TAINET

Scorpio 1000

Universal Sub Rack System

USER'S MANUAL

The Professional Partner

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ABOUT THIS MANUAL

This section guides users on how to use the manual effectively. The manual contains information needed to install, configure, and operate TAINET's Scorpio 1000 Universal Sub Rack System. The summary of this manual is as follows:

Chapter 1: Introduction
Presents overview, application, and other general information on the Scorpio 1000.

Chapter 2: Specification
The specifications are summarized in a condensed format in this chapter.

Chapter 3: Interfacing
Describes the different interfaces, their connectors, and pin assignments.

Chapter 4: Installation & Setup
Describes preparation required to get the installation underway.

Chapter 5: Operation of CID (Craft Interface Device)
Describes the commands and operational procedures used to control and monitor a Scorpio 1000.

Appendix A: VT-100 Menu Tree

Describes the commands at different tiers when operating the VT-100.

Appendix B: Pin Assignment
Describes all cables and connectors with pin definition.

SYMBOLS USED IN THIS MANUAL

3 types of symbols may be used throughout this manual. These symbols are used to advise the users when a special condition arises, such as a safety or operational hazard, or to present extra information to the users. These symbols are explained below:

Warning:
This symbol and associated text are used when death or injury to the user may result if operating instructions are not followed properly.

Caution:
This symbol and associated text are used when damages to the equipment or impact to the operation may result if operating instructions are not followed properly.

Note:
This symbol and associated text are used to provide the users with extra information that may be helpful when following the main instructions in this manual.

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Chapter 1. Introduction

1.1 Overview

DSL (Digital Subscriber Loop) technologies increase the bandwidth capacity of the local copper loops providing traditional phone service to the subscribers. G.SHDSL is designed for business applications, where high-speed transmission is required in both upstream and downstream directions. It provides symmetrical data rates from 192Kbps to 2.304Mbps(2 wires) for a distance up to 20Kft using the SHDSL transmission technology. The actual speed reachable however depends on the distance between the customer premise and the Telco central office. Performance varies with loop characteristics also, such as line quality, wire gauge, noise, and the number and locations of bridged taps and gauge changes. The G.SHDSL bit rate can be configured / rate adapted to match the line conditions for optimum performance.

The Tainet Scorpio 1000 (S1000) provides full coverage in the Last Mile with a variety of technologies, rates, interfaces and media. The system supports standard technologies such as G.SHDSL as well as others. Each card in the S1000 is in a point-to-point configuration opposite to a distant-end remote unit and is without any connection to its adjacent cards. This allows totally independent operation for each of the ports and cards in the S1000. Three types of technologies will be provided in S1000: 2-wire G.SHDSL modem, 4-wire G.SHDSL modem and fiber optic modems.

The S1000 is a high-density universal rack mounted system. The chassis has 14 slots, that accommodate up to 14 (or 28 if dual-port card) modems. Using modular interface cards, S1000 can support SHDSL or fiber optic transmissions in the same chassis under a single management system. All cards and cables are hot swappable during system operation without causing interference to data transmission to/from other cards in the chassis. Modular data interfaces allow modem connectivity via a wide range of DTE interfaces. These interfaces include T1, E1, DATA (V.35, V.36/RS449, X.21, RS-530), and Ethernet.

1.2 Application

The SHDSL System consists of a central unit, or STU-C (for SHDSL Transceiver Unit - Central), at the central office, and a remote unit, or STU-R (for SHDSL Transceiver Unit - Remote), at the customer premise.

The services are extended to the remote customers over copper wires or leased lines using G.SHDSL technology or fiber. Various interfaces are supported such as: E1, T1, DATA (V.35, V.36/RS449, X.21, RS-530), and Ethernet.

Figure 1-1 shows the typical application diagram. Figure 1-2 depicts the possible interface configurations using G.SHDSL between STU-C and STU-R.

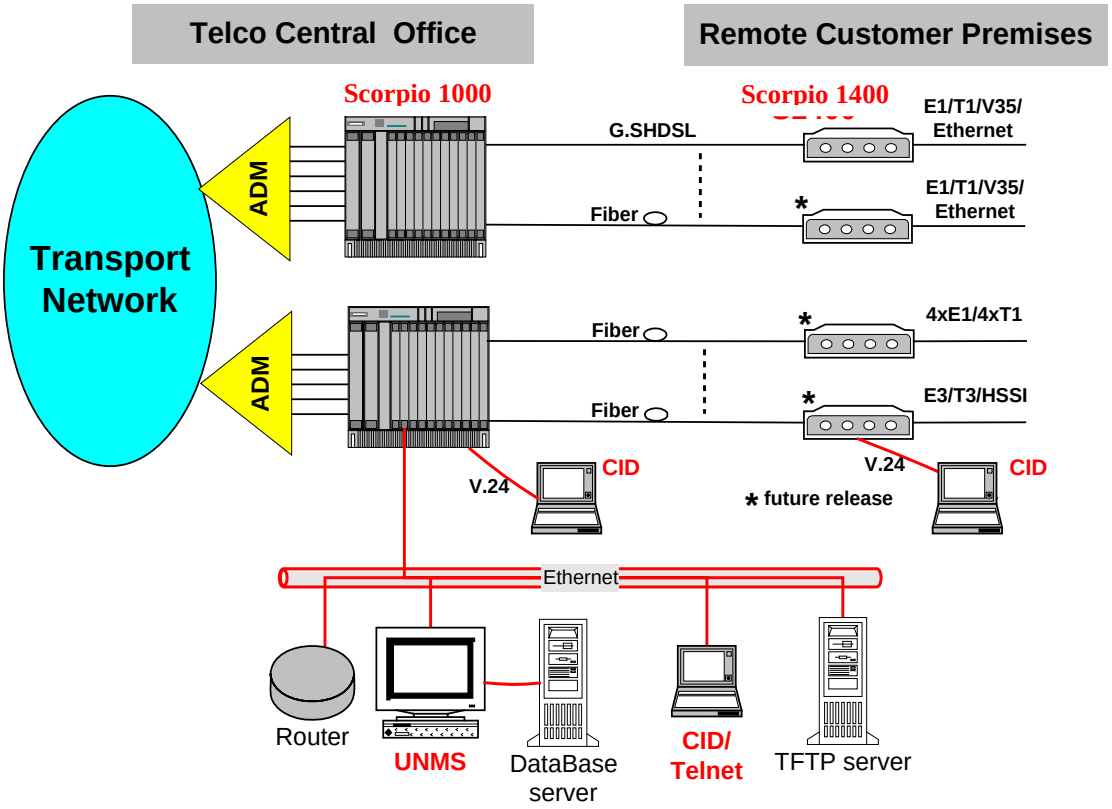


Figure 1-1 Application of S1000/S1400 System

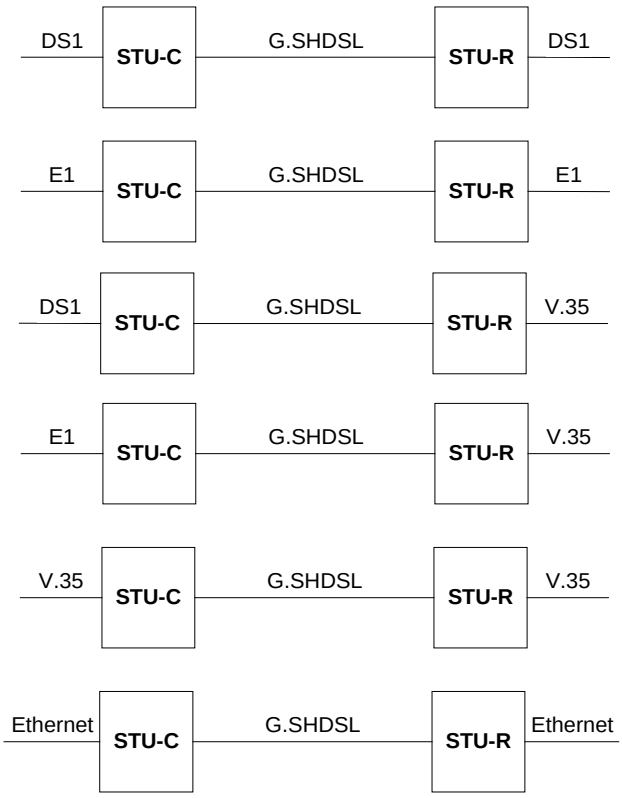


Figure 1-2 The Interface Configuration of S1000/S1400 System

Notice that S1400 can be configured as STU-C or STU-R. S1400 should be STU-R when connected with S1000.

Note:
The Scorpio 1400 can be configured as either STU-C or STU-R. But when connected to a Scorpio 1000, the 1400 will always be an STU-R.

1.3 Management

S1000 is managed by the UNMS via the MPU card. The UNMS is a PC-based or UNIX-based* SNMP management system. The UNMS provides an user-friendly, GUI-based operational interface under the PC/Windows or HP OpenView systems. Configuration and monitoring are also provided via an ASCII terminal (Craft Interface Device) or Telnet.

Network management provides centralized control functions of all S1000 systems and remote modems in the network, including interface configuration, connection setup, alarm surveillance and performance monitoring. Direct 10/100BaseT Ethernet connection enables real-time management of central and remote sites. Performance data is available in UNMS database, which can be saved in a file for accounting purposes.

S1000 can also be managed from a CID. The CID provides user-friendly menu-driven operation interface. It is running under a standard VT-100 program like Telix or HyperTerminal. Telnet protocol is supported for remote management via IP network.

A new software release can be downloaded into the S1000:
- Remotely via Ethernet port running TFTP protocol
- Locally via CID console terminal running XMODEM protocol

1.4 System Elements

Two different physical versions of the S1000 are available:

S1000A (ANSI version): The chassis has 14 slots that accommodate up to 14 (or 28 if dual-port card) modem interface units. Card insertion, LED viewing, and switch operation are done at the front side of the shelf. But cable connections are done at the rear of the shelf. So the line cards can be hot-swapped without removing the cables. This compact, 4U high shelf complies with the American ANSI standards.

S1000E (ETSI version): The chassis has 16 slots that accommodate up to 16 (or 32 if dual-port card) modem interface units. Card insertion, LEDs, switches and cable connections are at the front. The Line Cards can still be hot-swapped without removing cables. This version is 30 cm high or about 6U high, and complies with European ETSI standard.

There are several types of line cards available for the S1000 system. One-port and two-port line cards can coexist in a shelf.

1. **PSU-AC** (AC Power Module)
2. **MPU** (Main Processing Unit)
3. **SLU** (SHDSL Line Unit):
   - SLU-E1T1-1P
   - SLU-E1T1-2P
   - SLU-DATA-1P
   - SLU-DATA-2P
   - SLU-LAN-1P
   - SLU-LAN-2P
4. **FLU** (Fiber Line Unit)
   - FLU-E1T1-1P
   - FLU-E1T1-2P
   - FLU-DATA-1P
   - FLU-DATA-2P
   - FLU-LAN-1P
   - FLU-LAN-2P
5. **BPU** (Backplane Unit)
6. **CU** (Connector Unit)
   - MPU-CU
   - SLU-CU-E1T1
   - SLU-CU-DATA
   - SLU-CU-LAN

Chapter 2. Specifications

2.1 Main Features

- The chassis has 14 slots accommodating up to 14 (or 28 if dual-port card) modems.
- Carrying symmetrical 2048 Kbps payload for up to 2.4 miles (3.9 Km) over 26 AWG single pair copper wire.
- Supporting loop interface in G.SHDSL and fiber (in near future).
- Supporting DTE interface T1, E1, DATA (V.35, X.21, RS-530, V.36 / RS449), and Ethernet.
- With 1 pair, both DS1 and E1 network side for STU-C and V.35 customer side for STU-R. The data rate shall be nx64 Kbit/s (n = 1 to 24 for DS1, n = 1 to 31 for E1). V.35 network side for STU-C and V.35 customer side for STU-R. The data rate is nx64 Kbit/s (n = 1 to 36). Ethernet network side for STU-C and Ethernet customer side for STU-R. The data rate is multiple, including nx64 Kbit/s (n = 1 to 36).
- With 2 pairs, both DS1 and E1 network side for STU-C and V.35 customer side for STU-R. The data rate shall be nx64 Kbit/s (n = 2 to 24 for DS1, n = 2 to 31 for E1). V.35 network side for STU-C and V.35 customer side for STU-R. The data rate is nx64 Kbit/s (n = 2 to 72). Ethernet network side for STU-C and Ethernet customer side for STU-R. The data rate is multiple, including nx64 Kbit/s (n = 2 to 72)
- Supporting SHDSL payload rates of n × 64 Kbps, where n is 3 to 36.
- The S1000 shelf can be mounted in 19” or 23” standard rack.
- Two Shelf versions: ANSI: 4U high, connectors on the back (S1000A).
- ETSI: 6U high, connectors on the front (S1000B).
- Optional dual AC power supply units with full redundancy.
- Hot swapping of cards and power supply module.
- Supporting Timing and Synchronization: Local (internal) timing, Line timing (loop received clock), DTE timing.
- For test and diagnostic purpose, the S1000 / S1400 systems provide various loopback paths, including ITU-T V.54 in-band activated / deactivated loopback codeword for end-to-end loopback function.
- Management via NMS or CID.
- SNMP management message interface.
- Remote control / monitoring S1000 via Telnet and Ethernet.
- Remote in-band control / monitoring CPE via G.SHDSL EOC.
- Remote software upgrade via TFTP.

2.2 SHDSL Interface

- Meeting ITU-T G.991.2 relative requirements.
- Supporting Wetting Current function for feeding of a low current (between 1.0 mA and 20 mA） on the pair to mitigate the effect of corrosion of contacts.
- Support for power back off functions.
- Rate adaptive from 192 Kbps to 2.304 Mbps in 64 Kbps increment.
- Modulation method: 16-TCPAM (16-levels Trellis Coded Pulse Amplitude

Modulation).
- Physical Connection Type: Standard RJ-45 jack, 135 ohm balanced via 2 wire twisted pair.
- Port enabled / disabled configurable.

2.3 Network Side Interface

2.3.1 DS1 Interface

- Bit Rate: 1,544 Kbit/s ± 32 ppm.
- Frame Format: SF (D4), ESF, ESF+CRC, or Unframed; frame format is field selectable.
- Line Code: AMI or B8ZS, field selectable.
- Impedance: Nominal 100 ohms ± 5% resistive, symmetrical pair.
- Jitter performance: meet ITU-T G.824 requirements.
- Physical Connection Type: Standard RJ-48C / RJ-45 jack.

2.3.2 E1 Interface

- Complies with G.703 Standard.
- Frame Format: Unstructured or Structured framing, field selectable.
- Line Code: High Density Bipolar of Order 3 (HDB3).
- Impedance: Nominal 120 ohms ± 5% resistive symmetrical pair or 75 ohm asymmetrical pair.
- Jitter performance: meet ITU-T G.823 requirements.
- Line Interface: 120 ohm (RJ-45) balanced or 75 ohm (BNC) unbalanced, selectable.
- Physical Connection Type: Standard RJ-48C/RJ45 jack (Balance) or BNC (Unbalance).

2.3.3 V.35 Interface

- Electrical Characteristics: comply with ITU-T V.35 interface.
- Software configurable for V.35, X.21, RS530, V.36/RS-449.
- Data Rate: n x 64 Kbit/s, where n = 3~36.
- Data inversion selectable.
- Clock inversion selectable
- Physical Connection Type: pin assignment of ITU-T V.35 interface complies with DB-25 female connector.

2.3.4 Ethernet Interface

- Provides 10/100 Base-T auto sensing and half/full duplex configurable Ethernet Interface.
- Electrical Characteristics: 10/100 Base-T Ethernet Interface complies with the IEEE 802.3/IEEE 802.3u.
- Physical Connection Type: Standard RJ-45 connector.
- Bridging Capability: Operates as a self-learning bridge specified in the IEEE 802.1d full protocol transparent bridging function.
- Supporting up to 128 MAC learning addresses.
- Supporting Bridge filter function

2.4 Timing and Synchronization

For S1000 and S1400, four timing modes can be selected from: Internal, Line, DTE, DTE-hybrid. Three synchronization modes can also be selected from for configuration of the S1000 / S1400 system. This is shown in Table 1.

