TC-200GTA

GSHDSL Modem

User’s Manual

V 1.3

Content

1. Overview

1.1 Product Overview

TC-200GTA, G.SHDSL use one or two pair of stradred copper wire to transmit megabit broadband information. This device use TC-PAM modulation techniques, provide 64 K to 4608 K bits (n x 64 K bits) transfer rate（G.BIS mode，rate at reach maximum 11.392Mbps）. TC-200GTA provide other options - including V.35 [X.21,..]; Ethernet; and E1 three kinds of different user interface, operate simultaneously by sharing the DSL loop bandwidth. Where the Ethernet interface complies IEEE 802.3 10/100 Base-T standard, support local area network connection to remote area network, also it provides VLAN and in-band network management function.

TC-200GTA with user DTE interface and data rate selection satisfy many network applications needs. Use EOC channel (Embedded Operation channel) to monitor remote units (SHDSL Unit), excution G.SHDSL, E1 line performance monitoring, V.54 local and remote loop back which provides real-time alarm. TC-200GTA meet symmetric SHDSL spectrum Annex A [B], ITU-T Rec. G.991.2. standard.

According to different network-side interface / customer interface, data transfer rate as following table.

Note: **S**HDSL **T**ransciver **U**nit-**C/R**: STU-C: Central office unit; STU-R: Remote unit

TC-200GTA Single Pair SHDSL loop operation

Network-side interface, central office unit		Customer interface, remote unit	
Interface	Data rate (N x64 K bits)	Interface	Data rate (N x64 Kbps bits)
E1	N= 1 ~ 32	E1	N= 1 ~ 32

TC-200GTA Single Pair SHDSL loop operation

Network-side interface, central office unit		Customer interface, remote unit	
Interface	Data rate (N x64 Kbps bits)	Interface	Data rate (N x64 Kbps bits)
E1	N= 1 ~ 32	V.35	N= 1 ~ 32

TC-200GTA Single Pair SHDSL loop operation

Network-side interface, central office unit		Customer interface, remote unit	
Interface	Data rate (N x64 K bits)	Interface	Data rate (N x64 K bits)
V.35	N= 1 ~ 36（G.BIS：89）	V.35	N= 1 ~ 36（G.BIS：89）

TC-200GTA Single Pair SHDSL loop operation

Network-side interface, central office unit		Customer interface, remote unit	
Interface	Data rate (N x64 K bits)	Interface	Data rate (N x64 K bits)
Ethernet	N= 1 ~ 36（G.BIS：89）	Ethernet	N= 1 ~ 36（G.BIS：89）

TC-200GTA Two Pairs SHDSL loop operation

Network-side interface, central office unit		Customer interface, remote unit	
Interface	Data rate (N x64 K bits)	Interface	Data rate (N x64 K bits)
E1	N= 1 ~ 32	E1	N= 1 ~ 32

TC-200GTA Two Pairs SHDSL loop operation

Network-side interface, central office unit		Customer interface, remote unit	
Interface	Data rate (N x64 Kbps bits)	Interface	Data rate (N x64 Kbps bits)
E1	N= 1 ~ 32	V.35	N= 1 ~ 32

TC-200GTA Two Pairs SHDSL loop operation

Network-side interface, central office unit		Customer interface, remote unit	
Interface	Data rate (N x64 K bits)	Interface	Data rate (N x64 K bits)
V.35	N= 1 ~ 72（G.BIS:178）	V.35	N= 1 ~ 72（G.BIS:178）

TC-200GTA Two Pairs SHDSL loop operation

Network-side interface, central office unit		Customer interface, remote unit	
Interface	Data rate (N x64 K bits)	Interface	Data rate (N x64 K bits)
Ethernet	N= 1 ~ 72（G.BIS：178）	Ethernet	N= 1 ~ 72（G.BIS：178）

0.4 mm and 0.5 mm diameter, data rate corresponds to loop transmission distance as following table:

Single Pair /Two Pairs data rate corresponds to loop transmission distance, **0.4** mm diamete

Single Pair data rate, K bits	64	128	192	384	768	1024	1536	2048	2304
Distance, Km	6.0	6.0	6.0	5.2	4.5	4.2	4.0	3.6	3.5
Two pairs data rate, K bits	128	256	384	768	1536	2048	3072	4096	4608
Distance, Km	6.0	6.0	6.0	5.2	4.5	4.2	4.0	3.6	3.5

Single Pair /Two Pairs data rate corresponds to loop transmission distance, 0.5 mm diamete

Single Pair data rate, K bits	64	128	192	384	768	1024	1536	2048	2304
Distance, Km	11	11	11	9.0	7.0	6.0	5.0	4.5	4.1
Two pairs data rate, K bits	128	256	384	768	1536	2048	3072	4096	4608
Distance, Km	11	11	11	9.0	7.0	6.0	5.0	4.5	4.1

Features:

1. Meet ITU-T G.991.2
2. Program settings are single Pair, two pairs loop or 1+1 protected mode operaiton
3. Provide customer data rate, from 64K bits to 4068K bits, use 64K bits as unit setting.
4. G.SHDSL.bis, data rate can reach 11.392 million bits
5. Provide various interface, such as V.35 interface,1-4 Ethernet interface and E1 interface.
6. Nx64K bits data port, it can use software program to set to V.35/RS449/RS-530/X.21 interface.
7. By Nx64K time slot allocation, it can have V.35, Ethernet and E1 interface operation simualtaneouly.
8. Use in-band EOC to execute remote control and monito.
9. Provide DSL loop PRBS testing
10. Provide encoding type V.54 local and remote loop back test
11. G.SHDSL and E1 status monitor
12. 96*15 minutes and 7*24 hours perfornace record storage
13. All operations options can set by using CID control port or LCD display button
14. Software can be upgraded in fields

Order Information:

TC-200GTA Desktop-i1-i2-i3-i4-i5-i6-i7 (Desktop type)

i1:	01	Single Pair SHDSL
	02	Two pairs SHDSL
i2:	E1 Interface	
	D1	One E1 Interface
	D0	No E1 Interface
i3:	Data Port Interface	
	V	V.35 (or RS-530/X.21)Interface
	X	No data port Interface
i4:	Ethernet Interface	
	L1	10/100 Base-T Interface(1 LAN port)
	L2	10/100 Base-T Interface(2 LAN ports)
	L3	10/100 Base-T Interface(3 LAN ports)
	L4	10/100 Base-T Interface(4 LAN ports)
	X	No 10/100 Base-T Interface
i5:	Desktop Case	
	D	Provide LCD Display
	X	No LCD Display
i6:	Power input	
	AC	AC 90 ~ 260V Power input
	DC	DC – 48V Power input
	AD	AC, or DC can be chosen in fields

For example, ***TC-200GTA Desktop-02-D0-X-L1-D-AD*** states TC-200GTA stand-alone type with 2 pairs SHDSL, 1 Ethernet interface with LCD display; Also provides options AC or DC power, no remote-fed motor.

Appliance Figures.

TC-200GTA supports full-duplex one or two pairs loop between STU-C and STU-R, shown at following Figure (a) ~ Figure (e).

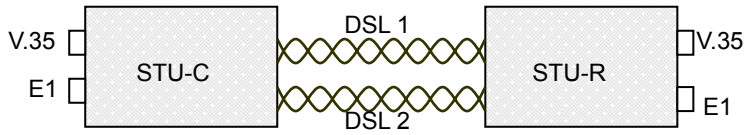


Figure (a): Two pair point to point application

Figure (b): One Plus One (1+1) DSL loop protection

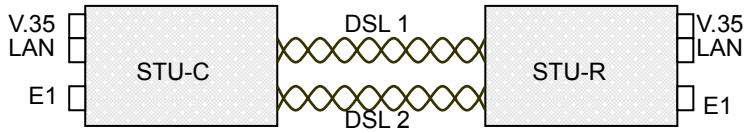


Figure (c): Two pair point to point application

To maximize the user bandwidth, Figure (d) illustrates a LAN to LAN connectivity at two loops application.

