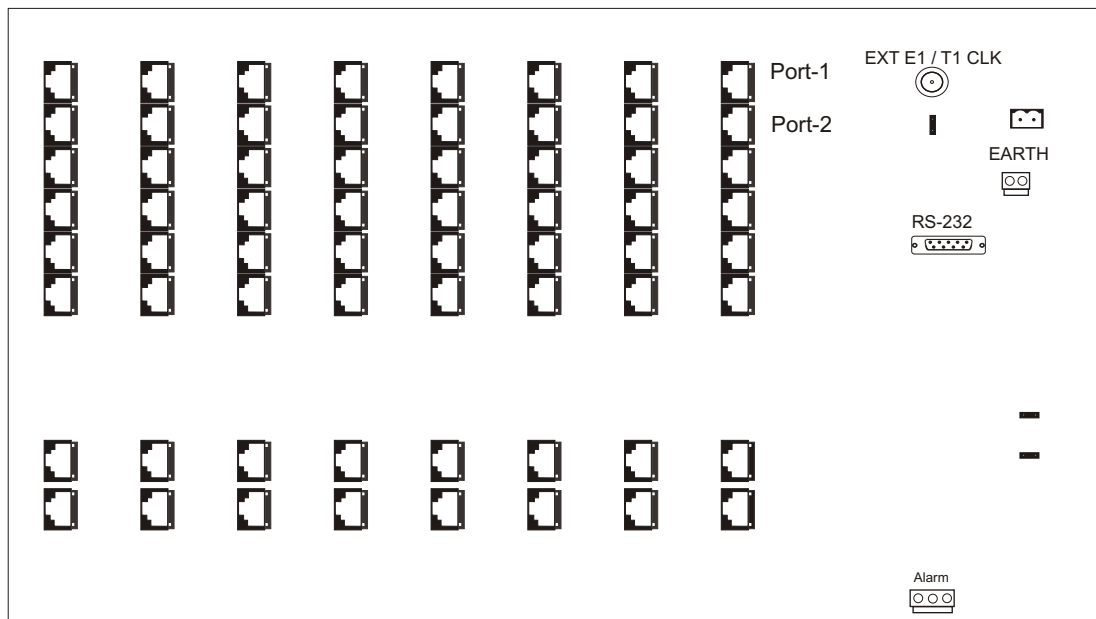


Accessing 64 Port T1 VCL-MegaConnect Groomer Standalone Shelf

1.544 Mbps streams are accessible at the backplane. Access is also available for 2 alarm extensions, -48V power input is provided at the rear of the 6U shelf. The RS232 interface for monitoring and control is also taken from the rear panel of the stand-alone 64 Port VCL-MegaConnect Groomer unit.

64 Port T1 VCL-MegaConnect Groomer

Back View



64 Port T1 VCL-MegaConnect Groomer offers programming via an RS232 Port for control and monitoring of the unit.

Programming Features

- Specifying the priority sequence for clock selection
- Enabling or Disabling 1.544 Mbps Ports (masking) of the 1.544 Mbps Ports that are not in use
- Creating a cross connect between T1s at DS-O level (single time-slot level) using the easy to use CLI (text-based) commands

Status Monitoring

- Clock Selection
- Status of alarms
- Enabled/Disabled status of 1.544 Mbps Ports
- Monitoring of the 64Port T1 VCL-MegaConnect Groomer status and configuration

Alarm Status Monitoring

- Loss of incoming signal at all 1.544 Mbps Ports
- Configuration Error Alarm

In addition to the above monitoring facilities, 64 Port T1 VCL-MegaConnect Groomer is provided with LED's, which indicate various fault conditions.

Monitoring 64 Port T1 VCL-MegaConnect Groomer via LED indications

- 1 to 64 T1 Ports LED indicators
- +3 V DC present
- - 48V DC present
- Configuration Error

Technical Specifications

T1 Interface

Line Rate	T1 (1.544 Mbps \pm 50 bps)
Available Time-Slots	1-24
Framing Structure	As per ITU (CCITT) G.704
Framing Options	D4, ESF (Selectable)
Line Coding	AMI, B8ZS (Selectable)
Electrical	ITU-T G.703
Jitter	ITU-T G.823, ITU-T 1.431
Impedance	100 Ohms
Connector	RJ-45 (F)
Receive signal sensitivity	Upto -20 dBdsx (0.3 Volt Pulse)

Time-slot selection

Any-to-any, through an internal, best byte, non-blocking TSI switch.

Clock

Internal	(Stratum3 level)
Loop-timed External	- 1.544 MHz

Management and Control

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

Command Language

Command Line Interface (English text commands)
Windows based GUI (optional)

Telnet specification and regulation compliance

Meets CE requirements
Complies with FCC, Part 68 and Part 15 sub partA specifications
Safety - UL 1459 Issue 2

Alarm contact closures

1 Alarm relay
Type - form "C" relay

Temperature

Operating	0°C to 50°C
Humidity	5% to 95% Non-condensing

Power consumption

Power consumption	30 watts (with all 64 T1 ports)
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Mechanical Specifications

Width	480 mm
Depth	280 mm
Height	270 mm
Weight	9.0 kg.

Ordering Information

64 Port T1 VCL-MegaConnect Groomer for Non-Intrusive Monitoring

Sr. #	Part #	Product Description	Qty
Common Equipment			
1.	T1 000-005 -Mon-DACS	19" Shelf 6U High (Sub-rack) to accommodate 64 T1 Ports with Connectorized Backplane 6U High	1
2.	VCL-1295 -PSU-T1	- 48V DC Input Power-Supply Card(s) for Redundant Operation	2
3.	VCL-1294-CC -T1-MON	T1 Control Card with TSI (time-slot selection) and and with serial LAN Management Ports (10BaseT - LAN Management Card for connecting the Groomer to be managed in a LAN)	1
4.	T1-01048 -150W-RK	Power Supply (External) AC to DC Converter Portable External Converter Universal AC Input [93V AC-276V AC, 47Hz-63Hz] to DC Output [(-) 48V DC]	1
VCL-MegaConnect-User Interfaces			
Sr. #	Part #	Product Description	Qty
1.	VCL-1492 -T1-MON	8 Port T1 Interface Card with 3 meter cables (provides 8 T1 interfaces per card)	8 max.
2.	Manual	User Manual and Configuration Software	1

Technical specifications are subject to changes without notice.
Revision 02 - August 22, 2007.

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