Table 1 Timing and Synchronization Modes

Mode Number	STU-C Symbol Clock Reference	STU-R Symbol Clock Reference	Example Application	Mode
1	Local oscillator (Internal timing)	Received symbol clock	"Classic" HDSL	Plesiochronous
2	Transmit data clock (DTE timing)	Received symbol clock	Main application is synchronous transport in both directions.	Synchronous
3	Transmit data clock (DTE timing)	Received symbol clock	Synchronous downstream transport and bit-stuffed upstream is possible.	Hybrid: downstream Synchronous upstream: Plesiochronous

2.5 Operation, Administration and Maintenance

- The UNMS manages S1000 system via SNMP interface and provides a user-friendly, GUI-based operation interface under PC / Windows or HP OpenView systems.
- Support for standard MIB RFC 2495 for DS1/E1, and RFC3276 for SHDSL interface.
- CID Console: user-friendly menu-driven operation.
- SNMP management message interface.
- Remote control / monitoring of S1000 via Telnet and Ethernet.
- Remote in-band control / monitoring of CPE via G.SHDSL EOC.
- Remote Software Upgrade: Remotely via Ethernet port running TFTP protocol, or locally via CID console terminal running XMODEM protocol.
- Automatic and manual configuration backup and restoration to / from the local nonvolatile memory and UNMS database.
- Up / downloads the configuration database to / from the remote TFTP server, so user can duplicate configuration at numerous ports.
- Support for default configuration setup.
- Provides a relay contact for extending alarm to the external audible and visible alarm system.
- Support for Alarm Surveillance function.
- Support for Performance Monitoring function.
- For test and diagnostic purpose the S1000 / S1400 system provides various loopback paths, which are depicted in Figure 5-1 STU-C Side Activated Loopback and Figure 5-2 STU-R Side Activated Loopback.
- For each STU-C and STU-R, the built-in PRBS generation and detection are provided for loopback performance test on per channel basis. Test results are displayed. The supported PRBS patterns include 211-1, 215-1, 220-1, QRSS, 220-1, 223-1.
- ITU-T V.54 in-band activated and deactivated loopback codeword are provided for

end-to-end loopback function; details are depicted in Figure 5-3 The Test Methods for V.54 Loopback Control.

2.6 Power Supply

DC Power Input:

- -36 ~ -72VDC.
- Power Consumption: 180 watt. (ETSI shelf is 200Watt)

AV Power Input:

- The redundant PSU-AC power supply module can be replaced during operation, without affecting the system performance (hot- swapping).
- Power Input:
  AC input: 85 ~ 264VAC, Frequency: 47 ~ 63 Hz
- Output: (48V)
  Voltage: 48 VDC ± 10%
  Current: 6.25A (full load)

2.7 Operating Environment

- Ambient Temperature:

Indoor Type: 0 ~ 45 ^{o}C,
Outdoor Type: 0 ~ 60 ^{o}C.

- Relative Humility:

Indoor Type: Up to 90% without condensation,
Outdoor Type: Up to 95% without condensation.

Chapter 3. Interfacing

3.1 Front View of S1000

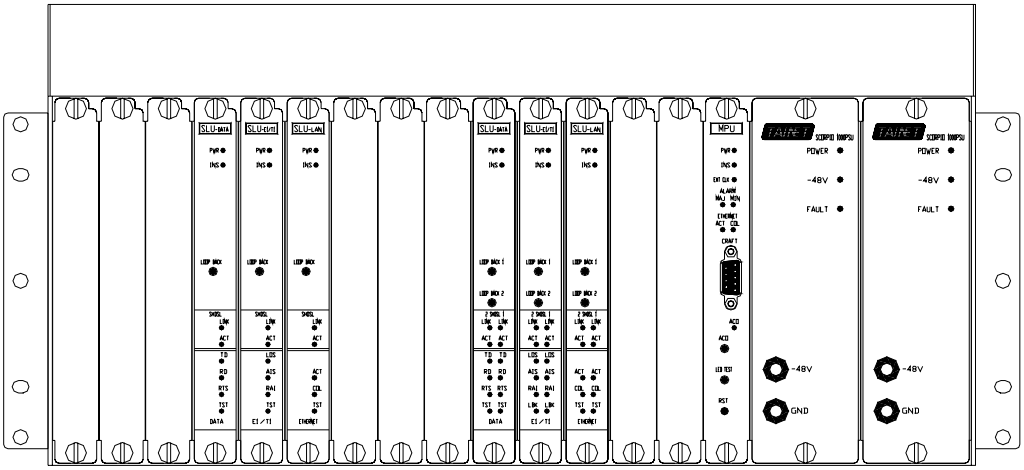


Figure 3-1 Front View of S1000

3.2 Rear View of S1000

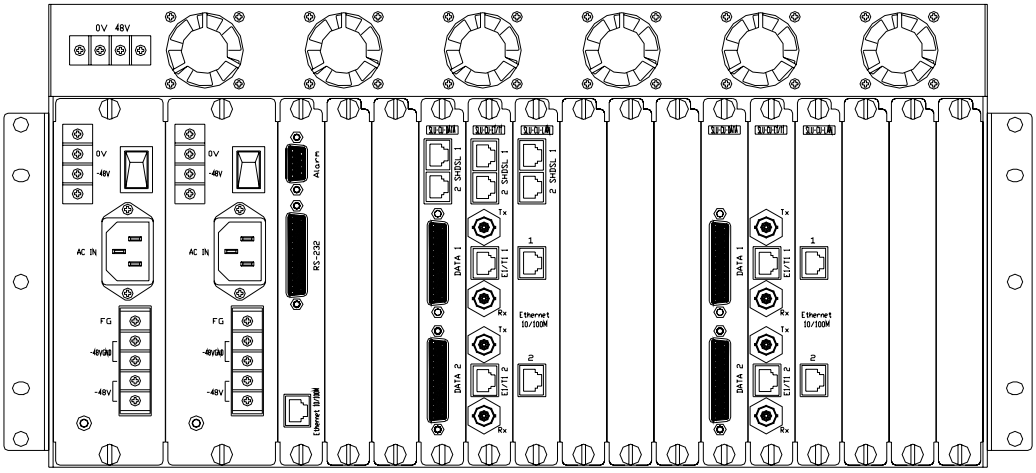


Figure 3-2 Rear View of S1000

3.3 Line Units

There are several line unit types available for S1000 system:

1. **PSU-AC** (AC Power Module)
2. **MPU** (Main Processing Unit)

3. **SLU** (SHDSL Line Unit)
   - SLU-E1T1-1P
   - SLU-E1T1-2P
   - SLU-DATA-1P
   - SLU-DATA-2P
   - SLU-LAN-1P
   - SLU-LAN-2P
4. **CU** (Connector Unit)
   - MPU-CU
   - SLU-CU-E1T1
   - SLU-CU-DATA

Table 2 shows the various interface combinations. Both SLU and FLU can be equipped with E1/T1 or Ethernet or Data sub-modules.

Table 2 Interface Combinations

DCE Side	Line Side	
	G.SHDSL	Fiber
E1/T1	√	√
Ethernet	√	√
Data	√	√

3.4 The Front View of Line Unit

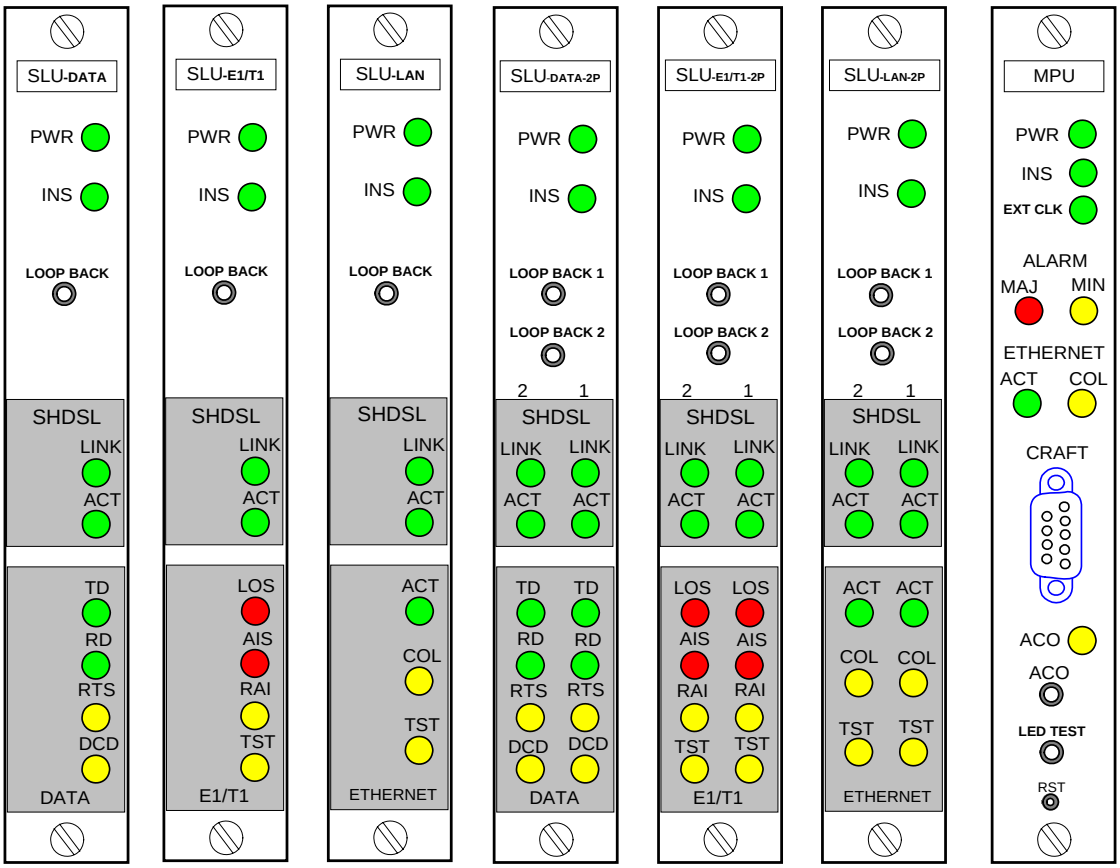


Figure 3-3 Front View of Line Units

3.4.1 Status Indicators and Buttons

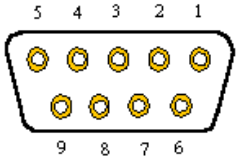
Table 3 Front Panel of MPU

LED Indicator	Description
PWR	On: The card is powered on.
INS	On: The card finishes the startup procedure and passes the test
EXT CLK	On: An external clock is detected.
MAJ	On: A major alarm has occurred.
MIN	On: A minor alarm has occurred.
ACT	On: Data is transmitted / received actively on the SHDSL link.
COL	On: Collision is occurring on the Ethernet management port.
ACO	On: When the ACO button had been pressed once but the alarm is not cleared yet, indicating the user is aware of the alarm.
Connector	**Description**
Craft	DB-9 female, RS-232 connector, for local CID VT-100 console.
Push Button	**Description**
ACO	Alarm Cut Off button; to turn off the audible alarm.
LED TEST	Press this to light up the LEDs on all of the inserted line units.
RST	Resets the MPU software.

Table 4 Front Panel of SLU

	LED Indicator	Description
Common	PWR	On: The card is powered on.
	INS	On: The card finished startup procedure and passed the test.
	LINK	On: HDSL link has entered data mode. Slow blinking: SHDSL link is in startup stage. Fast blinking: SHDSL link is in handshaking stage. Off: the SHDSL link is not connected.
	ACT	On: Data is transmitted / received actively on the Ethernet management port.
E1/T1	LOS	On: A LOS defect has been detected.
	AIS	On: An AIS defect has been detected.
	RAI	On: A Remote Alarm Indication defect has been detected.
	TST	On: A local loopback function has been activated.
DATA	TD	On: Indicates data has being transmitted.
	RD	On: Indicates data is being receiving.
	DCD	On: The device is sending DCD (Data Carrier Detected) signal toward DTE interface.
	RTS	On: The device is receiving RTS (Request To Send) signal from DTE interface.
LAN	ACT	On: Data is transmitted / received actively on the SHDSL link.
	COL	On: Collision is occurring on the Ethernet management port.
	Push Button	**Description**
	LOOP BACK	Press to activate the local loopback function.

3.4.2 The RS-232 DB-9 Female Pin Assignment



PIN	Description
1	Data Carrier Detect (DCD)
2	Receive Data (RXD)
3	Transmit Data (TXD)
4	Data Terminal Ready (DTR)
5	Signal Ground
6	Data Set Ready (DSR)
7	Request To Send (RTS)
8	Clear To Send (CTS)
9	Ring Indicator (RI)

3.5 The Front View of Connection Unit

The MPU, PSU and each SLU card all have a corresponding CU (Connection Unit) connected to the rear side of the back-plane for the purpose of connecting various cables.

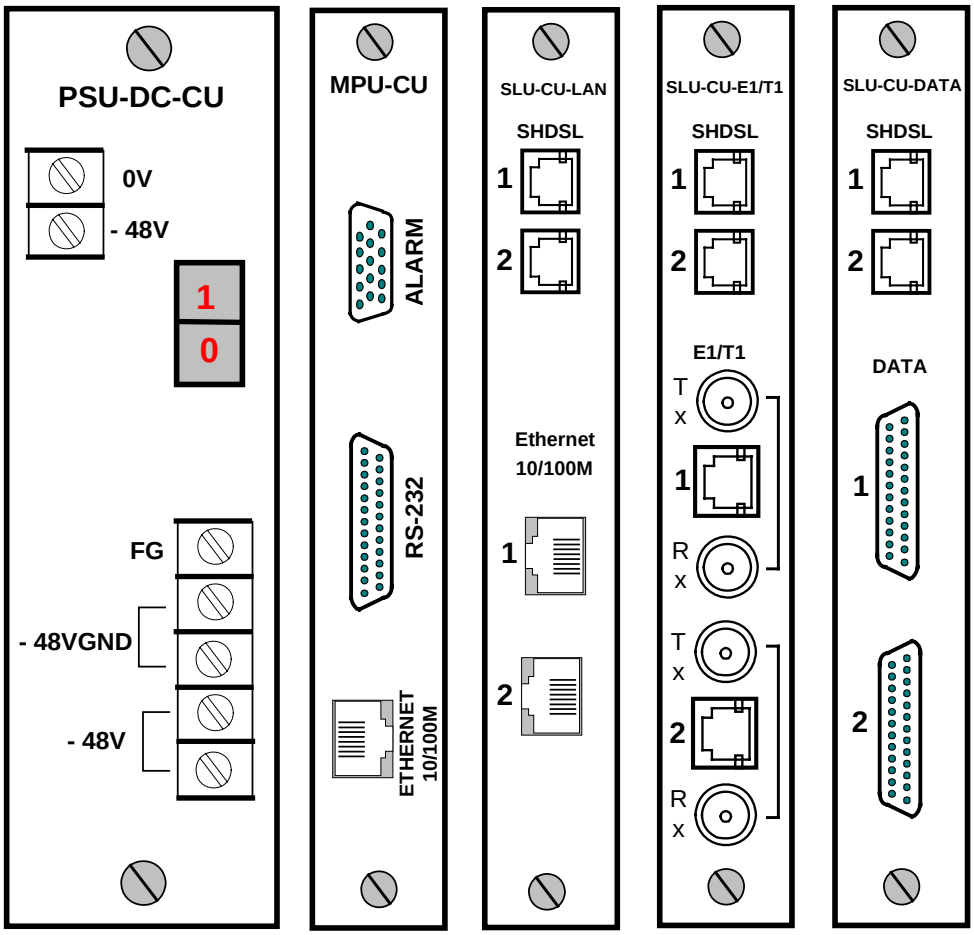
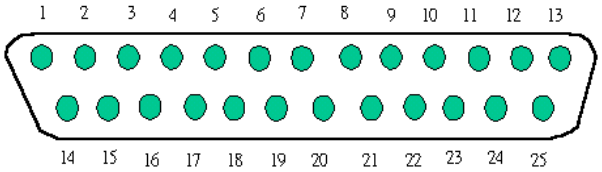


Figure 3-4 Front View of Connection Units

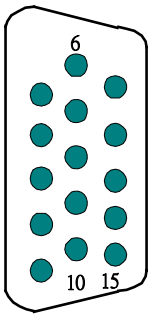
3.5.1 RS-232 DB-25 Male Pin Assignment

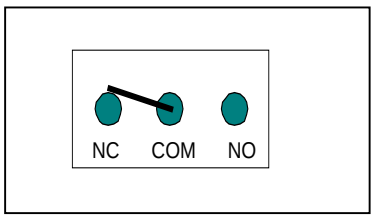
This DB-25 interface is for remote management via PPP session.