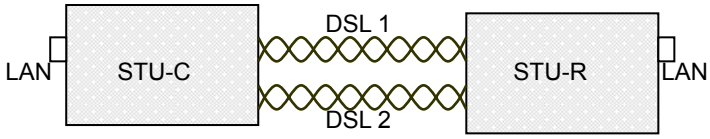


Figure (d): Ethernet Bridging

1.2 Specification

G.SHDSL Interface

Standard:	ITU-T G.991.2, Annex A [Default], or choose Annex B
DSL loop numbe:	Single Pair or two pairs DSL loop[User defined]
Encoding:	It can be programmed to choose 16 TC-PAM or 32 TC-PAM modulation to meet ITU-T G.991.2, Annex A or Annex B standards
Sampling rate	(data rate+8K) / 3 symbol/sec
Loop rate:	Single Pair DSL loop:192 Kbps ~ 11392 K bits, Set interval: 64K bits Two pairs DSLloop: 384 Kbps ~ 11392 K bits, Set interval: 64K bits
Data rate:	64 ~ 11392 Kbps [NX64Kbps, N=1 ~ 178] allocation of various types of user interface
Impedance:	135Ω +/- 5 %
Wetting Current:	1.0 mA ~ 20mA
Connection terminal:	TC-200GTA Desktop: Screw terminal
System boot:	System can be boot within 60 secs

User Port(User DTE Port) Interface

TC-200GTA provides various user port such as (1): One E1, One V.35[X.21 …] and up to 4 Ethernet interface

E1 Interface

Standard:	ITU-T G.703, G.704, G.706, G.732, G.823
Rate:	2048 K bits +/- 50 ppm
Encoding:	HDB3
Frame:	PCM31, PCM30, PCM31C, PCM30C or choose no frame type to transfer
Data Rate:	64 K bits to 2048 K bits[Nx64 K bits, N=1 ~ 32]
Operation:	E1 rate or partial E1 rate (Nx64 K bits)
Unused time slots:	Fill in " 0xFF " Hex byte
Pulse apperance:	Meet ITU-T G.703
Pulse width:	244 ns
Impedance:	Balanced type 120Ω +/- 5% or non-balanced type 75Ω +/-5%
Connection terminal:	TC-200GTA Desktop: Screw terminal

Data Port Interface

Standard:	ITU-T V.35
Interface:	It can be programmed to set V.35/V.36/RS-530/X.21
Rate:	64 K bits to 11392 K bits, NX64K bits, N=1 ~ 178

Connection terminal: DB25F, [Provide DB25M to MR34 ISO 2593 34-pin transfer]

Ethernet Interface

Standard: IEEE 802.3 / IEEE 802.3u

Interface: IEEE 802.3/802.3u 10/100 Base-T

Data rate: 64 K bits to 11392 K bits, NX64K bits, N=1 ~ 178

Bridgin ability: Meet IEEE 802.1d transparent bridge agreement
Provide up to128 MAC addresses
Provide bridge filter function.

Connection terminal: TC-200GTA Desktop: RJ-45

System timing

Payload timing : (1) Internal clock (2) E1 input timing (3) data port DTE timing[TT]
(4) Recovered clock (5) External clock

SHDSL timing: (1) Plesiochronous (2) Synchronous (3) Hybrid

Jitter and Wander

E1 interface meets G.823 and G.824 jitter and wander requirements.

Maintainance

Loop back: Local and remote loop back can be set by front panel button,, VT-100 menu screen or in-band numbering V.54 loop back start

DSL: PRBS BER test
Display signal-noise rate and Loop Attenuation
LOSW, ES, SES and UAS 于 DSL loop

E1 interface: Provide G.821 and G.826 failure statistics.

Management Interface:

1. TC-200GTA Desktop
   Control interface: RS-232/DB-9 VT-100
   Stand-alone LCD display(optional) : Use button for configure settings
   Through the Ethernet port to telnet login configuration

Electrical and mechanical properties

TC-200GTA Desktop (No matter STU-C or STU-R)

Input Voltage: 1. AC: 90 ~ 260 V (47 ~ 63 Hz)
2. DC: -36 ~ -72 V
(Selected on the basis of the scene needs)

Operating temperature:	0 ~ 60 °C
Operating humidity	Up to 95% non-condensing
Device size	234.4 x 155.5 x 44.2 mm (W x L x H)
Power consumption	Less than 6Watts

1.3 Panel Description

TC-200GTA Front Panel

Different DTE interface front panel described in Figure 1.1 ~ Figure 1.2.

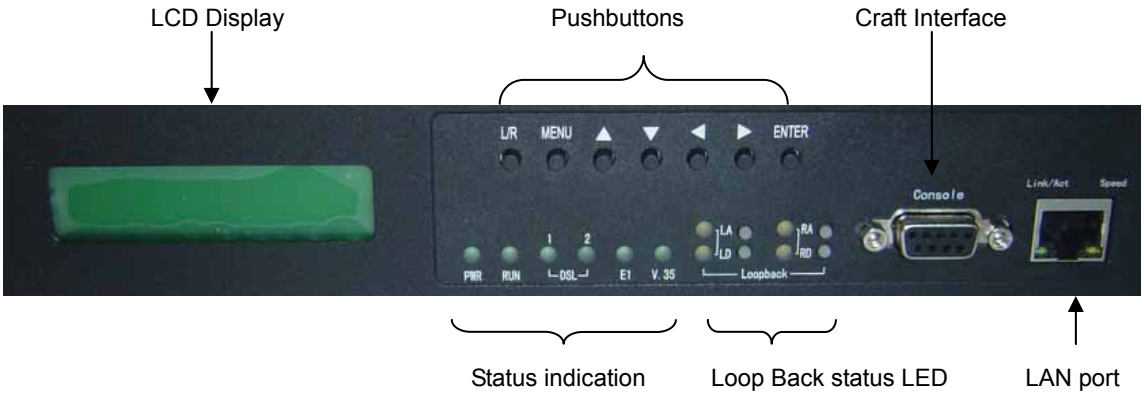


Figure 1.1: TC-200GTA Desktop Front Panel (With one LAN interface)

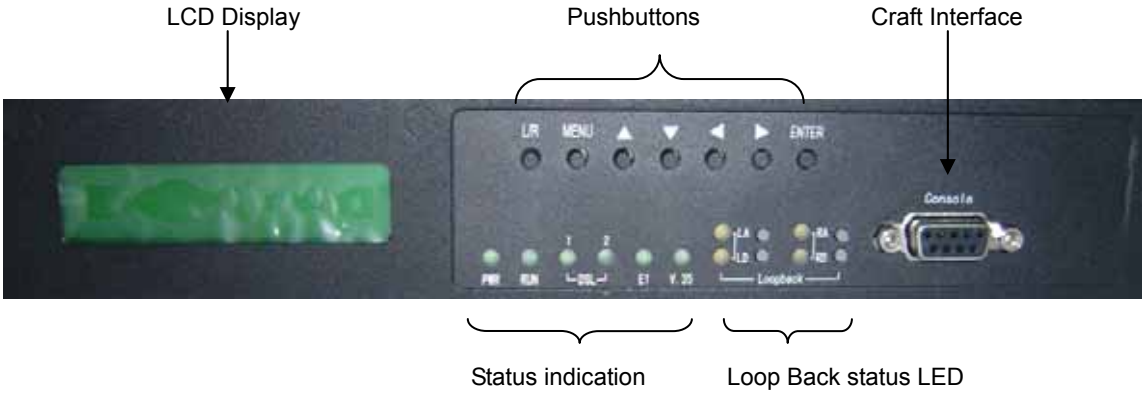


Figure 1.2: TC-200GTA Desktop Front Panel (With 4 LAN interfaces)

TC-200GTA Desktop front panel provides DB-9 CID control port，front panel LED Indicator displays loop, DTE interface status, alarm and loopback status.

Table 1.1: Front Panel LED Indicator

Indicator	Mode	Description
PWR Power LED	Steady green light	Normal power supply.
	No light	Abnormal power supply or device broken
RUN	Green light	Operating normally
	Steady green light or	Operating abnormally
	No light	
DSL1	Steady green light	DSL1 handshake success
	Green light flash or	DSL1 no handshake
	no light	
DSL2	Steady green light	DSL2 handshake success
	Green light flash or	DSL2 no handshake
	no light	
E1	Steady green light	E1 interface connect to external devices
	No light	E1 interface NOT connect to external devices
V.35	Steady green light	V.35 interface connect to external devices
	No light	V.35 interface NOT connect to external devices
LA	Steady orange light	System is executing LA loopback test
	No light	System is Not executing LA loopback test
LD	Steady orange ligh	System is executing LD loopback test
	tNo light	System is NOT executing LD loopback test
RA	Steady orange light	System is executing RA loopback test
	No light	System is NOT executing RA loopback test
RD	Steady orange light	System is executing RD loopback test
	No light	System is NOT executing RD loopback test
Link/Act	Steady green light	LAN interface connect to external devices
	Green light flash	LAN interface is transferring data
	No light	LAN interface NOT connect to external devices
Speed	Steady orange light	100M working mode
	No light	10M working mode

LCD Display

2 x 16 characters screen LCD diplay with buttons, it can display current TC-200GTA status, configure parameters or execute loopback testing. Figure 1.3. Marked LCD display and 5 working area.

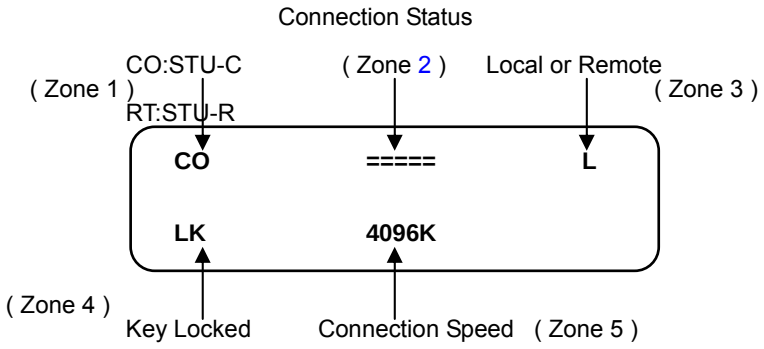


Figure 1.5: The LCD Display

Area 1 CO is TC-200GTA set as central office unit; RT is TC-200GTA set as remote units

Area 2 DSL loop connection status

(1): Sync ===== Synchronization establilshed

(2): DSL loop disconnect == ==

(3): DSL connected but crossover == x ==

(4): Single Pair loop -----

Area 3 Local/ remote indicator

L: Local units R: Remote units

Area 4 LK: If the button is left idle for more than three minutes the system will automatically lock the keys

Unlock :<Left> <Right> Two triangle button press together

Area 5 Rate: From 64K to 4608 K bits, interval is set as 64K bits .

Enter	Set parameters or options	
△	: Up triangle button	Move to upper menu
▽	: Down triangle button	Move to lower menu or confirm option
▷	: Right triangle button,	Move to right menu
◁	: Left triangle button,	Move to left menu
Menu	: Go to Main menu	
L/R	: Local or Remote device option	

TC-200GTA Back Panel

Different DTE interface front panel described in Figure 1.4 ~ Figure 1.5.

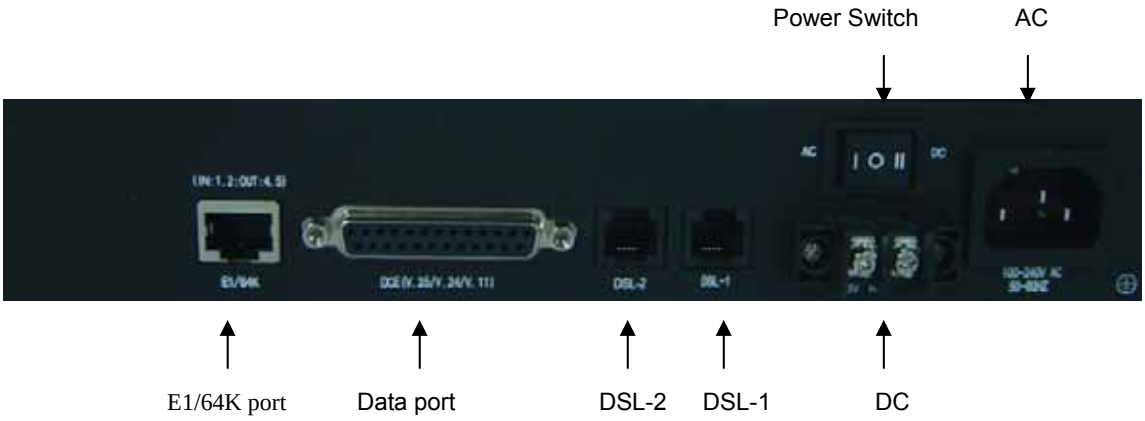


Figure1.4: TC-200GTA Desktop back panel（With one LAN interface）

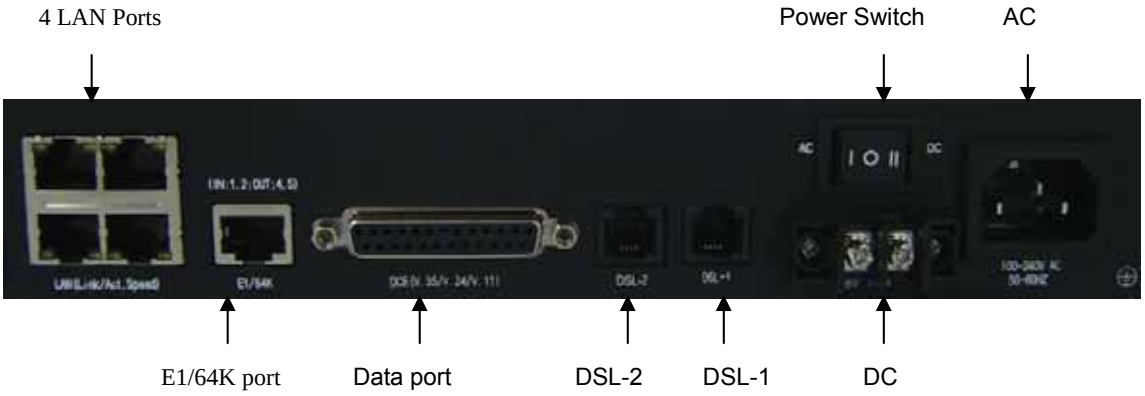


Figure 1.5: TC-200GTA Desktop back panel（With 4 LAN interfaces）

DSL PIN Definition：

DSL interface with 4 pin，Use only the two middle pin (pin2 and pin3)：

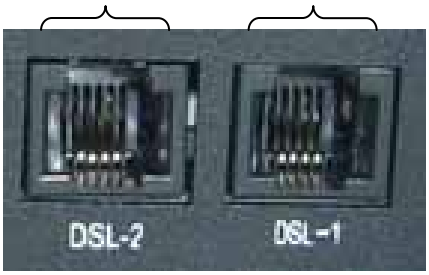
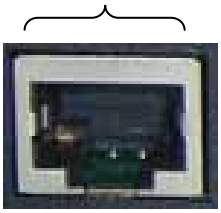


Figure 1.6: DSL PIN

PIN.	Definition
1	-
2	Tip
3	Ring
4	-

Table 1.2: DSL PIN Definition

E1 Interface（RJ-45）PIN Definition：



PIN	Definition
1	RX Tip
2	RX Ring
4	TX Tip
5	TX Ring

Figure 1.7: E1 Interface PIN

Table 1.3: E1 Interface PIN Definition

E1 Interface Characteristics

TC-200GTA E1 interface meets ITU-T G.703, G.704, and G.732 requirements. Easy to transfer Nx64k bps frame, N=0~31, and no frame E1 data stream. E1 interface software choose (1) 120 ohms balanced loading or (2) 75 ohms non-balanced loading and HDB3 encoding.