Pin	Description	Pin	Description
1	Frame Ground	14	Reserved
2	Transmit Data (TXD)	15	Reserved
3	Receive Data (RXD)	16	Reserved
4	Request To Send (RTS)	17	Reserved
5	Clear To Send (CTS)	18	Reserved
6	Data Set Ready (DSR)	19	Reserved
7	Signal Ground	20	Data Terminal Ready (DTR)
8	Carrier Detect (CD)	21	Reserved
9	Reserved	22	Ring Indicator (RI)
10	Reserved	23	Reserved
11	Reserved	24	Reserved
12	Reserved	25	Reserved
13	Reserved		

3.5.2 Office Alarm Connectors DB-15 Male Pin Assignment





HD15 Pin Assignment

Pin	Function	Pin	Function
1	AMA_NC	9	VMA_NC
2	AMA_CC	10	VMA_CC
3	AMA_NO	11	VMA_NO
4	AMIA_NC	12	
5	AMIA_CC	13	
6	AMIA_NO	14	
7	VMIA_NC	15	VMIA_NO
8	VMIA_CC		

AMA: Audible Major Alarm
VMA: Visual Major Alarm
AMIA: Audible Minor Alarm
VMIA: Visual Minor Alarm

NC: Normal Close
NO: Normal Open

There are four office alarm connectors on the back-plane: AMA, VMA, AMIA, and VMIA, each of which has three pins. The audio alarm connection can be connected to an external audio device to generate an audible alarm when an error occurs in the system. The visual alarm connection is connected to an external device that will give a visual indication when an error occurs in the system.

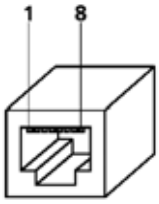
- **COM pin:** Common pin for NC and NO.
- **NC pin:** If a normally close signal is required, connect the alarm wires to the COM pin and NC pin. In normal state, the NC and COM are short-circuited. If an alarm occurs, NC and COM are open-circuited.
- **NO pin:** If a normally open signal is required, connect the alarm wires to the COM pin and NO pin. In normal state, the NO and COM are open-circuited. If an alarm occurs, NO and COM are short-circuited.

3.5.3 Power Supply Connectors

There are two connectors for DC –48V power source input in the rear panel.

- -48VGND PIN: Connect to ground of -48V power supply source.
- -48V PIN: Connect to -48V power supply source.
- FG PIN: Connect to frame ground.

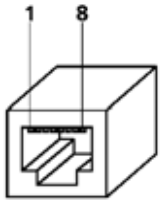
3.5.4 Ethernet RJ-45 Pin Assignment



Pin	Description
1	TX+
2	TX-
3	RX+
4	NC
5	NC
6	RX-
7	NC
8	NC

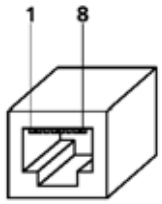
3.5.5 Balanced E1/T1 RJ-45/48C Pin Assignment

BNC for G.703 unbalanced interface and RJ-45 for balanced interface



Pin	Description
1	RxD__-
2	RxD__+
3	NC
4	TxD__-
5	TxD_+
6	NC
7	NC
8	NC

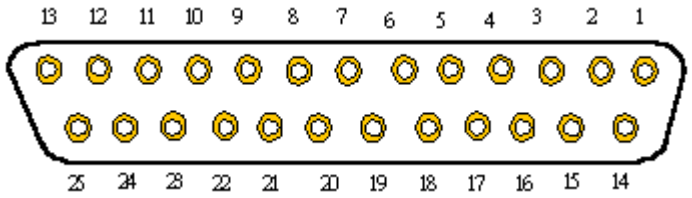
3.5.6 G.SHDSL RJ-45 Pin Assignment



Pin	Description
1	-
2	-
3	Tip- (2)
4	Tip- (1)
5	Ring- (1)
6	Ring- (2)
7	-
8	-

3.5.7 DB-25 Female Pin Assignment (V.35, V.36/RS-449, X.21, RS-530)

The SCORPIO S1000 SLU-DATA supports various DTE (Data Terminal Equipment) interfaces depending on user requirements. A Conversion Cable is enclosed for converting DB-25 to V.35, V.36, or X.21 interface. Three types of Conversion Cables are available for the customer to choose from. The selected cables are enclosed in the shipped package. Please see Appendix B for details.



Pin	Description	Pin	Description
1	Shielding	14	RXD- (Received Data)
2	RXD+ (Received Data)	15	RXDCLK+ (Received Data Clock)
3	TXD+ (Transmitted Data)	16	TXD- (Transmitted Data)

4	RTS+ (Request To Send)	17	TXDCLK+ (Transmitted Data Clock)
5	CTS+ (Clear To Send)	18	LL (Local Loopback)
6	DSR+ (DCE Ready)	19	RTS- (Request To Send)
7	Gnd (Signal Ground)	20	DTR+ (DTE Ready)
8	DCD+ (Received Line Signal Detected)	21	RL (Remote Loopback)
9	TXDCLK- (Transmitted Data Clock)	22	DSR- (DCE Ready)
10	DCD- (Received Line Signal Detected)	23	DTR- (DTE Ready)
11	CLKIN- (Data Clock Input)	24	CLKIN+ (Data Clock Input)
12	RXDCLK- (Received Data Clock)	25	TM (Test Mode)
13	CTS- (Clear To Send), RI (Ring Indicator)		

Chapter 4. Installation and Setup

Installation or servicing of any part of the S1000 should be performed by trained and qualified personnel. Always wear an ESD (Electronic Static Discharge) wrist or ankle strap to avoid ESD damage to the equipment or its associated circuitry

4.1 Dimensions

- **S1000A:**
  Height: 4U + 1U (fan tray).
  Width: 481mm (19”) including bracket.
  Depth: 380mm (15”).
- **S1000E:**
  Height: 8U.
  Width: 21 inch (including bracket).
  Depth: 310mm.
- **Unit: for SLU, FLU, MPU, PSU-AC**
  Height: 155 mm.
  Width: 300 mm.
- **Unit: for CUs**
  Height: 155 mm.
  Width: 60 mm.

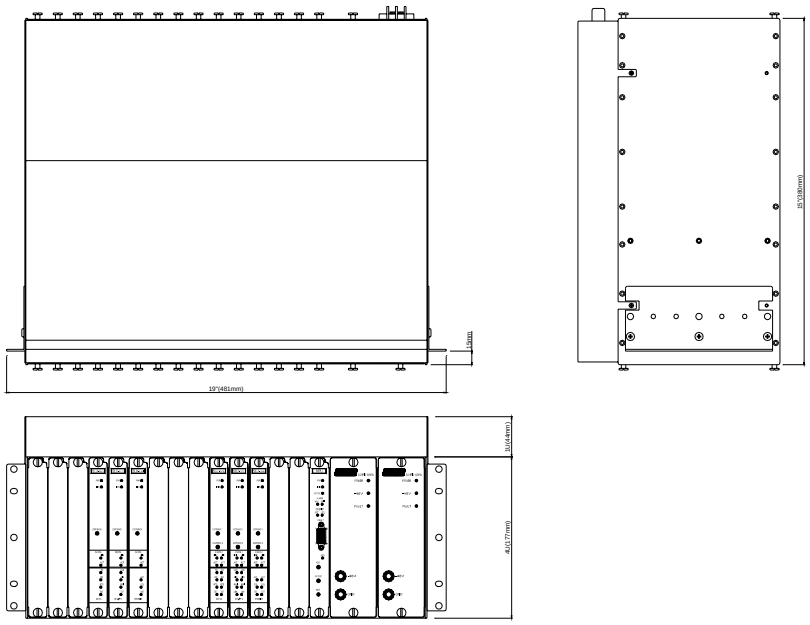


Figure 4-1 Dimensions of S1000

4.2 Carton Contents

As you unpack the carton, verify the contents according to the packing list. If you find

anything missing or damaged, contact your sales representative for assistance. After installing the S1000, keep the user's manual or unused cables and accessories for future maintenance or servicing of the S1000.

4.3 Preparing for Installation

To begin installing the S1000, have the following accessories ready.

- **A console terminal with standard VT-100 emulation program**

  This is a computer or notebook that is connected to S1000 for console operation. It should be installed with standard VT-100 program like Telix or HyperTerminal running Version 5 or above. The craft port speed is **9600** by default and it is a software configurable option (**9600 /115200**), for the software version is 3.01 or earlier the craft port speed is 115200 by default and the speed is not configurable.

- **Two straight-through RS-232 cables**

  a. A DB-9 male cable is used to connect the S1000 to the above console terminal for VT-100 session.

  b. *A DB-25 male cable is used to connect the REMOTE port to a modem for remote dial-in via PPP connection session (future).

- **An RJ-45 LAN connection cable**

  This cable connects the S1000 to LAN.

- **Dummy face panel(s)**

  Optional dummy face panel is available to cover an empty slot.

Chapter 5. Operation of CID (Craft Interface Device)

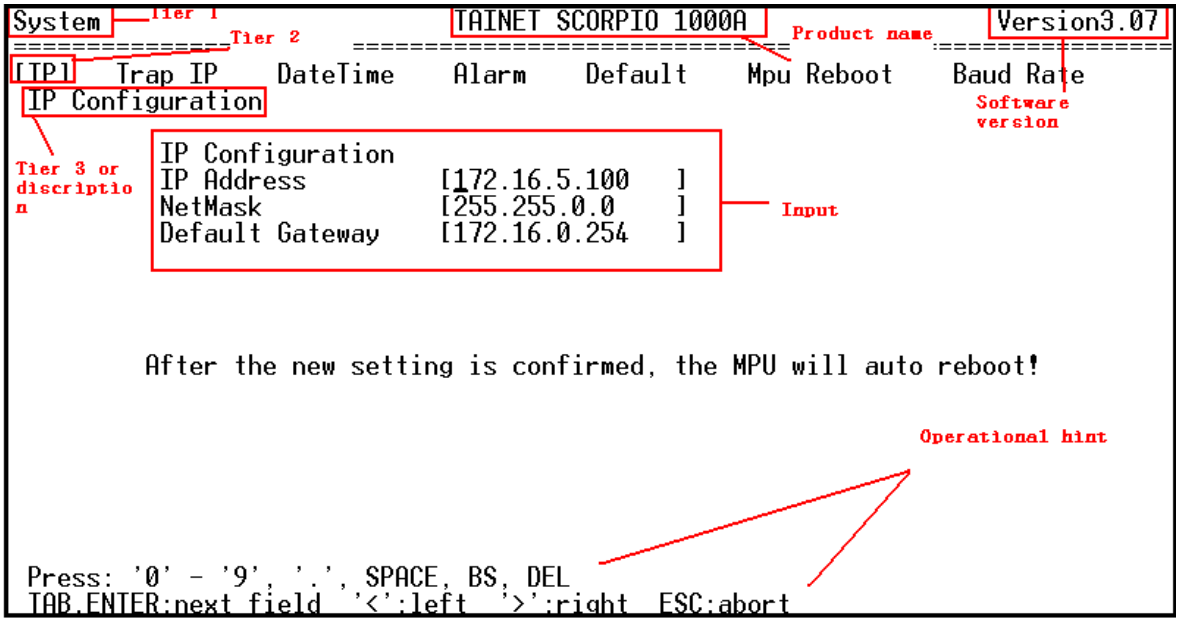
This chapter will introduce the operational procedures for a CID VT-100 used to control and monitor a Scorpio 1000. Upon starting up the S1000, the following message will show on the CID screen before switching to the application software code.

```
RAM test OK!!
Remap Boot (Version=V1.00)
Select 'a' in 1 second-->into Diagnostic mode, or to AP:
caculateCheckSum = 0x1114
szLogo          =TAINET CORP.
szProduct       =Scorpio 1000
szRevision      =V1.76
szFileName      =mpuv101.bin
szFileDate      =2003/01/09 21:06:38
dwCodeSize      =746460
dwCodeCheckSum  =0x44512f4
dwCardType      =1
dwHeaderCheckSum=0x1114
caculateCheckSum=0x44512f4
code checksum OK
```

In AP's startup screen, a message like the one shown below will prompt the user to enter a password, before gaining access to the system. The default password is "*tainet*". (The version 3.01 and earlier, the default password is "*admin*".)

```
        !!! Welcome to Access TAINET SCORPIO 1000!!!

             Please Enter Password:  *****
```

The CID offers pretty user-friendly menu-driven user interface. The following figure depicts the structure of the interface.



5.1 Configuration

After successfully entering the password, the CID will display the main menu page.

There are three main items in this menu.

```
MAIN                              TAINET SCORPIO 1000A                    Version3.07
=============================================================================
[Configuration]   Maintenance    Config DB    Summary    Save
 System    Line Unit    Interface Type    Security    SW Download
```

5.1.1 Configuration – System

```
Configuration                     TAINET SCORPIO 1000A                    Version3.07
=============================================================================
[System]   Line Unit    Interface Type    Security    SW Download
 IP    Trap IP    DateTime    Alarm    Default    Mpu Reboot    Baud Rate
```

```
System                            TAINET SCORPIO 1000A                    Version3.07
=============================================================================
[IP]   Trap IP    DateTime    Alarm    Default    Mpu Reboot    Baud Rate
 IP Configuration

          IP Configuration
          IP Address          [172.16.5.100   ]
          NetMask             [255.255.0.0    ]
          Default Gateway     [172.16.0.254   ]



        After the new setting is confirmed, the MPU will auto reboot!
```

Set the IP address for managing the system via Ethernet port. This is a must for UNMS, Telnet, and TFTP management.

```
System                          TAINET SCORPIO 1000A                  Version3.07
=============================================================================
 IP   [Trap IP]   DateTime    Alarm    Default    Mpu Reboot    Baud Rate
 Trap IP Configuration

          TrapIP Configuration
          Trap IP0 Address       [210.65.231.120 ]
          Trap IP0 Status        [Inactive]
          Trap IP1 Address       [0.0.0.0        ]
          Trap IP1 Status        [Inactive]
          Trap IP2 Address       [0.0.0.0        ]
          Trap IP2 Status        [Inactive]
          Trap IP3 Address       [0.0.0.0        ]
          Trap IP3 Status        [Inactive]
          Trap IP4 Address       [0.0.0.0        ]
          Trap IP4 Status        [Inactive]
```

```
System                          TAINET SCORPIO 1000A                  Version3.07
=============================================================================
 IP    Trap IP   [DateTime]   Alarm    Default    Mpu Reboot    Baud Rate
 Date and Time Setup

          Date & Time Setup
          Year                [2002 ]
          Month               [6  ]
          Day                 [28 ]
          Hour                [18 ]
          Minute              [17 ]
          Second              [52 ]
```

The system provides RTC (Real Time Clock) and supports BCD coded century, year, month, date, day, hours, minutes, and seconds with automatic leap year compensation valid up to the year 2100.

Setting the Data/Time for correct time stamping of the alarm or PM data report.

The date / time will be stored in non-volatile memory, so data will not be lost even when the system is powered off (MPU).

```
System                          TAINET SCORPIO 1000A                  Version3.07
=============================================================================
 IP    Trap IP    DateTime   [Alarm]   Default    Mpu Reboot    Baud Rate
 Alarm Cut Off    Clear Alarm Log    Alarm Switch
```

Selecting **"Alarm Cut Off"** can clear an alarm as if pushing the ACO button.

A maximum of 200 records of alarm reports can be logged. They can be cleared whenever desired.

Default: reset the configuration data of the system to default values.

Mpu Reboot: to reboot (restart) the MPU.

Baud Rate: this option is for operator to change the Craft port baud rate; the default baud rate is 9600 (version 3.01 and earlier has default baud rate as 115200)

5.1.2 Configuration – Line Unit

```
Configuration                   TAINET SCORPIO 1000A                  Version3.07
=============================================================================
 System   [Line Unit]   Interface Type    Security    SW Download
 Parameters    Timing
```

5.1.2.1 Configuration – Line Unit - Parameters

```
Line Unit                          TAINET SCORPIO 1000A                    Version3.07
================================================================================
[Parameters]   Timing
 Card Type    Port
```

```
Parameters                         TAINET SCORPIO 1000A                    Version3.07
================================================================================
[Card Type]   Port
 Configure Slot Card Parameters


                        +-----------Line Unit-----------+
                        |<Slot1>  Slot2   Slot3   Slot4  |
                        | Slot5   Slot6   Slot7   Slot8  |
                        | Slot9   Slot10  Slot11  Slot12 |
                        | Slot13  Slot14                 |
                        +--------------------------------+
```

```
Parameters                         TAINET SCORPIO 1000A                    Version3.07
================================================================================
[Card Type]   Port
 Configure Slot Card Parameters




          Set Required Card Type
          SlotNO.                    Slot1
          Actual Card Type           Empty
          Required Card Type        [Empty        ]
```

The S1000 provides pre-provisioning (dry configuration) feature. The advantage of this feature is that user can select the card type for a specific slot; the user can then start provisioning the card even if the slot is physically empty. The configured data will be stored in nonvolatile memory. Once the card is plugged in, the card will automatically implement the provisioned data and traffic will also start flowing accordingly.

Required Card Type: The possible values are the available card types; 1-P is one port per card, 2-P is two-port per card.