LAN Interface Characteristics

LAN interface is RJ-45 terminal, meets IEEE 802.3 or IEEE 802.3u standard and provides 10/100 Base-T auto-detect and half/full duplex mode operation, the bridge provides up to 128 MAC addresses and MAC address filtering function, meet IEEE 802.1d agreement.

RJ-45(LAN Interface) and DB25 PIN number

Respectively, as shown in Figure 1.9 and Figure 1.10

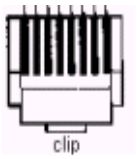


Figure 1.8: RJ-45 PIN

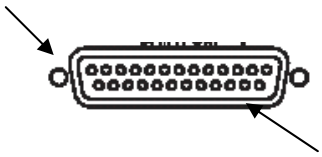


Figure 1.9: DB25F PIN

Table 1.4: 10/100 Base-T PIN

PIN	Signal Name	Signal Direction	Signal Remarks
1	TX Transmitting Data	Toward the LAN network	TX+
2	TX Transmitting Data	Toward the LAN network	TX-
3	RX Receiving Data	Toward the LAN Equipment	RX+
6	RX Receiving Data	Toward the LAN Equipment	RX-

V.35 Data Interface Signal Definition

V.35 data port data transfer and control signal shown at table 1.5.

DB25F PIN number at Figure 1.10.

Table 1.5: DB25F to MR34 PIN

V.35	Signal Name	V.24	D25F	MR34	I/O	Description
TDA	Transmit Data A	103A	2	P	I	Data that DTE sends to DCE
TDB	Transmit Data B	103B	14	S	I	Data that DTE sends to DCE
RDA	Receive Data A	104A	3	R	O	Data that DCE sends to DTE
RDB	Receive Data B	104B	16	T	O	Data that DCE sends to DTE
CTS	Clear To Send	106	5	D	O	DCE is ready to accept data
DSR	Data Set Ready	107	6	E	O	DCE is ready to accept data & control
RTS	Request To Send	105	4	C	I	DTE is ready to send data on TDA/TDB
DCD	Data Carrier	109	8	F	O	Detects carrier signal at DCE
TCA	Transmit Clock A	114A	15	Y	O	Detects carrier signal at DCE
TCB	Transmit Clock A	114B	12	AA	O	Clock signal used to clock out serial
RCA	Receive Clock A	115A	17	V	O	Clock signal used to clock in serial data
RCB	Receive Clock B	115B	9	X	O	Clock signal used to clock in serial data
EXCA	External clock A	113A	24	U	I	External timing to clock in serial data
EXCB	External clock B	113B	11	W	I	External timing to clock in serial data
LL	Local Loop back	141	18	J	I	Engages LL at local (V.54 loop2) DCE
TM	Test Mode	142	25	K	O	TC-200GTA is in test mode
FGND	Frame Ground	101	1	A		Connects Frame Ground to earth
SGND	Signal Ground	102	7	B		Connects Signal Ground to earth

2. Installation

2.1 Package Content

TC-200GTA Desktop package includes:

- 110/220V Power cord
- DB-25 male to M34 female adapter cable
- TC-200GTA user manual（Provide to customer in CD-ROM format）

2.2 Prepare installation

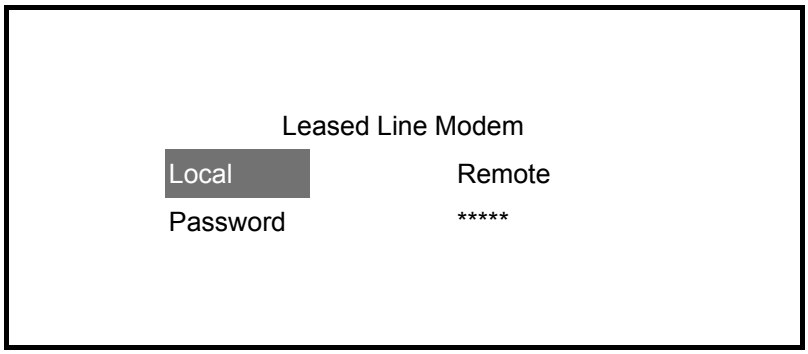
Connect TC-200GTA

User terminal or PC emulational terminal, through control port (CID) for configuration , terminal parameters setting:

- Terminal Rate: 38.4K bits
- 8 data bits
- Non – Parity Bit
- One Stop Bit
- No flow control
- Terminal set as “VT100“

2.3 Login Interface

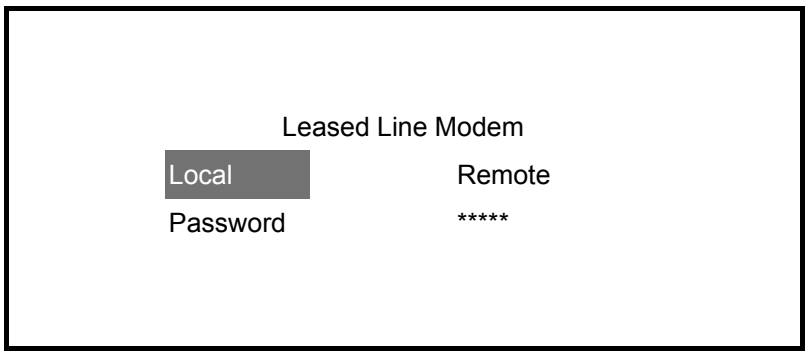
TC-200GTA initial password is admin:



3. Login

Use VT-100 terminal, CID control port rate set as 38.4k bits, 8 data bits, None Parity, 1 stop bit. Use the cursor to select menu, at login screen choose " Local " or " Remote ", to indicate whether connect to local or remote TC-200GTA, enter password then start configuration.

Login Screen



Cursor operation

Choose specific area or browse control screen, detail at table below.

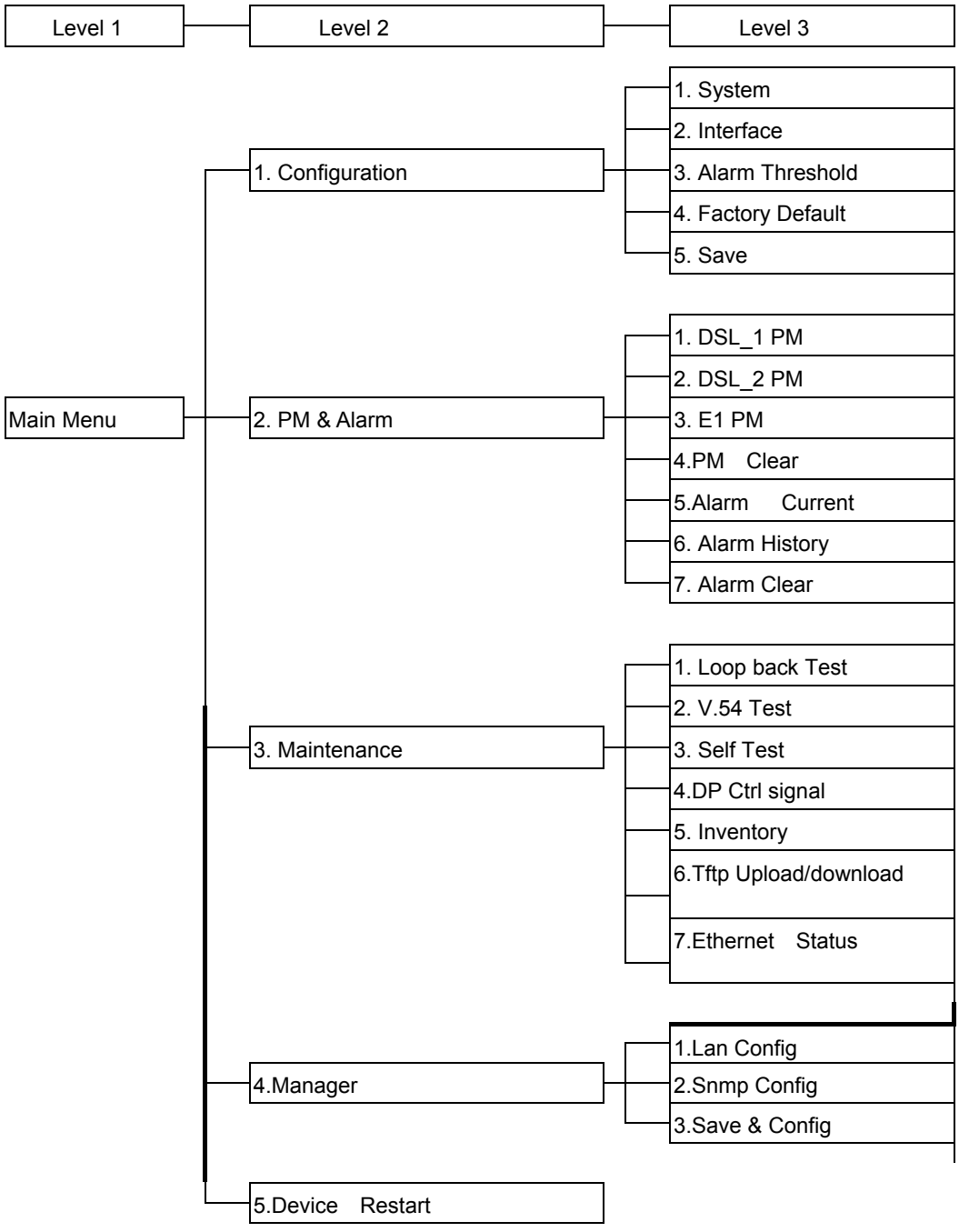
Keyboard command	Description
Tab	Back to last item.
Space	Go to next item.
Ctrl+ N	Go back to main menu.
Esc	Go back to last screen
1 …N]	Choose assigned area at **[ ]** .
Enter	Enter or confirm.
Ctrl+ R	Refresh screen.
Q/q	Quit operating screen.

3.1 Menu Architecture

Menu Architecture as shown at Figure 3.1 ~ Figure 3.5.

Main Menu, Second Menu " 1. Configuration, 2. PM & Alarm, 3. Maintenance 4. Manager and 5.Device Restart " ， all related menu details are shown at Figure 3.1.