- Empty
- SHDSL-E1-1P
- SHDSL-T1-1P
- SHDSL-LAN-1P
- SHDSL-DATA-1P
- FIBER-E1-1P
- FIBER-T1-1P
- FIBER-LAN-1P
- FIBER-DATA-1P
- SHDSL-E1-2P
- SHDSL-T1-2P
- SHDSL-LAN-2P
- SHDSL-DATA-2P

- FIBER-E1-2P
- FIBER-T1-2P
- FIBER-LAN-2P
- FIBER-DATA-2P

```
Parameters                    TAINET SCORPIO 1000A                  Version3.07
================================================================================
 Card Type   [Port]
 Configure Port Parameters




          Set Port Parameters
          SlotNO.                                                  Slot5
          PortNO                                                   PORT1
          Required Card Type                                       SHDSL-E1*1
          Required Card Type of CPE                               [SHDSL-E1        ]
          Required Modem Data Rate : Input (1~32) *64kbps          [31   ]
```

Required Modem Type: To select the far end DTE interface type. The possible configurations are specified in Figure 1-2 The Interface Configuration of S1000/S1400 System".

5.1.2.2 Configuration – Line Unit – Timing

```
Line Unit                     TAINET SCORPIO 1000A                  Version3.07
================================================================================
 Parameters   [Timing]
 Set Timing Source


                    SlotNO                  Slot5
                    PortNO                  PORT1
                    Timing Source          [dte      ]
                    Timing Source of CPE   [line     ]
```

5.1.3 Configuration – Interface Type

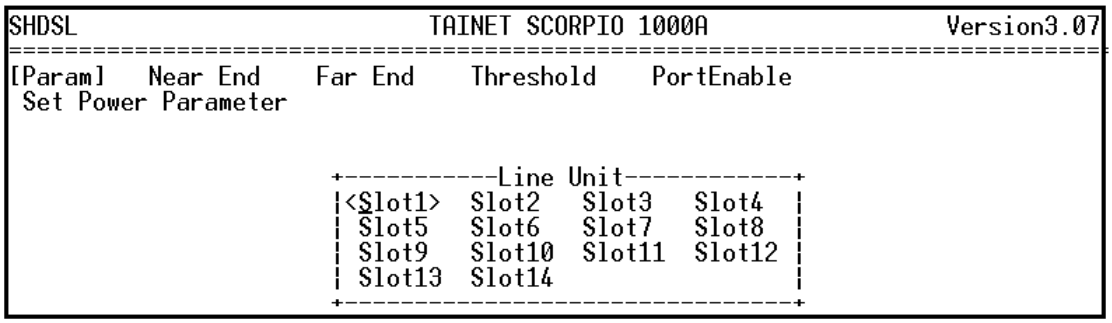
```
Configuration                 TAINET SCORPIO 1000A                  Version3.07
================================================================================
 System    Line Unit   [Interface Type]   Security    SW Download
 SHDSL    FIBER    T1    E1    LAN    DATA
```

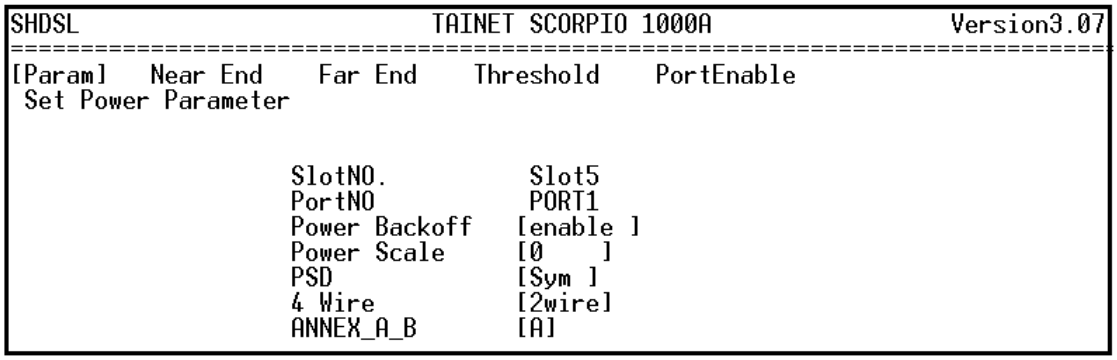
Four types of DTE interfaces are available for the S1400: SHDSL, E1, T1, DATA.

The DATA connector interfaces include V.35, X.21, V36/RS499, and RS530.

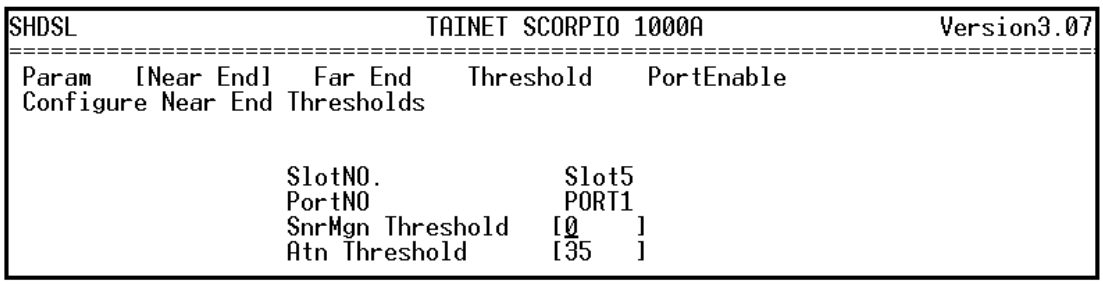
5.1.3.1 Configuration – Interface Type – SHDSL

```
Interface Type                TAINET SCORPIO 1000A                  Version3.07
================================================================================
[SHDSL]   FIBER    T1    E1    LAN    DATA
 Param    Near End    Far End    Threshold    PortEnable
```





- Power Back-off: If the Power Back-off function is enabled, the transmit power from the other end of STU will be reduced in steps of 1 dB from 0 up to 6 dBs according to the received power. The configurable values are **"Enable"** or **"Disable"**.
- Power Scale: The value of this argument adjusts power in small increments (a fraction of a dB) to compensate for minor differences in power between testing units.
- PSD: possible values are **"Sym"** or **"Asym"**. This is used to let SHDSL transceiver to use a symmetrical or asymmetrical power spectral density mask as specified in G.991.2 standard.
- 4 Wire: Used to enable or disable 4-wire framing.
- ANNEX_A_B: Used to select the local STU supporting G.991.2 Annex A or B.



A TCA (Threshold Crossing Alert) will be reported if the SNR margin is lower than the set value, or if the Attenuation is higher than the set value. The TCA will be time stamped and logged into local memory and in UNMS database.

Port Enable: this enables the G.SHDSL port to be active.

```
Threshold                        TAINET SCORPIO 1000A                    Version3.07
================================================================================
[Near End]   Far End
 LOSW    ES    SES    UAS
```

5.1.3.2 Configuration – Interface Type – Fiber

```
Interface Type                   TAINET SCORPIO 1000A                    Version3.07
================================================================================
 SHDSL   [EIBER]   T1    E1    LAN    DATA
 Near End    Far End    Threshold    Clear
```

```
FIBER                            TAINET SCORPIO 1000A                    Version3.07
================================================================================
[Near End]   Far End    Threshold    Clear
 Configure Fiber Near End Parameter

                    SlotNO.                 Slot5
                    PortNO                  PORT1
                    OE OPTION              [Hardware Auto selection]
                    OE LOOP                [OE1]
                    DATA PORT LOCATION     [PORT1]
```

```
Threshold                        TAINET SCORPIO 1000A                    Version3.07
================================================================================
[Near End]   Far End
 Near End of FIBER

                    15-minutes mode
                    ES                  [60         ]
                    SES                 [0          ]
                    UAS                 [0          ]
                    One-day mode
                    ES                  [300        ]
                    SES                 [300        ]
                    UAS                 [3932220    ]
```

During performance monitoring, the user can set the thresholds for different combinations of near-end, far-end, 15-min duration, and one-day duration. A TCA will be issued whenever the monitored value has crossed the threshold setting.

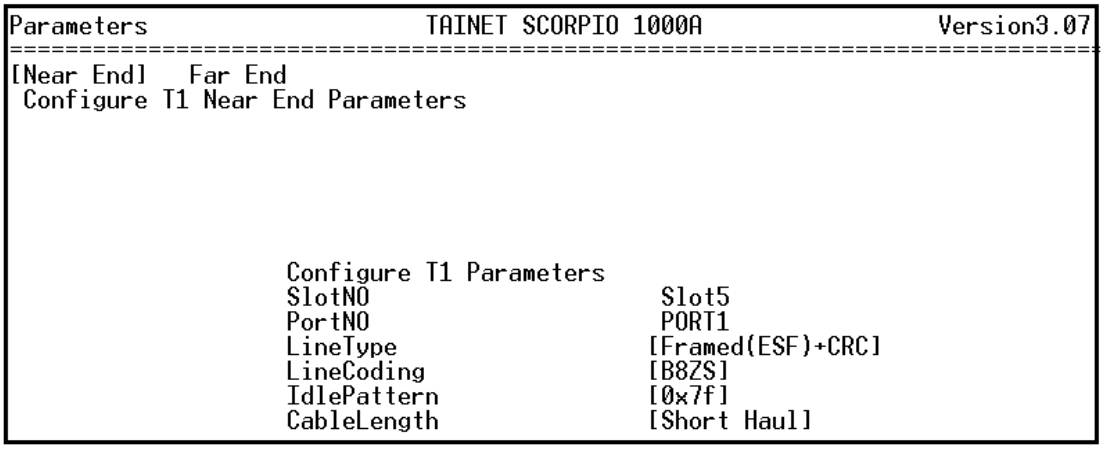
```
FIBER                            TAINET SCORPIO 1000A                    Version3.07
================================================================================
 Near End    Far End    Threshold   [Clear]
 Clear Near End of FIBER    Clear Far End of FIBER
```

```
Clear Near End of FIBER          TAINET SCORPIO 1000A                    Version3.07
================================================================================
[Current Quarter]   Current Daily    History Quarter    History Daily
 Clear Current Quarter Data
```

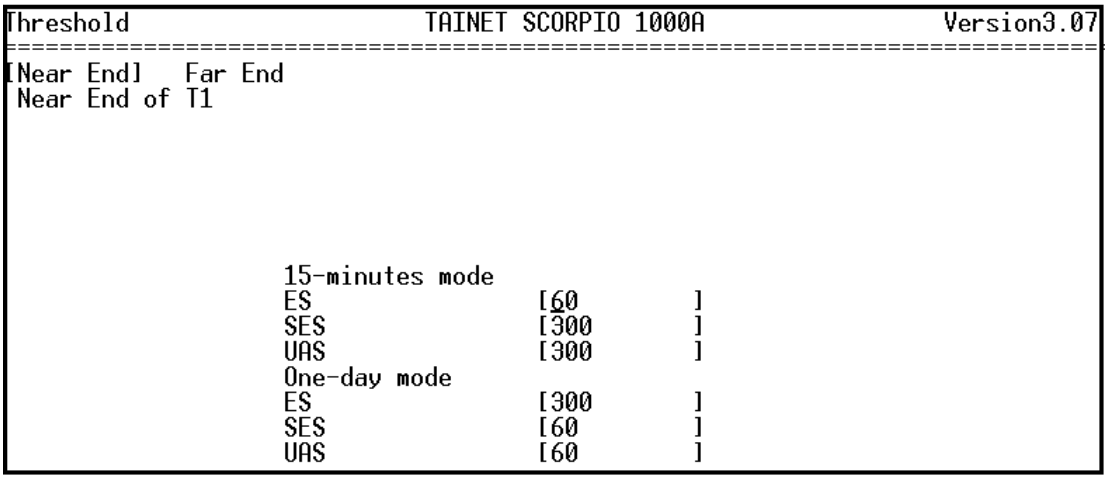
- Clear Option: this is will provide use to clear different performance monitoring data.
- The PM counter can be cleared whenever desired.

- Current Quarter: The measured value in seconds of the monitored performance parameters within the current 15-min period.
- Current Day: The measured value in seconds of the monitored performance parameters within the current 1-day period.
- History Quarter: Accumulates the values in seconds of the monitored performance parameters for up to 96 of the past 15-min periods.
- History Day: Accumulates the values in seconds of the monitored performance parameters for up to 7 of the past 1-day periods.

5.1.3.3 Configuration – Interface Type – T1

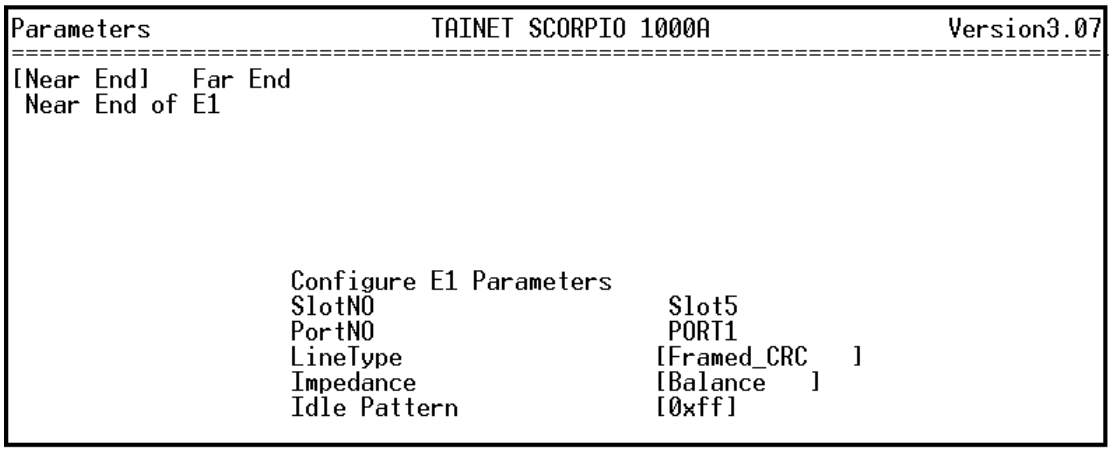


- Line Type: Possible values are **"Framed (ESF)+CRC"**, **"Framed (ESF)"**, **"Framed (SF)(D4)"**, or **"Unframed"**.
- Line Coding: Possible values are **"AMI"** or **"B8ZS"**.
- Idle Pattern: Sending pattern on the unused time slots. The possible values are **"0x7f"** or **"0xff"**.
- Cable Length: Possible values are **"Short Haul"** or **"Long Haul"**. The T1 circuit provides the function of cable length compensation from 0 to 200 meters.



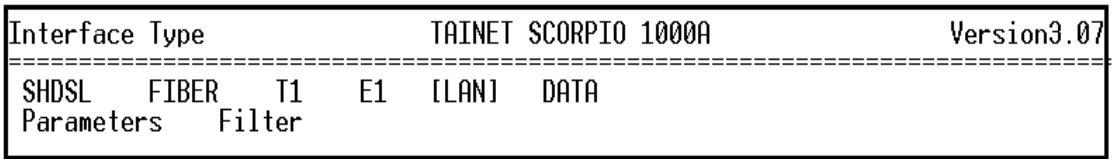
During performance monitoring, the user can set the thresholds for different combinations of near-end, far-end, 15-min duration, and 1-day duration. A TCA will be issued whenever the monitored value has crossed the threshold setting.

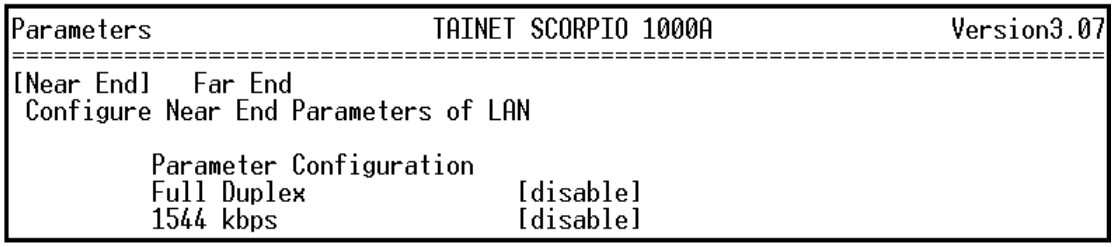
5.1.3.4 Configuration – Interface Type – E1



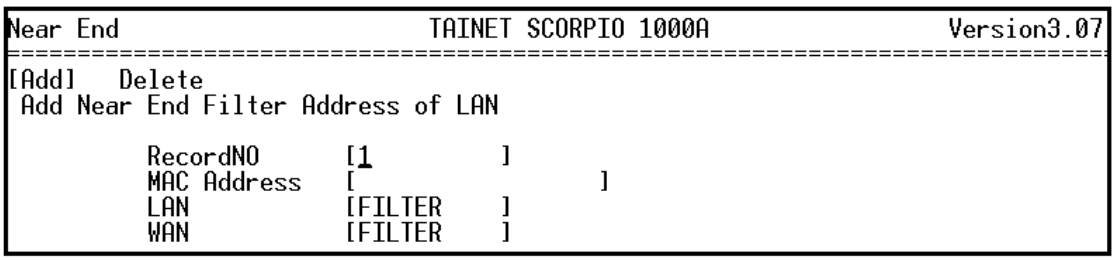
- Line Type: Possible values are **"Framed_CRC"**, **"Framed (no CRC)"**, or **"Unframed"**.
- Impedance: Nominal 120 ohms resistive symmetrical (Balance) pair or 75 ohm asymmetrical (Unbalance) pair.
- Idle Pattern: Sending pattern on the unused time slots. The possible values are **"0x7f"** or **"0xff"**.