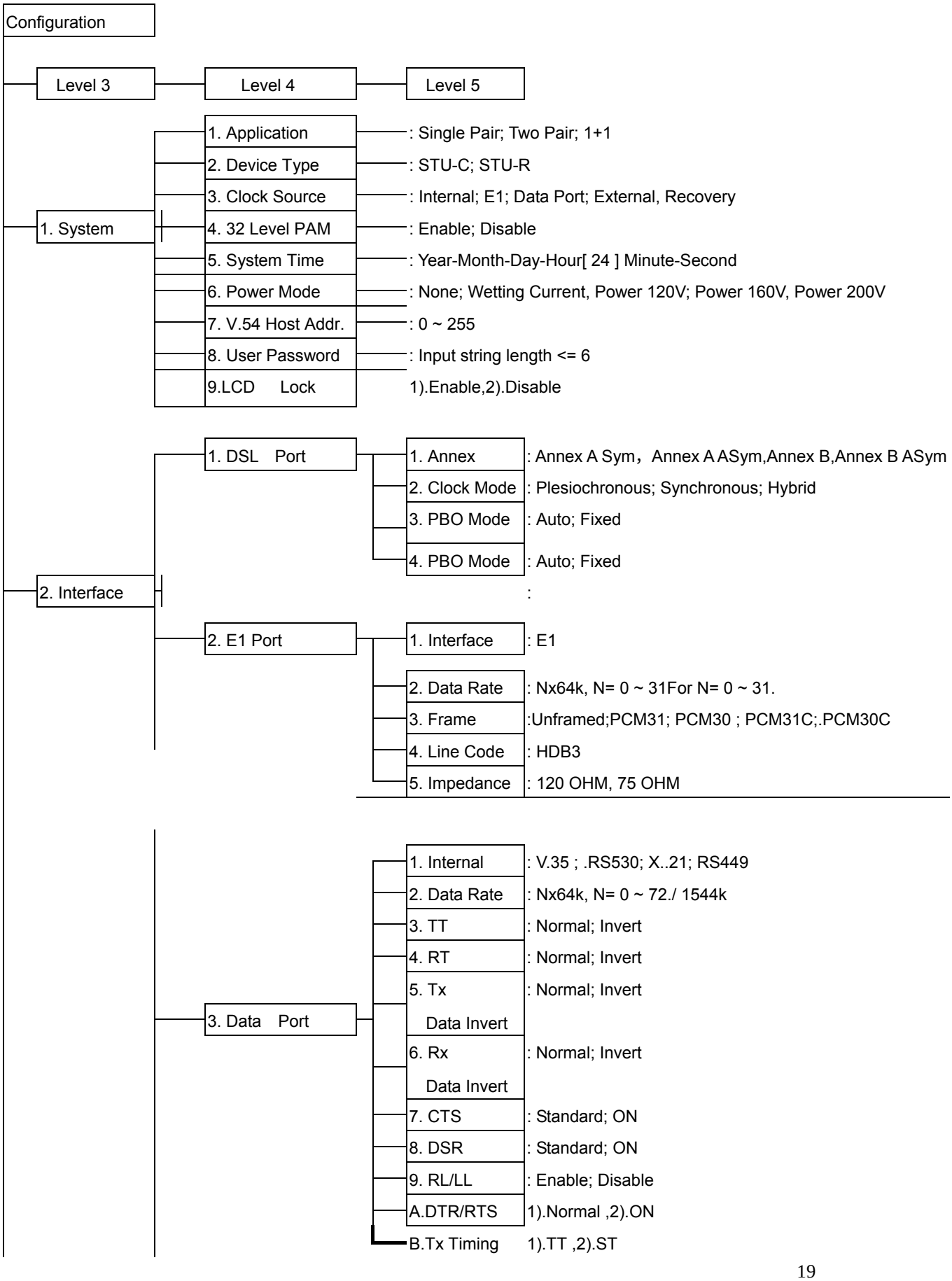
Figure 3.1: Top three layer Menu

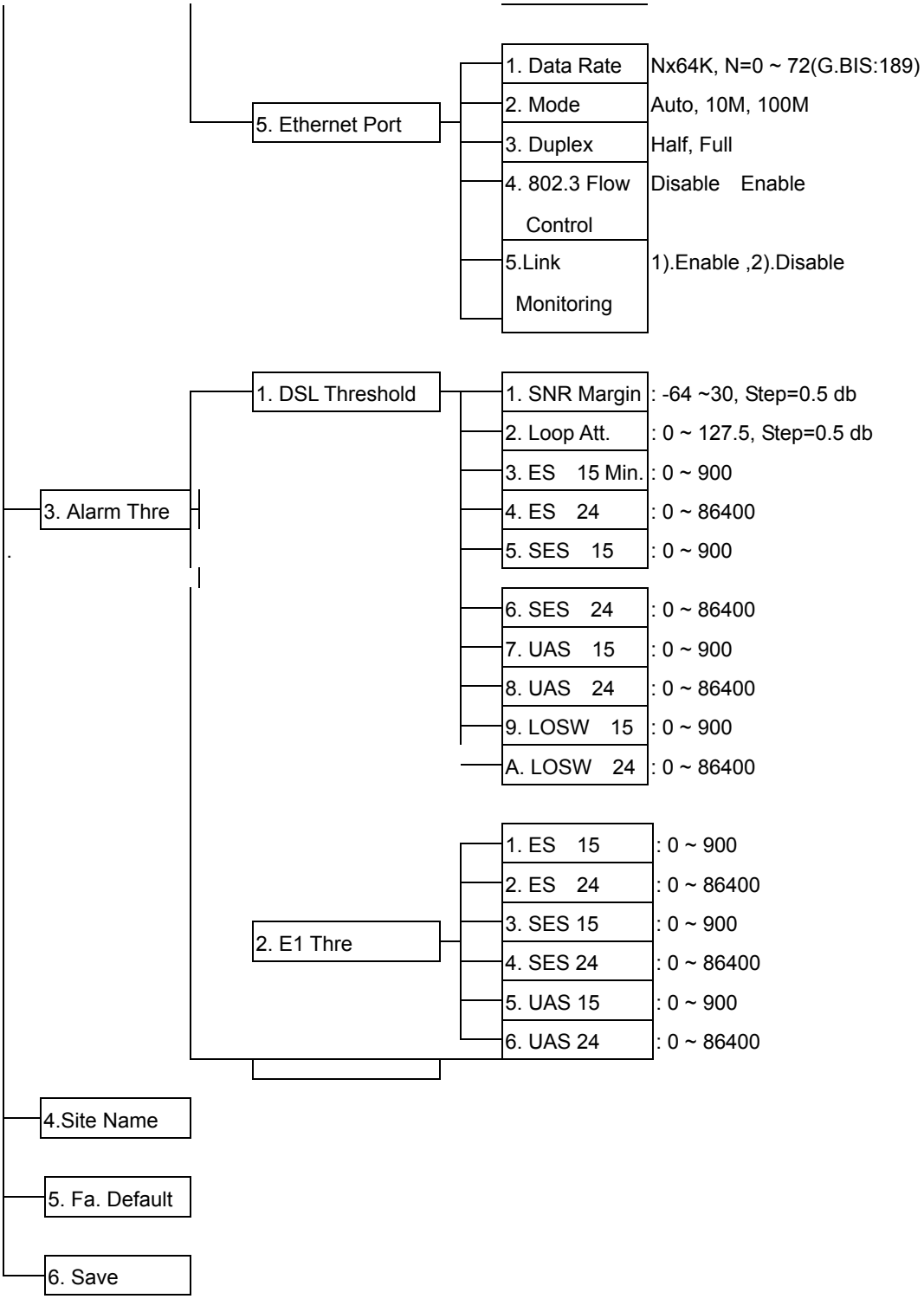


Note: PM&Alarm : Performance Monitoring and Alarm

Configuration and Subordinate Menu

Figure 4.2: Configuration and Subordinate Menu

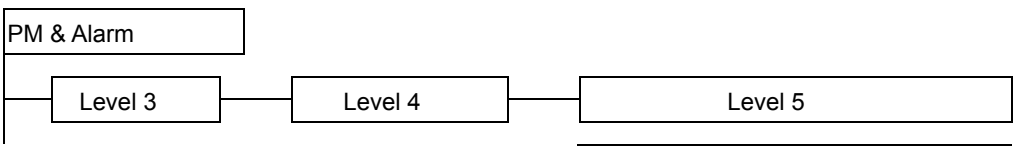


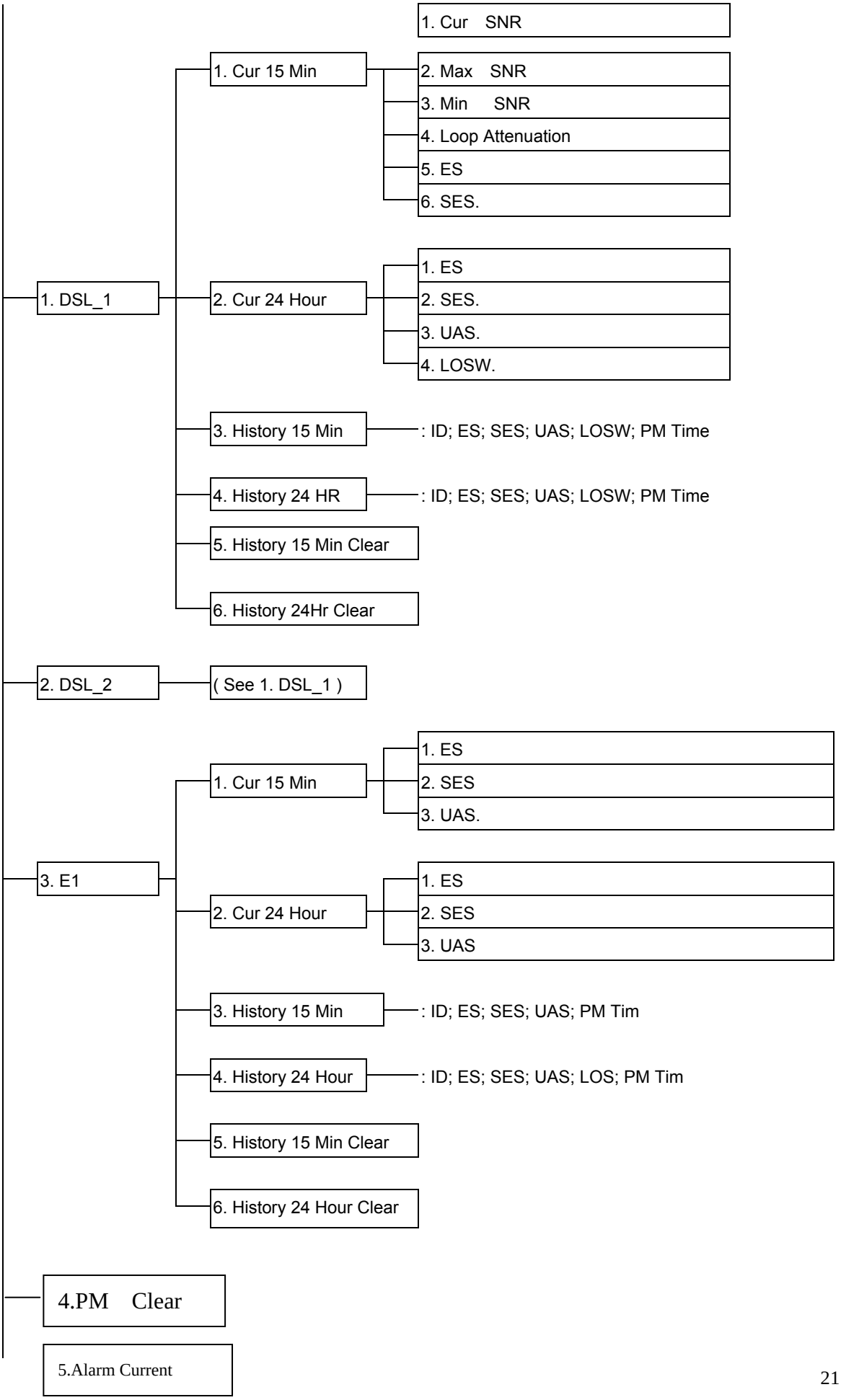


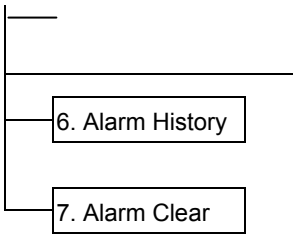
Note : Alarm Thre.: Alarm Threshold; Fa. Default: Factory Default

\PM & Alarm and Subordinate Menu (I)

Figure 4.3: PM & Alarm Subordinate Menu

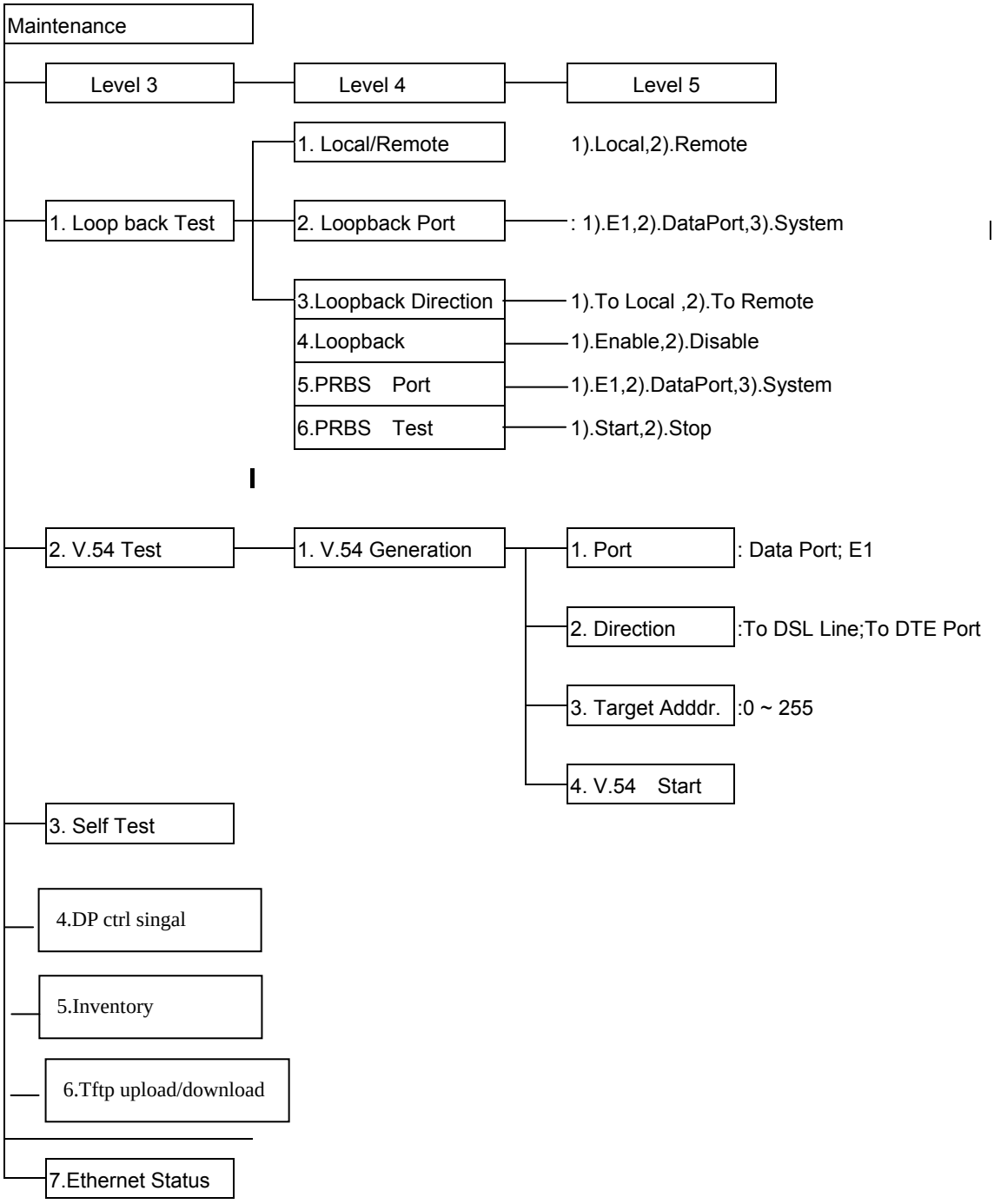



1. Cur SNR
1. Cur 15 Min
2. Max SNR
3. Min SNR
4. Loop Attenuation
5. ES
6. SES.
1. DSL_1
2. Cur 24 Hour
1. ES
2. SES.
3. UAS.
4. LOSW.
3. History 15 Min
: ID; ES; SES; UAS; LOSW; PM Time
4. History 24 HR
: ID; ES; SES; UAS; LOSW; PM Time
5. History 15 Min Clear
6. History 24Hr Clear
2. DSL_2
(See 1. DSL_1)
1. ES
1. Cur 15 Min
2. SES
3. UAS.
3. E1
1. ES
2. Cur 24 Hour
2. SES
3. UAS
3. History 15 Min
: ID; ES; SES; UAS; PM Tim
4. History 24 Hour
: ID; ES; SES; UAS; LOS; PM Tim
5. History 15 Min Clear
6. History 24 Hour Clear
4.PM Clear
5.Alarm Current



Maintenance and Subordinate Menu (II)

Figure 4.5: Maintenance and Subordinate Menu



3.2 Main Memu

Main Menu screen, Figure as below

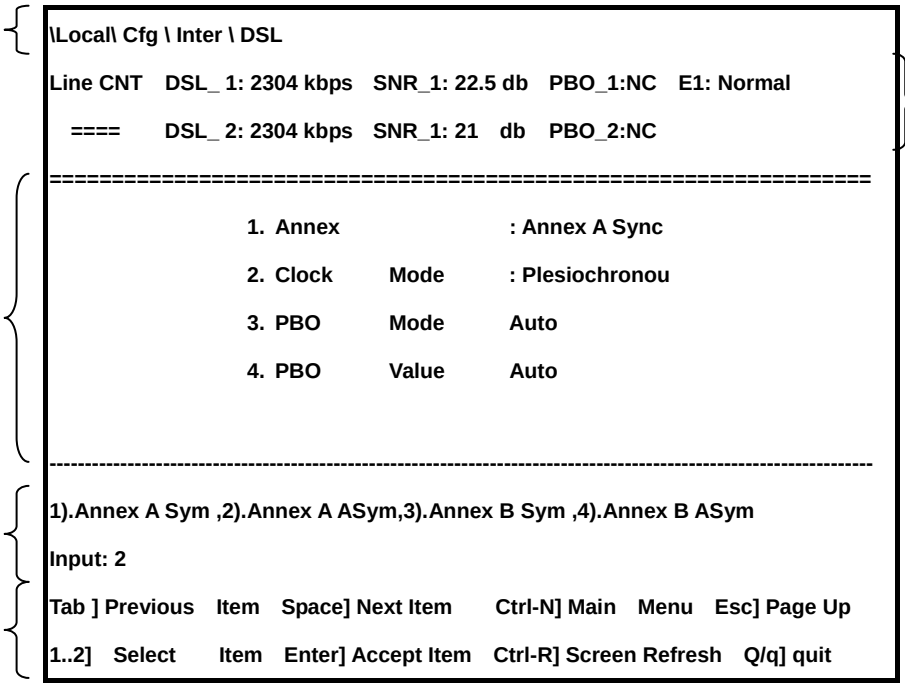
Main Menu Screen

```
\Local\ Main Menu
Line CNT     DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====       DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================================


                    1.Configuration              <DIR>
                    2.PM & Alarm                  <DIR>
                    3.Maintenance                 <DIR>
                    4.Manager                     <DIR>
                    5.Device   Restart
--------------------------------------------------------------------------------------------------------------------------
Tab ]   Previous   Item   Space]   Next Item   Ctrl-N]   Main   Menu   Esc] Page Up
1..3 ]   Select      Item     Enter]   Accept Item Ctrl-R] Screen Refresh   Q/q] quit
```

3.3 Control Screen

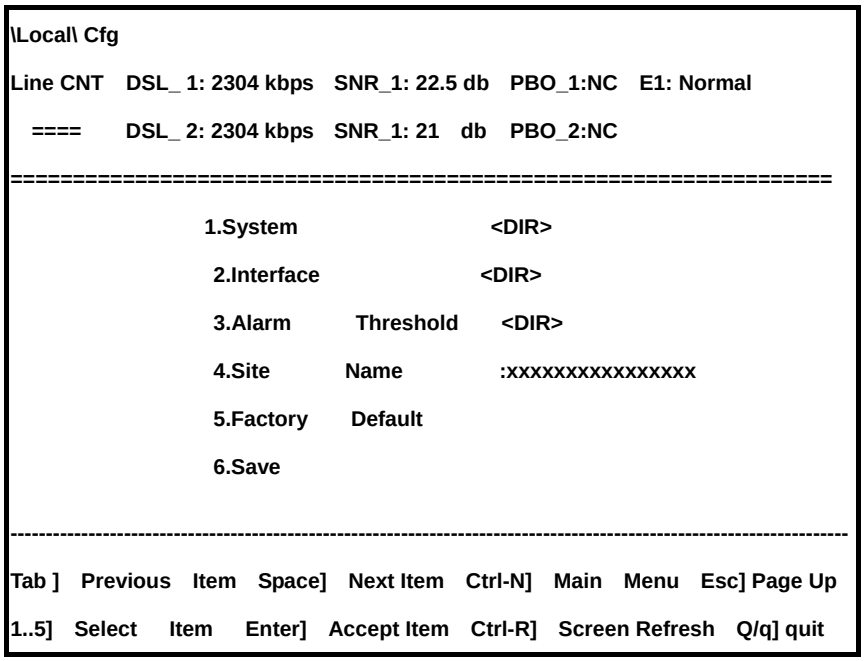
Control Screen includes 5 operating area.