5.1.3.5 Configuration – Interface Type – LAN





LAN card option: it provides the bridge option, hence operator has the options to enable the full duplex and 1544 kbps speed.



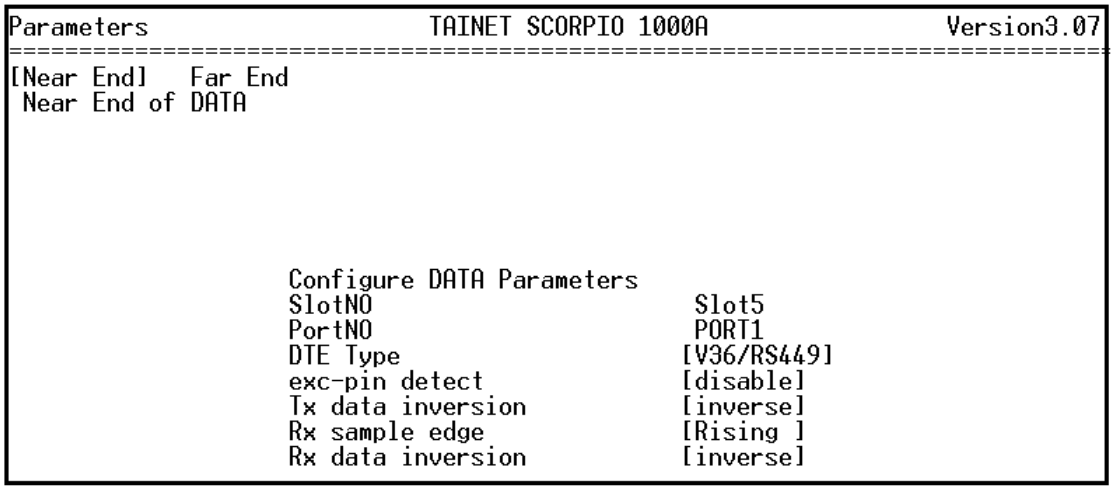
Up to 20 MAC addresses can be configured to be filtered from the LAN or WAN

interface.

Up to 128 MAC learning addresses can be stored in the forwarding table.

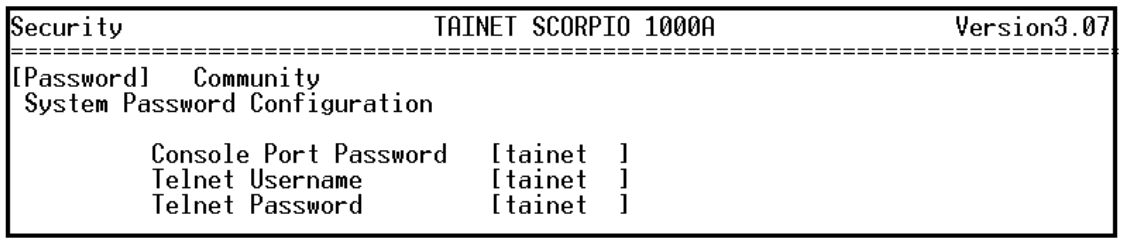
There are three types of filtering settings: **"FILTER"**, **"DYNAMIC"**, and **"FORWARDING". "DYNAMIC"** means that the handling of the MAC frame in the interface follows the learning result of the bridging function.

5.1.3.6 Configuration – Interface Type – DATA

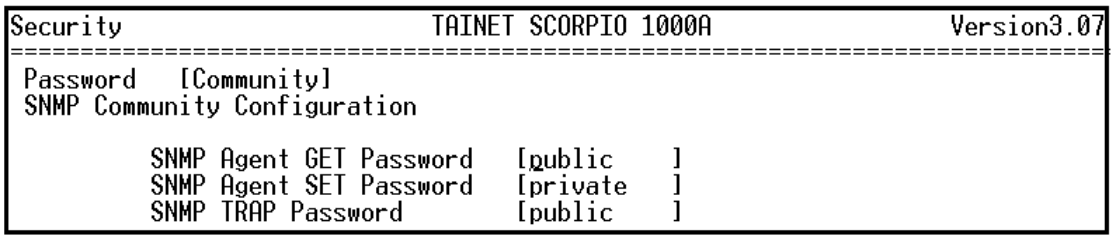


- DTEType: **"V35"**, **"V36/RS449"**, **"X21"**, or **"RS530"**.
- Tx data inversion: **"normal"** or **"inverse"**. The V.35 interface of STU-R provides data inversion capability used to protect against the occurrence of low pulse density.
- Rx sample edge: **"Rising"** or **"Falling"**.
- CTX: Mode is "Always ON" or "Follow RTS".

5.1.4 Configuration – Security

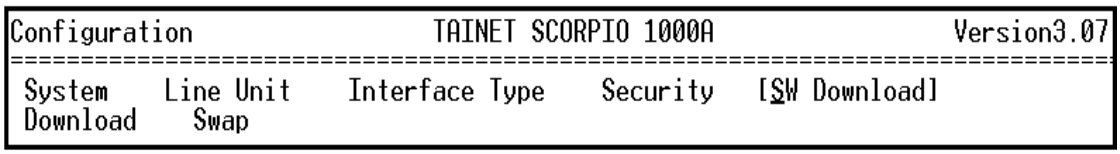


Password: it provide user to change the operation password for access the device

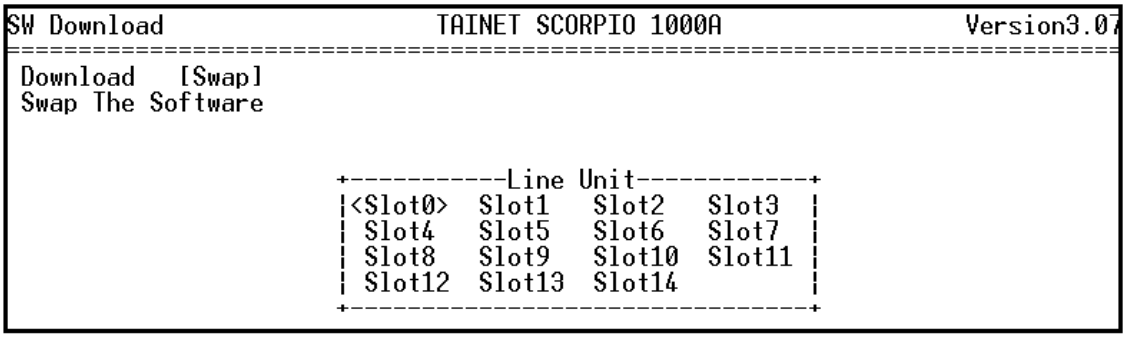


Community: an option to change the SNMP community password setting

5.1.5 Configuration - SW Download

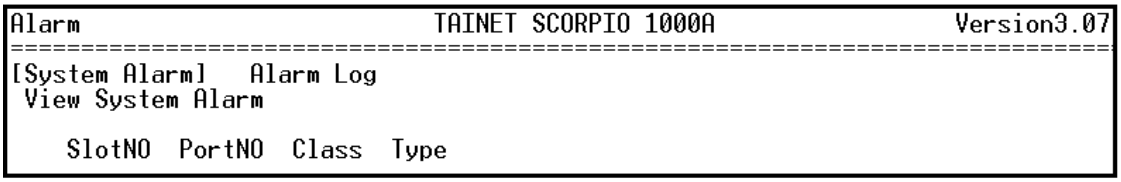


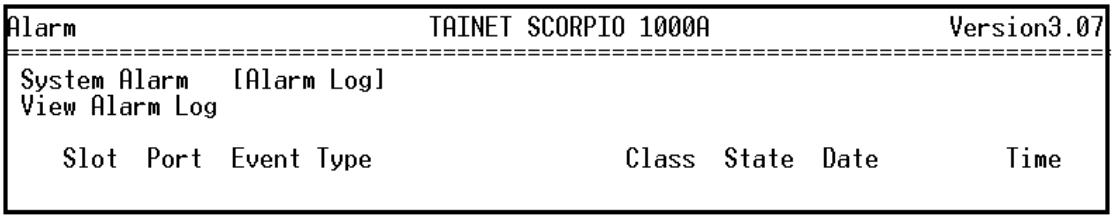
TFTP software upgrade is supported.



5.2 Maintenance

5.2.1 Maintenance – Alarm





- Alarm severity class: Major, Minor, Warning, or Clear.
- All TCA (Threshold Crossing Alert) are classified as WARNING.
- Up to 200 alarm records can be logged. Many more can be logged in Database if UNMS is used.

Table 5 System Alarms Description

Alarm Type	Severity Class	Description

LOSS_OF_POWER	MAJOR	Failure of AC power
LOSS_OF_DC_POWER"	MAJOR	Loss of DC power

Table 6 SHDSL Alarms Description

Alarm Type	Severity Class	Description
DSL_LOSW	MINOR	Failure of LOSW
DSL_LOSWS_EXCD_QTR_TRHD	WARNING	15-minute LOSW TCA
DSL_LOSWS_EXCD_DAY_TRHD	WARNING	1-day LOSW TCA
DSL_ES_EXCD_QTR_TRHD	WARNING	15-minute ES TCA
DSL_ES_EXCD_DAY_TRHD	WARNING	1-day ES TCA
DSL_SES_EXCD_QTR_TRHD	WARNING	15-minute SES TCA
DSL_SES_EXCD_DAY_TRHD	WARNING	1-day SES TCA
DSL_UAS_EXCD_QTR_TRHD	WARNING	15-minute UAS TCA
DSL_UAS_EXCD_DAY_TRHD	WARNING	1-day UAS TCA
DSL_LOSWS_FE_EXCD_QTR_TRHD	WARNING	15-minute FE LOSW TCA
DSL_LOSWS_FE_EXCD_DAY_TRHD	WARNING	1-day FE LOSW TCA
DSL_ES_FE_EXCD_QTR_TRHD	WARNING	15-minute FE ES TCA
DSL_ES_FE_EXCD_DAY_TRHD	WARNING	1-day FE ES TCA
DSL_SES_FE_EXCD_QTR_TRHD	WARNING	15-minute FE SES TCA
DSL_SES_FE_EXCD_DAY_TRHD	WARNING	1-day FE SES TCA
DSL_UAS_FE_EXCD_QTR_TRHD	WARNING	15-minute FE UAS TCA
DSL_UAS_FE_EXCD_DAY_TRHD	WARNING	1-day FE UAS TCA
DSL_ATN_EXCD_TRHD	WARNING	Attenuation TCA
DSL_FE_ATN_EXCD_TRHD	WARNING	FE Attenuation TCA
DSL_SNM_EXCD_TRHD	WARNING	SNR Margin TCA
DSL_FE_SNM_EXCD_TRHD	WARNING	FE SNR Margin TCA

Table 7 T1/E1 Alarms Description

Alarm Type	Severity Class	Description
DSX1_LOS	MAJOR	Failure of LOS
DSX1_LOF	MAJOR	Failure of LOF
DSX1_AIS	MAJOR	Failure of AIS
DSX1_RAI	MINOR	Failure of RAI
DSX1_LOS_FE	MAJOR	Failure of FE LOS
DSX1_LOF_FE	MAJOR	Failure of FE LOF
DSX1_AIS_FE	MAJOR	Failure of FE AIS
DSX1_RAI_FE	MINOR	Failure of FE RAI
DSX1_ES_EXCD_QTR_TRHD	WARNING	15-minute ES TCA
DSX1_ES_EXCD_DAY_TRHD	WARNING	1-day ES TCA
DSX1_SES_EXCD_QTR_TRHD	WARNING	15-minute SES TCA
DSX1_SES_EXCD_DAY_TRHD	WARNING	1-day SES TCA
DSX1_UAS_EXCD_QTR_TRHD	WARNING	15-minute UAS TCA
DSX1_UAS_EXCD_DAY_TRHD	WARNING	1-day UAS TCA
DSX1_ES_FE_EXCD_QTR_TRHD	WARNING	15-minute FE ES TCA
DSX1_ES_FE_EXCD_DAY_TRHD	WARNING	1-day FE ES TCA
DSX1_SES_FE_EXCD_QTR_TRHD	WARNING	15-minute FE SES TCA
DSX1_SES_FE_EXCD_DAY_TRHD	WARNING	1-day FE SES TCA
DSX1_UAS_FE_EXCD_QTR_TRHD	WARNING	15-minute FE UAS TCA
DSX1_UAS_FE_EXCD_DAY_TRHD	WARNING	1-day FE UAS TCA

5.2.2 Maintenance – Led Status

```
Maintenance                    TAINET SCORPIO 1000A                    Version3.07
================================================================================
 Alarm   [Led Status]   Interface Status    Slot    Test    Card Reboot
 MPU Led Status



                    LED Status: INS        Active
                    LED Status: Major      Inactive
                    LED Status: Minor      Inactive
                    LED Status: ACO LED    Inactive
```

5.2.3 Maintenance – Interface Status

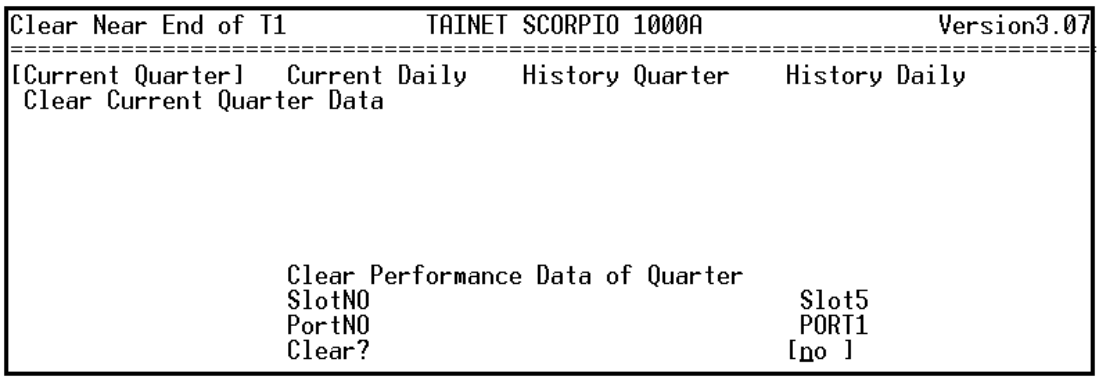
5.2.3.1 Maintenance – Interface Status – T1/E1

```
Interface Status               TAINET SCORPIO 1000A                    Version3.07
================================================================================
[I1]   E1    SHDSL    LAN    FIBER
 Performance
```

```
T1                             TAINET SCORPIO 1000A                    Version3.07
================================================================================
[Performance]
 Current 15Min    Current Day    Last 96 Quarters    Last 7 Days    PM Clear
```

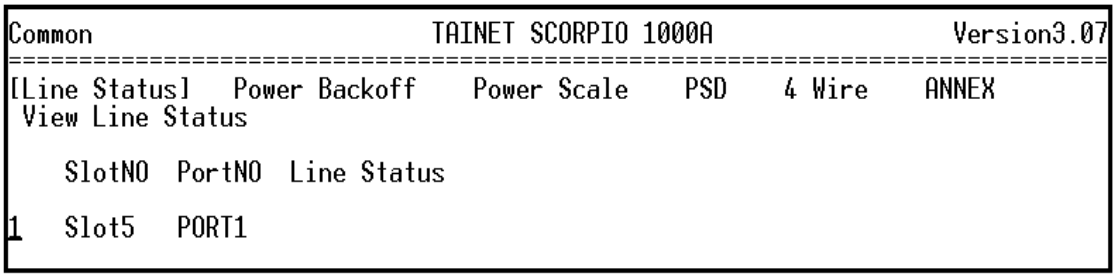
```
Last 7 Days                    TAINET SCORPIO 1000A                    Version3.07
================================================================================
[Near End]   Far End
 View History of 24Hour Records

    SlotNO  PortNO  ES          SES         UAS

1   Slot5   PORT1   0           0           0
2   Slot5   PORT1   0           0           0
3   Slot5   PORT1   0           0           0
4   Slot5   PORT1   0           0           0
5   Slot5   PORT1   0           0           0
6   Slot5   PORT1   0           0           0
7   Slot5   PORT1   0           0           0
```

```
PM Clear                       TAINET SCORPIO 1000A                    Version3.07
================================================================================
[Clear Near End of T1]   Clear Far End of T1
 Current Quarter    Current Daily    History Quarter    History Daily
```



Administrator can monitor the PM of different interface through Maintenance -Interface menu. All the PM records can be deleted if it is necessary.

5.2.3.2 Maintenance – Interface Status – SHDSL



Line Status: The possible SHDSL operational states are

"DSP_Code_Download_Fail", "DSP_Code_CheckSum_Error",

"Port_Disable", "Port_Go_Into_Digital_Loopback_Fail",

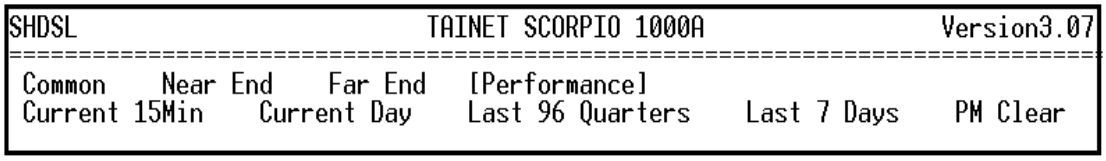
"Port_BERT_In_Digital_Loopback_Fail", "Port_Go_Into_Analog_Loopback_Fail",

"Port_BERT_In_Analog_Loopback_Fail", "Idle_State",

"Start_UP_State", "Data_Mode", "Unknown_State", "Port_Has_Been_Reset",

"DSP_Local_Bus_Test_Fail", "Port_In_Digital_Loopback_State",

"Port_In_Analog_Loopback_State"



5.2.3.3 Maintenance – Interface Status – LAN

```
Interface Status              TAINET SCORPIO 1000A                  Version3.07
================================================================================
 T1    E1    SHDSL   [LAN]   FIBER
 Filter Table    Forwarding Table
```

```
Forwarding Table          TAINET SCORPIO 1000A           Version 3.02
=================================================================
[Near End]
 View Forwarding Table of Near End

    SlotNO  PortNO  Address            Time        LAN         WAN

1   Slot11  PORT1   00:20:5B:00:F6:FA     251      FILTER    FORWARDING
2   Slot11  PORT1   00:05:5D:A1:11:62     251      FILTER    FORWARDING
3   Slot11  PORT1   00:80:C8:7E:E2:24     251      FILTER    FORWARDING
4   Slot11  PORT1   00:50:BA:24:E5:6F     251      FILTER    FORWARDING
5   Slot11  PORT1   00:50:BA:24:E2:42     251      FILTER    FORWARDING
6   Slot11  PORT1   00:60:08:16:6F:1C     251      FILTER    FORWARDING
7   Slot11  PORT1   00:80:C8:7F:54:40     251      FILTER    FORWARDING
8   Slot11  PORT1   00:90:BB:19:18:15     251      FILTER    FORWARDING
9   Slot11  PORT1   00:80:C8:7B:D3:A5     251      FILTER    FORWARDING
10  Slot11  PORT1   00:05:5D:E5:17:D5     251      FILTER    FORWARDING
11  Slot11  PORT1   00:40:01:43:22:C1     251      FILTER    FORWARDING
12  Slot11  PORT1   00:50:BA:04:D0:1B     251      FILTER    FORWARDING

 SPACE: refresh page  '<': page up  '>': page down  ESC: abort
```

Up to 128 MAC learning addresses can be stored in the forwarding table.

```
Filtering table:            TAINET SCORPIO 1000A                Version 3.02
================================================================================
[Near End]
 View Filter Table of Near End

    SlotNO  PortNO  Address               LAN         WAN

1   Slot11  PORT1   00:12:14:51:14:25     FILTER      FORWARDING
2   Slot11  PORT1   ff:ff:ff:ff:ff:ff     ???         ???
3   Slot11  PORT1   ff:ff:ff:ff:ff:ff     ???         ???
4   Slot11  PORT1   ff:ff:ff:ff:ff:ff     ???         ???
5   Slot11  PORT1   ff:ff:ff:ff:ff:ff     ???         ???
6   Slot11  PORT1   ff:ff:ff:ff:ff:ff     ???         ???
7   Slot11  PORT1   ff:ff:ff:ff:ff:ff     ???         ???
8   Slot11  PORT1   ff:ff:ff:ff:ff:ff     ???         ???
9   Slot11  PORT1   ff:ff:ff:ff:ff:ff     ???         ???
10  Slot11  PORT1   ff:ff:ff:ff:ff:ff     ???         ???
11  Slot11  PORT1   ff:ff:ff:ff:ff:ff     ???         ???
12  Slot11  PORT1   ff:ff:ff:ff:ff:ff     ???         ???

 SPACE: refresh page  '<': page up  '>':page down  ESC: abort
```

Up to 20 MAC addresses can be configured to be filtered from the LAN or WAN interface.

5.2.3.4 Maintenance – Interface Status – Fiber

```
Interface Status              TAINET SCORPIO 1000A                  Version3.07
================================================================================
 T1    E1    SHDSL    LAN   [EIBER]
 Common    Performance
```

```
FIBER                         TAINET SCORPIO 1000A                  Version3.07
================================================================================
[Common]   Performance


                    SlotNO                Slot5
                    PortNO                PORT1
                    FIBER OE TYPE         Single OE
                    FIBER OE 1 Status     LINK FAIL
                    FIBER OE 2 Status     LINK FAIL_
```

```
Performance                   TAINET SCORPIO 1000A                  Version3.07
================================================================================
[Current 15Min]   Current Day    Last 96 Quarters    Last 7 Days
 Near End    Far End
```

5.2.4 Maintenance – Slot

```
Maintenance                   TAINET SCORPIO 1000A                  Version3.07
================================================================================
 Alarm    Led Status    Interface Status   [Slot]   Test    Card Reboot
 Version Info    Card Status    Led Status    Power Status
```

```
Slot                          TAINET SCORPIO 1000A                  Version3.07
================================================================================
[Version Info]   Card Status    Led Status    Power Status
 Version Information


                    Slot NO.              Slot5
                    Software Version      3.07
                    Cpld Version          1.00
                    FPGA Version          1.20  _
```

```
Slot                          TAINET SCORPIO 1000A                  Version3.07
================================================================================
 Version Info   [Card Status]   Led Status    Power Status
 Card Status
                    Slot NO.                  Slot5
                    PortNO                    PORT1
                    Actual Card Type          SHDSL-E1T1*1
                    Required CPE Card Type    SHDSL-E1
                    Card Status               No Error
                    Port Status               Normal
                    Current Timing Source     dte
                    CPE Timing Source         line
                    Line Rate                 0
```

```
Slot                          TAINET SCORPIO 1000A                  Version3.07
================================================================================
 Version Info    Card Status   [Led Status]   Power Status
 Slot Led Status
                    Slot NO.              Slot5
                    PortNO                PORT1
                    LED Status: INS       Active
                    LED Status: Link      Inactive
                    LED Status: Link_B    Active
                    LED Status: ACT       Inactive
                    LED Status: LOS       Active
                    LED Status: AIS       Inactive
                    LED Status: RAI       Inactive
                    LED Status: TST       Inactive
```

```
Slot                          TAINET SCORPIO 1000A                  Version3.07
================================================================================
 Version Info    Card Status    Led Status   [Power Status]
 Power Status



                    AC POWER-1 :     Empty
                    AC POWER-2 :     Empty
```

5.2.5 Maintenance – Test - Loopback

```
Test                           TAINET SCORPIO 1000A                 Version3.07
================================================================================
[Loopback]   Pattern test    V.54 Test
 Loopback test



          SlotNO.     Slot5
        PortNO        PORT1
        Loopback Test   [Normal                                              ]
        Timeout(min.)   [0          ]
```

For test and diagnostic purpose, the S1000 system provides various loopback paths, which are depicted in Figure 5-1 and Figure 5-2 below.

(a) Normal
(b) Local Loopback
(c) Remote Loopback
(d) Local Payload Loopback
(e) Remote Payload Loopback
(f) CPE Remote Loopback(CPE Side Command)
(g) (N/A)CPE Remote Patload Loopback(CPE Side Command)
(h) CPE Local Payload Loopback(CPE side command)

The NLB (Near End Loopback) capability will be set up inside STU-C/STU-R as close as possible to the network side /customer side interfaces. The NLB is capable of control (activation and deactivation) by UNMS and CID. An all one' signal, or AIS, or the received signal will be sent to the loop during the NLB is activated.

The local loopback capability will be set up inside STU-C/STU-R as close as possible to the loop interfaces. The local loopback is capable of control (activation and deactivation) by UNMS and CID. A framed all ones pattern, other codes, or the received signal will be sent to the loop during local loopback.

The RLB(Remote Loopback) is able to be activated and deactivated through EOC via CID and UNMS interfaces. This loopback is used for checking the loop and transceiver units of STU-C/STU-R. A suitable signal will be sent towards the customer side /network side interface during the RLB loopback.

The PLB (Remote Payload Loopback) is able to be activated and deactivated through EOC via CID and UNMS, and be set up inside STU-C/STU-R as close as possible to the network side customer side interfaces. A suitable signal will be sent towards the customer side/network side during the PLB loopback. The PLB of V.35 interface is also able to be activated and deactivated by in band signal and the procedure and codeword will comply with ITU-T V.54.

For V.35 interface STU-R, the ITU-T V.54 in band activated and deactivated loopback codeword provided by S1400 for end-to-end loopback function.

For each STU-C and STU-R, the built-in PRBS (11-stage or higher) generation and detection will be provided for loopback performance test on a per channel basis. Test results will be displayed.

Note:

There are different loopback type could be configured. When it acts as CO, all remote loopback types will display the (N/A). It means the item can’t be applied, vice versa. When it act as CPE, all CO loopback types will display the (N/A). It means the item can’t be applied. “RT” is represented as remote。

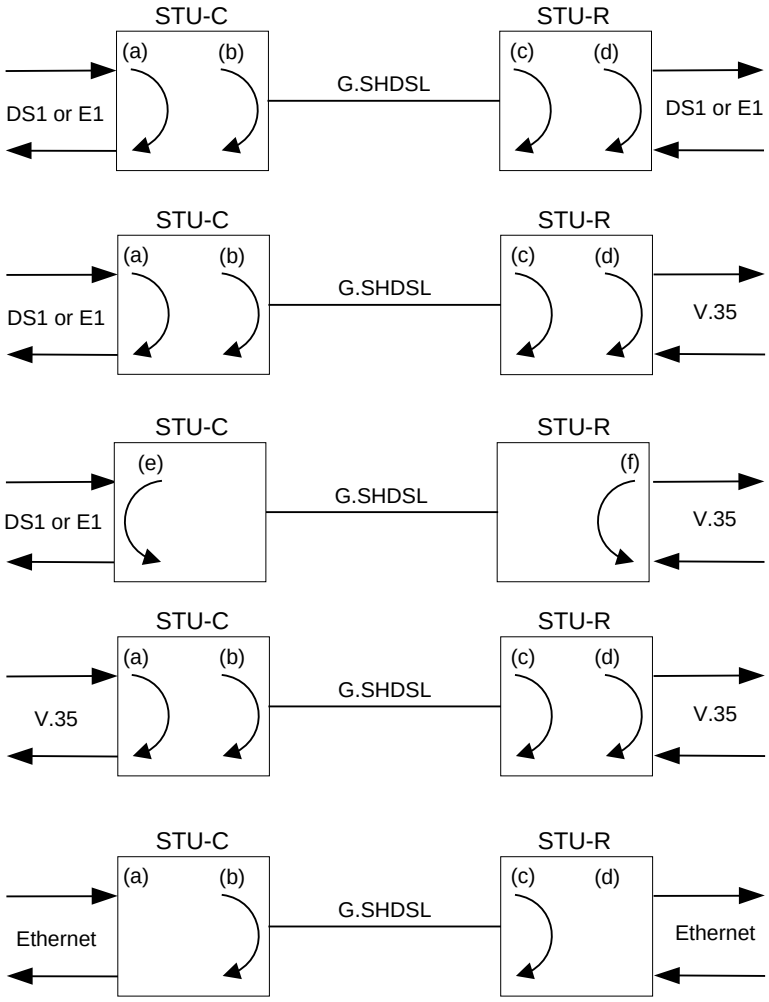


Figure 5-1 STU-C Side Activated Loopback

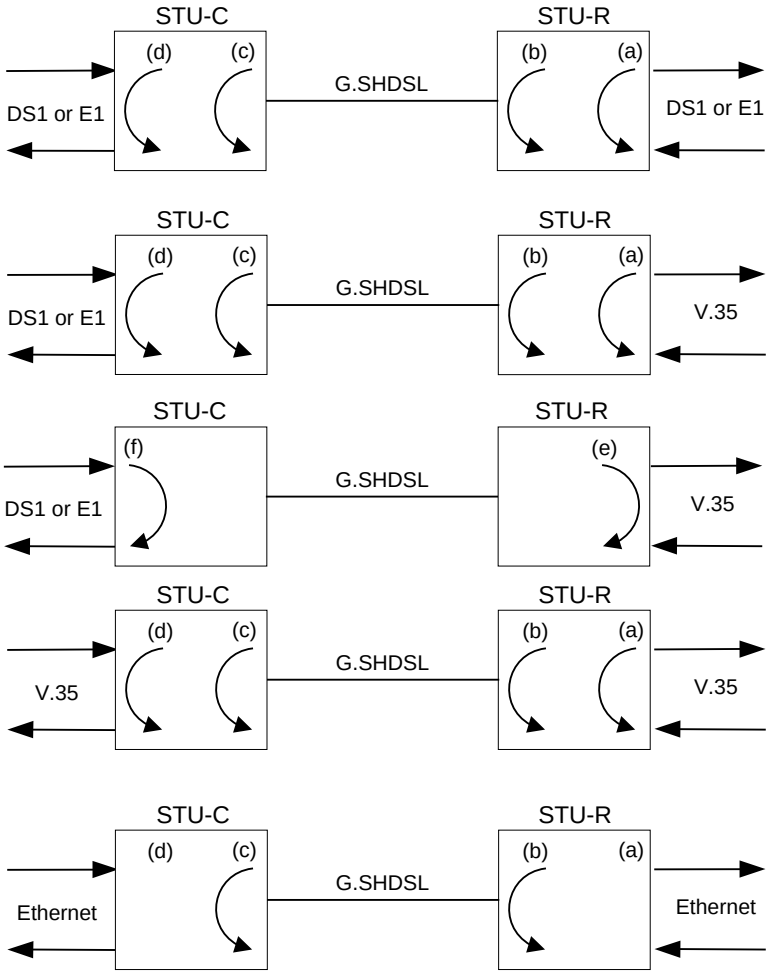


Figure 5-2 STU-R Side Activated Loopback

There are many different Loopback types can be selected:

(0) Normal: (default)
(a) Local Loopback: In CO site closed to SHDSL link.
(b) Remote Loopback: In CPE site closed to SHDSL link.
(c) Local Payload Loopback: In CO site closed to interface (T1/E1/V.35/LAN).
(d) Remote Payload Loopback: In CPE site closed to interface (T1/E1/V.35/LAN).
(e) RT Remote Loopback (CPE side command)
(f) RT Remote Payload Loopback (CPE side command)
When (N/A) is displayed, it means the loopback only can be used in the CPE site.

5.2.6 Maintenance – Test – Pattern test

Test Pattern: Generate a test pattern. Possible values are 2E11-1, 2E15-1, QRSS, 2E20-1, 2E23-1.

Test Direction: The direction the pattern is sent in. Possible values are SHDSL or Interface.

Test Start: START or STOP sending the test pattern.

```
Test                              TAINET SCORPIO 1000A                    Version3.07
================================================================================
Loopback   [Pattern test]   V.54 Test
Pattern test


          SlotNO.            Slot5
          PortNO.           [PORT1 ]
          Test Pattern      [2E11-1]
          Test Direction    [SHDSL    ]
          Test Period       [100       ]
          Test Start        [STOP ]
```

5.2.7 Configuration – Line Unit – V.54 Test

In addition to loopback test function described in Figure 5-1 and Figure 5-2, the S1000 / S1400 also supports V.54 in-band signal to activate / deactivate local loopback. The sophisticated addressing capability enables network operator to isolate the defective point node by node from one end to the other. The procedure and codeword comply with ITU-T V.54.

There are various testing methods supported by the S1000 / S1400 as depicted in Figure 5-3. Each node in the T1 / E1 traffic path has a unique address, which is configured by the system operator, so the node to be looped back can be identified. Test pattern can be generated after the loopback is activated. The test results will appear on the CID or UNMS as “V54 Loopback Test (Address 0x03) OK !!” or “V54 Loopback Test (Address 0x03) FAIL !!”

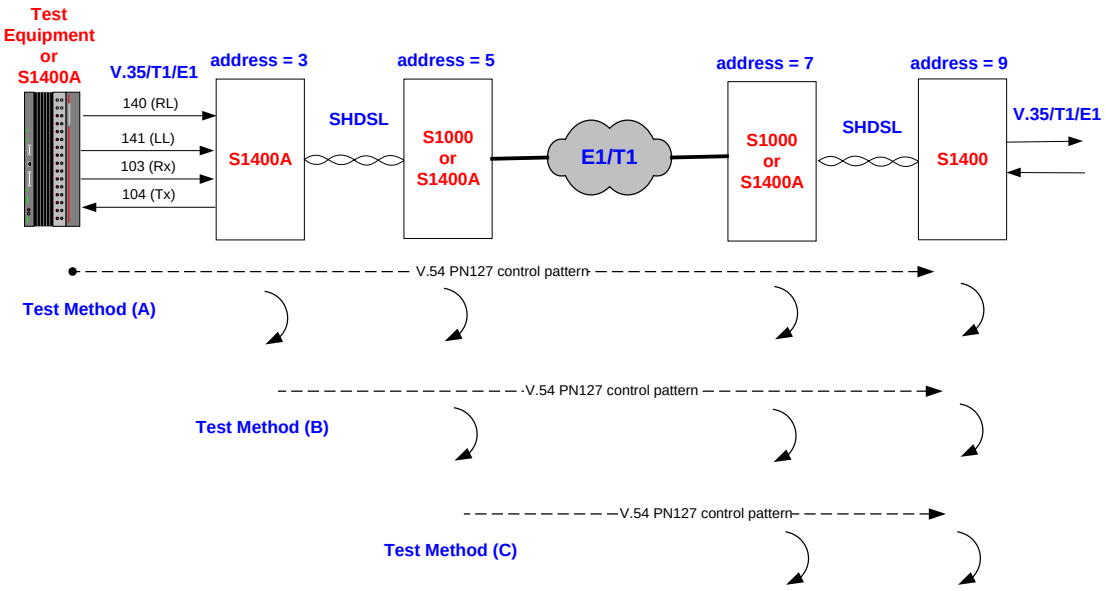


Figure 5-3 The Test Methods for V.54 Loopback Control

```
V.54 Test                        TAINET SCORPIO 1000A                    Version3.07
================================================================================
[V.54 Parameters]   V.54 Generator
 Set V.54 Parameter


                        +-----------Line Unit------------+
                        | Slot1   Slot2   Slot3   Slot4  |
                        |<Slot5>  Slot6   Slot7   Slot8  |
                        | Slot9   Slot10  Slot11  Slot12 |
                        | Slot13  Slot14                 |
                        +--------------------------------+
```

```
V.54 Test                        TAINET SCORPIO 1000A                    Version3.07
================================================================================
[V.54 Parameters]   V.54 Generator
 Set V.54 Parameter


                     SlotNO                    Slot5
                     PortNO                    PORT1
                     V.54 Enable              [disable            ]
                     V.54 address mode        [disable]
                     V.54 Far End Address     [0x03]
                     V.54 Near End Address    [0x03]
```

```
V.54 Test                        TAINET SCORPIO 1000A                    Version3.07
================================================================================
 V.54 Parameters   [V.54 Generator]
 Set V.54 Generator



                     SlotNO.             Slot5
                     PortNO.            [PORT1 ]
                     V.54 Mode          [STOP V54 LOOPBACK ]
                     V.54 Direction     [SHDSL    ]
                     V.54 Address       [0x03]
```

V.54 Mode: [START V54 LOOPBACK] or [STOP V54 LOOPBACK]

V.54 Direction: [SHDSL] or [Interface]

V.54 Address: Possible addresses are defined:

"0x01","0x03","0x05","0x07","0x09","0x0B","0x0D","0x0F","0x11",
"0x13","0x15","0x17","0x19","0x1B","0x1D","0x1F","0x25","0x27",
"0x2B","0x2D","0x2F","0x33" ,"0x35","0x37","0x3B","0x3D",
"0x3F","0x55","0x57","0x5B","0x5F","0x6F","0x77" ,"0x7F"

5.2.8 Maintenance - Card Reboot

Reboot the card in any slot.

```
Maintenance                      TAINET SCORPIO 1000A                    Version3.07
================================================================================
 Alarm    Led Status    Interface Status    Slot    Test   [Card Reboot]
 Reboot the Card




                     SlotNO.    Slot5
                     Reboot    [no ]
```

5.3 Config DB

The S1000 support automatic and manual configuration backup and restoration to/from local nonvolatile memory and UNMS database
Comes with the capability to Upload / Download the configuration database to / from the remote TFTP server, user can duplicate configuration at numerous ports

```
MAIN                              TAINET SCORPIO 1000A                    Version3.07
=============================================================================
 Configuration    Maintenance   [Config DB]   Summary    Save
 Version    Upload    Download    Action
```

```
Config DB                         TAINET SCORPIO 1000A                    Version3.07
=============================================================================
[Version]   Upload    Download    Action
 Current CDB Version

          CDB Version
          Content Version     468
          Schema Version      0.20
          Update Date Time    06/28/2002 17:35:44
```

```
Config DB                         TAINET SCORPIO 1000A                    Version3.07
=============================================================================
 Version   [Upload]   Download    Action
 Upload CDB

          CDB Upload
          CDB Upload Server IP   [192.168.1.1    ]
          File Name              [                    ]
          Starting Upload        [no ]
```

```
Config DB                         TAINET SCORPIO 1000A                    Version3.07
=============================================================================
 Version    Upload    Download   [Action]
 Swap    Abort
```

5.4 Summary

In the Scorpio 1000 the summary section is able to provide operator all configuration and testing status in one page view. The Summary page showed as below.

```
MAIN                              TAINET SCORPIO 1000A                    Version3.07
=============================================================================
 Configuration    Maintenance    Config DB   [Summary]   Save
 Shdsl_Config    Interface_Config    Loop_Back_Status    PM
```

```
Summary                          TAINET SCORPIO 1000A                    Version3.07
=============================================================================
[Shdsl_Config]   Interface_Config    Loop_Back_Status    PM
 SHDSL Configure Summary

Slot  Actual_CO  Required_CO  Loop  RT     CO_CLK      RT_CLK      Wires  Rate
1     --         --           1     --     --          --          --     0
1     --         --           2     --     --          --          --     0
2     --         --           1     --     --          --          --     0
2     --         --           2     --     --          --          --     0
3     --         --           1     --     --          --          --     0
3     --         --           2     --     --          --          --     0
4     --         --           1     --     --          --          --     0
4     --         --           2     --     --          --          --     0
 ---------------------------------------------------------------------------
5     E1/T1      E1           1     E1     dte         line        2wire  1984
5     --         --           2     --     --          --          --     0
6     --         --           1     --     --          --          --     0
6     --         --           2     --     --          --          --     0
7     --         --           1     --     --          --          --     0
7     --         --           2     --     --          --          --     0
```

```
Summary                          TAINET SCORPIO 1000A                    Version3.07
=============================================================================
 Shdsl_Config   [Interface_Config]   Loop_Back_Status    PM
 Interface Configure Summary

Slot  CO_I/F  __________CO-Config_________  RT_I/F  __________RT-Config_________
 1-1  Empty                                Empty

 1-2  Empty                                Empty

 2-1  Empty                                Empty

 2-2  Empty                                Empty

 ---------------------------------------------------------------------------
 3-1

 3-2

 4-1  Empty                                Empty
```

```
Summary                          TAINET SCORPIO 1000A                    Version3.07
=============================================================================
 Shdsl_Config    Interface_Config   [Loop_Back_Status]   PM
 Loop Back status Summary

Slot  LoopBackType_Port1          LoopBackType_Port2
1     --                          --
2     --                          --
3     --                          --
4     --                          --
5     Normal                      --
6     --                          --
7     --                          --
8     --                          --
 ---------------------------------------------------------------------------
9     --                          --
10    --                          --
11    --                          --
12    --                          --
13    --                          --
14    --                          --
```

```
PM                              TAINET SCORPIO 1000A                    Version3.07
================================================================================
[Shdsl_PM_15min]   Shdsl_PM_1day    E1/T1_PM_15min    E1/T1_PM_1day
 SHDSL PM 15min Summary

Slot  Loop  C_SNM  R_SNM  C_ES   R_ES   C_SES  R_SES  C_UAS  R_UAS  C_LSW  R_LSW
1     1     --     --     --     --     --     --     --     --     --     --
1     2     --     --     --     --     --     --     --     --     --     --
2     1     --     --     --     --     --     --     --     --     --     --
2     2     --     --     --     --     --     --     --     --     --     --
3     1     --     --     --     --     --     --     --     --     --     --
3     2     --     --     --     --     --     --     --     --     --     --
4     1     --     --     --     --     --     --     --     --     --     --
4     2     --     --     --     --     --     --     --     --     --     --
 --------------------------------------------------------------------------------
5     1     0      0      0      0      0      0      246    0      246    0
5     2     0      0      0      0      0      0      246    0      246    0
6     1     --     --     --     --     --     --     --     --     --     --
6     2     --     --     --     --     --     --     --     --     --     --
7     1     --     --     --     --     --     --     --     --     --     --
7     2     --     --     --     --     --     --     --     --     --     --
```

5.5 Save

The Save feature is used to save the current configuration to be the Default initiation setting of the Scorpio 1000. If the setting is not saved, the configuration will be lost after reboot.

```
MAIN                            TAINET SCORPIO 1000A                    Version3.07
================================================================================
 Configuration    Maintenance    Config DB    Summary   [Save]
 Save Configuraton




                      Save CDB   [no ]
```

Appendix A VT-100 Menu Tree

Table A-1VT-100 Menu Tree for Scorpio-1400A

Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6	Tier 7	Default Value
Configuration	System	IP	(ipAddress)				**192.168.1.1**
			(netMask)				**255.255.255.0**
			(defultGW)				**192.168.1.254**
		TrapIp	(trapIpAddress)				**210.65.231.120**
			(trapIpStatus)				**inactive**,active
		DateTime	Year				2002
			Month				6
			Day				28
			Hour				23
			Minate				54
			Second				1
		Alarm	Alarm cut off				x
			Clear Alarm Log				x
			Alarm switch	Alarm Type			**By user choose**
				Alarm enable			**Disable**,Enable
		Default					x
		Mpu Reset					x
		Baud Rate					**9600/**115200
	Line Unit (Cammand)	Parameter	CardType	(requiredCardType)	<slot>		**Empty**
			Port	(RequiredCPECardType)	<slot, port>		**Empty**
				(ModemDataRate)	<slot, port>		**2048K**
		Timing	(Select)	<slot, port>			<line, **internal**, dte,dte_hybrid >
			(cpe)	<slot, port>			<line, **internal**, dte,dte_hybrid >
	Interface Type	SHDSL	Param	(Power Backoff)	<slot, port>		**Enable**,disable
				(Power Scale)			**0**
				(PSD)			**Sym**,Asym
				(4 WIRE)			**2Wire**, 4Wire
				(ANNEX_A_B)			**A**,B
			NearEnd	(LineThresholdSnrMgn)	<slot, port>		**0**
				(LineThresholdAtn)			**35db**

Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6	Tier 7	Default Value
			FarEnd	(LineThresholdSnrMgn)	<slot, port>		**0**
				(LineThresholdAtn)			**35db**
			Threshold	NearEnd	LOSW	<mode>	Mode:15min **60** Mode:day **300**
					ES		Mode:15min **60** Mode:day **300**
					SES		Mode:15min **60** Mode:day **300**
					UAS		Mode:15min **60** Mode:day **300**
				FarEnd	LOSW	<mode>	Mode:15min **60** Mode:day **300**
					ES		Mode:15min **60** Mode:day **300**
					SES		Mode:15min **60** Mode:day **300**
					UAS		Mode:15min **60** Mode:day **300**
			PortEnabled	<slot, port>			disable,**enable**
		Fiber	NearEnd	<slot, port>	OE Option		**Auto/** software configure
					OE Loop		**OE 1/** OE2
					Data Port location		**Port 1** /2/3/4/Empty
			FarEnd	<slot, port>	OE Option		**Auto/** software configure
					OE Loop		**OE 1/** OE2
					Data Port location		**Port 1** /2/3/4/Empty
			Threshold	NearEnd	Mode:15min **60** Mode:day **300**		
				FarEnd	Mode:15min **60** Mode:day **300**		
			Clear	NearEnd	Current Quarter	<slot, port>	**No**/yes
					Current Daily	<slot, port>	**No**/yes
					History Quarter	<slot, port>	**No**/yes
					History Daily	<slot, port>	**No**/yes
				FarEnd	Current Quarter	<slot, port>	**No**/yes
					Current Daily	<slot, port>	**No**/yes
					History Quarter	<slot, port>	**No**/yes
					History Daily	<slot, port>	**No**/yes
		T1	Parameter	NearEnd	(LineType) <slot, port>		**Unframed** framed(ESF)+CRC framed (noCRC) framed(SF) (D4)
					(LineCoding) <slot, port>		AMI,**B8ZS**
					IdlePattern		**0x7f**, 0xff
					CableLength		**Short Haul** Long Haul
				FarEnd	(LineType) <slot, port>		Unframed **framed(ESF)+CRC** framed (noCRC) framed(SF) (D4)
					(LineCoding) <slot, port>		AMI,**B8ZS**
					IdlePattern		**0x7f**, 0xff

Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6	Tier 7	Default Value
					CableLength		**Short Haul** Long Haul
			Threshold	NearEnd	(dsx1ThresholdES)	<mode>	Mode:15min **60** Mode:day **300**
					(dsx1ThresholdSES)		Mode:15min **60** Mode:day **300**
					(dsx1ThresholdUAS)		Mode:15min **60** Mode:day **300**
				FarEnd	(dsx1ThresholdES)	<mode>	Mode:15min **60** Mode:day **300**
					(dsx1ThresholdSES)		Mode:15min **60** Mode:day **300**
					(dsx1ThresholdUAS)		Mode:15min **60** Mode:day **300**
		E1	parameter	NearEnd	(LineType) <slot, port>		Unframed **Framed_CRC** framed (no CRC)
					(Impedance) <slot, port>		Unbalance **Balance**
					(IDLE PATTEN)		**0xff**,0x7f
				FarEnd	(LineType) <slot, port>		Unframed **Framed_CRC** framed (no CRC)
					(Impedance) <slot, port>		Unbalance **Balance**
					(IDLE PATTEN)		**0xff**,0x7f
			Threshold	NearEnd	(ThresholdES)	<mode>	Mode:15min **60** Mode:day **300**
					(ThresholdSES)		Mode:15min **60** Mode:day **300**
					(ThresholdUAS)		Mode:15min **60** Mode:day **300**
				FarEnd	(ThresholdES)	<mode>	Mode:15min **60** Mode:day **300**
					(ThresholdSES)		Mode:15min **60** Mode:day **300**
					(ThresholdUAS)		Mode:15min **60** Mode:day **300**
		LAN	Parameters	NearEnd	(Full Duplex) <slot, port>		**disable**, enable
					(1544 kbps)		**disable**, enable
				FarEnd	(Full Duplex) <slot, port>		**disable**, enable
			Filter	NearEnd	Add	(Rec Number) <slot, port>	
						(MAC Adderss)	
						(LAN)	**Filter**
						(WAN)	**Filter**
					Delete	(Rec Number) <slot, port>	
				FarEnd	Add	(Rec Number) <slot, port>	

Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6	Tier 7	Default Value
						(MAC Adderss)	
						(LAN)	
						(WAN)	
					Delete	(Rec Number) <slot, port>	
		DATA	Parameters	NearEnd	(DTE Type) <slot, port>		V35 **V36/RS449** RS530 X21
					Exc-pin detect		**disable**, enable
					(Tx data inversion)		Normal **Inverse**
					(Rx sample edge)		**Rising** Falling
					(Rx data inversion)		Normal **Inverse**
				FarEnd	(DTE Type) <slot, port>		V35 **V36/RS449** RS530 X21
					Exc-pin detect		**disable**, enable
					(Tx data inversion)		Normal **Inverse**
					(Rx sample edge)		**Rising** Falling
					(Rx data inversion)		Normal **Inverse**
	Security	(Console: Password) (Telnet: User Name, Password)					<"tainet"> <"tainet", "tainet">
		Community					**GET (Public)** **Set (Private)** **Trap (Public)**
	SW Download	Download	(SwdlSeverIP)				Blank
			(SwdlFileName)				Blank
			(StartingDownload)				No
		Swap	(SwdlSwapAction)				
Maintenance	Alarm	System Alarm					
		alarmLog					
	Led Status	<mpu>					
	Interface Status	T1	Performance	Current 15Min	NearEnd	(15MinTime Elapsed)	<slot,port>
						(15DminES)	
						(15MinSES)	
						(15MinUAS)	
					FarEnd	(15MinTime Elapsed)	<slot,port>
						(15DminES)	
						(15MinSES)	
						(15MinUAS)	
				Current Day	Near End	(DayTimeElapsed)	
						(DayES)	
						(DaySES)	

Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6	Tier 7	Default Value
						(DayUAS)	
					Far End	(DayTimeElapsed)	
						(DayES)	
						(DaySES)	
						(DayUAS)	
				Last 96 Quarters	Near End	(dsx1Hist15MinESs)	<slot, port>
						(dsx1Hist15MinSESs)	
						(dsx1Hist15MinUASs)	
					Far End	(dsx1Hist15MinESs)	<slot, port>
						(dsx1Hist15MinSESs)	
						(dsx1Hist15MinUASs)	
				Last 7 Days	Near End	(dsx1Hist1DayESs)	<slot, port>
						(dsx1Hist1DaySESs)	
						(dsx1Hist1DayUASs)	
					Far End	(dsx1Hist1DayESs)	<slot, port>
						(dsx1Hist1DaySESs)	
			PMClear	Reset Near End of T1	Current Quarter	<slot, port>	X
					Current Daily		X
					History Quarter		X
					History Daily		X
				Reset Far End of T1	Current Quarter	<slot, port>	X
					Current Daily		X
					History Quarter		X
					History Daily		X
		E1	Performance	Current 15Min	Near End	(15MinTimeElapsed)	<slot, port>
						(15DminES)	
						(15MinSES)	
						(15MinUAS)	
					Far End	(15MinTimeElapsed)	<slot, port>
						(15DminES)	
						(15MinSES)	
						(15MinUAS)	
				Current Day	Near End	(DayTimeElapsed)	<slot, port>
						(DayES)	
						(DaySES)	

Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6	Tier 7	Default Value
						(DayUAS)	
					Far End	(DayTimeElapsed)	<slot, port>
						(DayES)	
						(DaySES)	
						(DayUAS)	
				Last 96 Quarters	Near End	(Hist15MinESs)	<slot, port>
						(Hist15MinSESs)	
						(Hist15MinUASs)	
					Far End	(Hist15MinESs)	<slot, port>
						(Hist15MinSESs)	
						(Hist15MinUASs	
				Last 7 Days	Near End	(Hist1DayESs)	<slot, port>
						(Hist1DaySESs)	
						(Hist1DayUASs)	
					Far End	(Hist1DayESs)	<slot, port>
						(Hist1DaySESs)	
						(Hist1DayUASs)	
			PMClear	Reset Near End of E1	Current Quarter		<slot, port>
					Current Daily		x
					History Quarter		x
					History Daily		x
				Reset Far End of E1	Current Quarter		<slot, port>
					Current Daily		x
					History Quarter		X
					History Daily		X
		SHDSL	Common	LineStatus			Blank
				PowerBackoff			**Enable**,Disable
				PowerScale			**0**
				PSD			**Sym**,Asym
				4 WIRE			<On,**Off**>
				ANNEX			<**A**,B>
			Near End	(LineCurrentAtn)	<slot, port>		
				(LineCurrentSnrMgn)			

Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6	Tier 7	Default Value
				(LineCurrentOutputPower)	<slot, port>		
				(ReceiverGain)			
			Far End	(LineCurrentAtn)	<slot, port>		
				(LineCurrentSnrMgn)			
				(LineCurrentOutputPower)	<slot, port>		
				(ReceiverGain)			
			Performance	Current 15Min	Near End	(Curr15MinTimeElapsed)	<slot, port>
						(Curr15MinESs)	
						(Curr15MinSESs)	
						(Curr15MinUASs)	
						(Curr15MinLOSWs)	
					Far End	(Curr15MinTimeElapsed)	
						(Curr15MinESs)	
						(Curr15MinSESs)	
						(Curr15MinUASs)	
						(Curr15MinLOSWs)	
				Current Day	Near End	(Curr1DayTimeElapsed)	<slot, port>
						(Curr1DayESs)	
						(Curr1DaySESs)	
						(Curr1DayUASs)	
						(Curr1DayLOSWs)	
					Far End	(Curr1DayTimeElapsed)	
						(Curr1DayESs)	
						(Curr1DaySESs)	
						(Curr1DayUASs)	
						(Curr1DayLOSWs)	

Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6	Tier 7	Default Value
				Last 96 Quarters	Near End	(Hist15MinESs)	<slot, port>
						(Hist15MinSESs)	
						(Hist15MinUASs)	
						(Hist15MinLOSWs)	
					Far End	(Hist15MinESs)	<slot, port>
						(Hist15MinSESs)	
						(Hist15MinUASs)	
						(Hist15MinLOSWs)	
				Last 7 Days	Near End	(Hist1DayESs)	<slot, port>
						(Hist1DaySESs)	
						(Hist1DayUASs)	
						(Hist1DayLOSWs)	
					Far End	(Hist1DayESs)	<slot, port>
						(Hist1DaySESs)	
						(Hist1DayUASs)	
						(Hist1DayLOSWs)	
			PMClear	NearEnd	Current Quarter	<slot, port>	x
					Current Day		x
					History Quarter		x
					History Day		x
				FarEnd	Current Quarter	<slot, port>	x
					Current Day		x
					History Quarter		x
					History Day		x
		LAN	Filter Table	NearEnd	(Filter Table) <slot, port>		
				FarEnd	(Filter Table) <slot, port>		
			Forwarding Table	NearEnd	(Forwarding Table)1~128 <slot, port>		
				FarEnd	(Forwarding Table) <slot, port>		
		Fiber	Command	<slot, port>	OE status		

Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6	Tier 7	Default Value
			Performance	Current 15Min	Near End	(Curr15MinTimeElapsed)	<slot, port>
						(Curr15MinESs)	
						(Curr15MinSESs)	
						(Curr15MinUASs)	
						(Curr15MinLOSWs)	
					Far End	(Curr15MinTimeElapsed)	
						(Curr15MinESs)	
						(Curr15MinSESs)	
						(Curr15MinUASs)	
						(Curr15MinLOSWs)	
				Current Day	Near End	(Curr1DayTimeElapsed)	<slot, port>
						(Curr1DayESs)	
						(Curr1DaySESs)	
						(Curr1DayUASs)	
						(Curr1DayLOSWs)	
					Far End	(Curr1DayTimeElapsed)	
						(Curr1DayESs)	
						(Curr1DaySESs)	
						(Curr1DayUASs)	
						(Curr1DayLOSWs)	
				Last 96 Quarters	Near End	(Hist15MinESs)	<slot, port>
						(Hist15MinSESs)	
						(Hist15MinUASs)	
						(Hist15MinLOSWs)	
					Far End	(Hist15MinESs)	<slot, port>
						(Hist15MinSESs)	
						(Hist15MinUASs)	

Appendix A

Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6	Tier 7	Default Value
						(Hist15MinLOSWs)	
				Last 7 Days	Near End	(Hist1DayESs)	<slot, port>
						(Hist1DaySESs)	
						(Hist1DayUASs)	
						(Hist1DayLOSWs)	
					Far End	(Hist1DayESs)	<slot, port>
						(Hist1DaySESs)	
						(Hist1DayUASs)	
						(Hist1DayLOSWs)	
	Slot	Version Info	(SwVersion)				
			(CpldVersion)				
			(FPGAVersion)				
		Card Status	(actualCardType)				
			(RequireCPECardType)	<port>			
			(cardStatus)				
			(portStatus)				
			(CurrentTimingSource)	<port>			
			(Cpe timing source)	<port>			
			(LineRate)	<port>			
		Led Status	(ledStatus)				
		Power Status	(Power Status)				
	Test	Patten test	PortNo.				Port
			(TestPattern)				2E11-1,2E15-1, **QRSS**,2E23-1,V54P,V54T
			(Test Direction)				**SHDSL** Interface
			(TestPeriod)				**100second**
			(TestStart)				START, **STOP**

Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6	Tier 7	Default Value
		Loopback		<slot, port>			**Normal** Local Loopback Remote Loopback Local PayLoad Loopback Remote PayLoad Loopback (N/A)CPE Remote Loopback(cpe side command) (N/A)CPE Remote PayLoad Loopback(cpe side command)
		V.54 Test	V.54 Parameter	<slot, port> (V.54 Enable)			**Disable**,Enable
				(V.54 Address Mode)			**Disable**,Enable
				(V.54 Far end Address)			**0x03** 0x01~0x7f
				(V.54 Near end Address)			**0x03** 0x01~0x7f
			V.54 Generator	PortNO.			port
				V.54 Mode			**STOP V54 LOOPBACK** START V54 LOOPBACK
				V.54 Direction			**SHDSL** Interface
				V.54 Address			**0x03** 0x01~0x7f
	CardReboot						x
Config DB	Version	(cdbContentVersion)					x
		(cdbSchemaVersion)					x
		(cdbUpdatedDateTime)					x
	Upload	(cdbUpldSeverIP)					Blank
		(cdbUpldFileName)					Blank
		(StartingUpload)					
	Download	(cdbDnldSeverIp)					Blank
		(cdbDnldFileName)					Blank
		(StartingDownload)					
	Action	Save					x
		Swap					x

Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6	Tier 7	Default Value
		Abort					x
Summary*	ShdslConfig						
	InterfaceConfig				*only for special version		
	LoopBackStatus						
	PM	ShdslPM15min					
		ShdslPM1Day					
		T1E1PM15min					
		T1E1PM1Day					
Save	Save configuration						**No**/ Yes

Appendix B Pin Assignment

A Conversion Cable is enclosed for converting DB-25 to V.35, V.36, or X.21 interface.

There are three types of Conversion Cables, depends on the customer's order. The cable is enclosed in the shipped package.

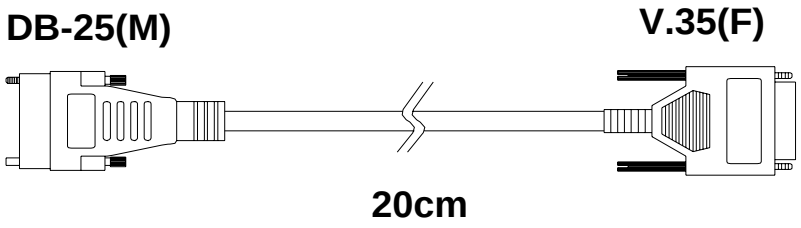


Figure B- 1 The Conversion Cable of DB-25(M) to V.35(F)

B.1 V.35 Interface

Figure B- 2 and Figure B- 3 illustrate the DB-25M and V.35F interfaces, respectively. Refer to Table B-1 for pin assignments on these two interfaces.

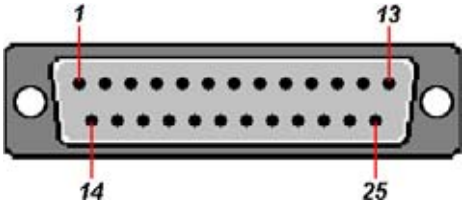


Figure B- 2 DB-25M Interface

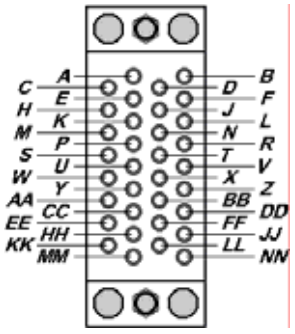


Figure B- 3 V.35 Interface

Table B-1 DB-25 & V.35 Cable Pin Definition

DB-25 Male	Signal	V.35 Female	Source
1	Frame Ground	A	Common

7	Signal Ground	B	Common
4	Request to Send	C	DTE
5	Clear to Send	D	DCE
6	Data Set Ready	E	DCE
8	Data Carrier Detect	F	DCE
20	Data Terminal Ready	H	DTE
2	Transmit Data (A)	P	DTE
3	Receive Data (A)	R	DCE
14	Transmit Data (B)	S	DTE
16	Receive Data (B)	T	DCE
24	Terminal Timing (A)	U	DTE
17	Receive Timing (A)	V	DCE
11	Terminal Timing (B)	W	DTE
9	Receive Timing (B)	X	DCE
15	Terminal Timing (A)	Y	DCE
12	Terminal Timing (B)	AA	DCE

B.2 RS-530 Interface

Figure B- 4 illustrates the RS-530 Interface.

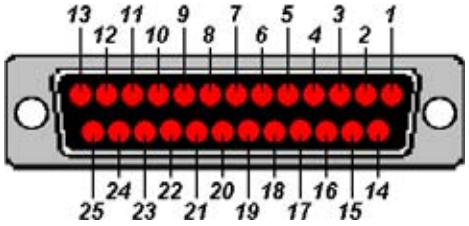


Figure B- 4 RS-530 Interface

Refer to Table B-2 for the pin definition of RS-530 Connector.

Table B-2 RS-530 Connector Pin Definition

DB-25 Male	Signal	ource
1	Frame Ground	Common
2	Transmit Data (A)	DTE
3	Receive Data (A)	DCE
4	Request to Send (A)	DTE
5	Clear to Send (A)	DCE
6	DCE Ready (A)	DCE
7	Signal Ground	Common
8	Receive line Signal Detector (A)	DCE
9	Receive Signal Element Timing (B)	DCE
10	Receive line Signal Detector (B)	DCE
11	EXT. Transmit Signal Element Timing (B)	DTE
12	Transmit Signal Element Timing (B)	DCE
13	Clear to Send (B)	DCE
14	Transmit Data (B)	DTE
15	Transmit Signal Element Timing (A)	DCE

16	Receive Data (B)	DCE
17	Receive Signal Element Timing (A)	DCE
18		
19	Request to Send (B)	DTE
20	DTE Ready (A)	DTE
21		
22	DCE Ready (B)	DCE
23	DTE Ready (B)	DTE
24	EXT. Transmit Signal Element Timing (A)	DTE

B.3 V.36/RS-449 Interface

The DB-37F interface is shown in Figure B- 5.

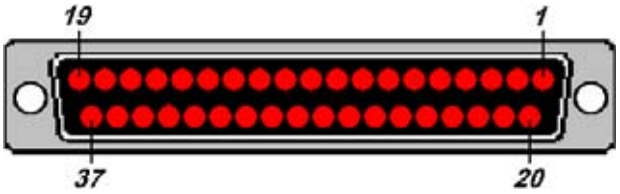


Figure B- 5 DB-37F Interface

Refer to Table B-3 for the pin definition of V.36/RS-449 cable.

Table B-3 V.36/RS-449 Cable Pin Definition

DB-25 Male	*Signal*	*V.36/RS-449 Female*	*Source*
1	Shield	1	Common
2	Send Data (A)	4	DTE
15	Send Timing (A)	5	DCE
3	Receive Data (A)	6	DCE
4	Request to Send (A)	7	DTE
17	Receive Timing (A)	8	DCE
5	Clear to Send (A)	9	DCE
6	Data Mode (A)	11	DCE
20	Terminal ready (A)	12	DTE
8	Receive Ready (A)	13	DCE
24	Terminal Timing (A)	17	DTE
7	Signal Ground	19,20,37	Common
14	Send Data (B)	22	DTE
12	Send Timing (B)	23	DCE
16	Receive Data (B)	24	DCE
19	Request to Send (B)	25	DTE
9	Receive Timing (B)	26	DCE
13	Clear to Send (B)	27	DCE
22	Data Mode (B)	29	DCE
23	Terminal Ready (B)	30	DTE
10	Receive Ready (B)	31	DCE
11	Terminal Timing (B)	35	DTE

B.4 X.21 Interface

Figure B- 6 illustrates the X.21 Interface. For the DB-25 interface, refer to Figure B- 2 DB-25M Interface.

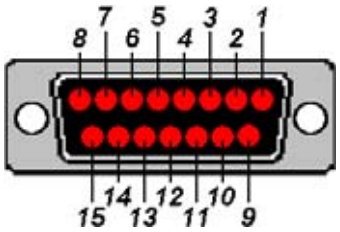


Figure B- 6 X.21 Interface

Refer to Table B-4 for the pin definition of X.21 cable.

Table B-4 X.21 Cable Pin Definition

DB25 Male	*Signal*	*X.21 Female*
1	Shield Ground	**1**
2	Ground	**2**
4	TXD(a)	**3**
3	)	**4**
8	RXD(a)	**5**
17	on	**6**
24	RXC(a)	**7**
7	Ground	**8**
14	TXD(b)	**9**
19	)	**10**
16	RXD(b)	**11**
10	on	**12**
9	RXC(b)	**13**
11		**14**
G		**G**