- Menu enter sequence: The top row shows the menu input sequence to the screen
- Status/Alarm message: These two rows provide status and alaram messages.
- Sub Menu/Test Result: This area provides option paramters or display performance data and test result.
- Input: This area provide enter setting parameters
- Function Key: This area shows function keys provided.


\Local\ Cfg \ Inter \ DSL
Line CNT DSL_ 1: 2304 kbps SNR_1: 22.5 db PBO_1:NC E1: Normal
==== DSL_ 2: 2304 kbps SNR_1: 21 db PBO_2:NC
1. Annex : Annex A Sync
2. Clock Mode : Plesiochronou
3. PBO Mode Auto
4. PBO Value Auto
1).Annex A Sym ,2).Annex A ASym,3).Annex B Sym ,4).Annex B ASym
Input: 2
Tab] Previous Item Space] Next Item Ctrl-N] Main Menu Esc] Page Up
1..2] Select Item Enter] Accept Item Ctrl-R] Screen Refresh Q/q] quit

4. Configuration

This chapter provides how to configure TC-200GTA, desktop or rack type, display configure options, recovery to default factory setting and save parameter settings. The 1st item at main menu is "**Configuration"**, Screen as below, allow user to view, configure and modify parameters..



4.1 Configure System Parameters

View and modify system paramters, based on menu input sequence: **Local >>> Configuration >>> System**

System parameters screen

```
\Local\ Cfg \ Sys
Line CNT     DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====       DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
==============================================================


               1. Application   Mod          : Two   Pair
               2. Device        Type         : STU-R
               3. Clock         Source       : Recovery
               4. 32-Leve       PAM          : Disable
               5. System        Time         : 2004. 1.15. 1.56
               6. Power Feed    Mode         : None
               7. V.54          Host Addr.   : 123
               8. User          Password     : *****
               9. LCD     Lock               :Disable

-------------------------------------------------------------------------------------------------------------
1). Single Pair 2). Two Pair 3). 1+1
Tab ]   Previous   Item   Space]   Next Item   Ctrl-N]   Main   Menu   Esc] Page Up
1..8]   Select    Item    Enter]   Accept Item   Ctrl-R]   Screen Refresh   Q/q] quit
```

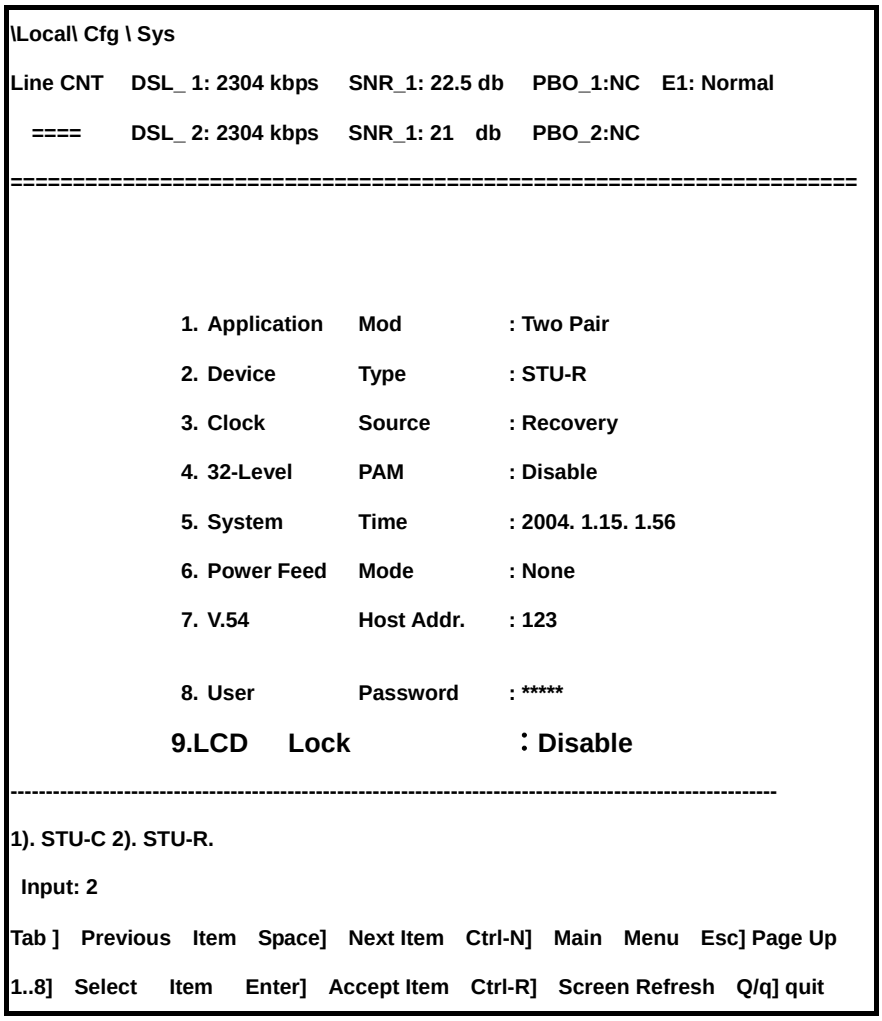
Table 4.1: System parameter setting

Option	Description
1. Application Mode	Set SHDSL transfer mode.
	Option: Single Pair; Two Pair; 1+1 ;
2. Device Type	Set as central office unit STU-C, or remote unit, STU-R.
	Option: STU-C; STU-R
3. Clock Source	Set unit clock source
	Option: Internal; E1; Data Port; External; Recovery
4. 32-Level PAM	Set DSLloop as 16-Level (Disable)or 32-Level TC-PAM modulation.
	Option: Enable; Disable
5. System Time	Set system time
	Option: Year-Month-Day-Hour[24]-Minute-Second

6. Power Feed Mode	Set Power Feed Mode. Option: None; Wetting Current, Power 120V; Power 160V, Power 200V
7. V.54 Host Addr.	Set TC-200GTA V.54 host address.0 ~255
8. User Password	User password setting, enter less than or equal to 6(<= 6) characters
9.LCD Lock	Set LCD screem is lock or not

Device Type

Device type option screen as below, options are STU-C or STU-R.



表

Table 4.2: STU-C or STU-R Setting

Option	Description
1. STU-C	Set as central office unit
2. STU-R	Set as remote unit

Payload timing

Data timing screen allows view and modify device timing source.

Payload timing screen

```
\Local\ Cfg \ Sys
Line CNT    DSL_ 1: 2304 kbps    SNR_1: 22.5 db    PBO_1:NC    E1: Normal
  ====      DSL_ 2: 2304 kbps    SNR_1: 21   db    PBO_2:NC
================================================================


                1. Application    Mod          : Two Pair
                2. Device         Type         : STU-R
                3. Clock          Source       : Recovery
                4. 32-Leve        PAM          : Disable
                5. System         Time         : 2004. 1.15. 1.56
                6. Power Feed     Mode         : None
                7. V.54           Host Addr.   :123
                8. User           Password     : *****
                9.LCD     Lock                 ：Disable
----------------------------------------------------------------------------------------------------
1). Internal   2). E1   3). Data Port   4). External   5). Recovery
 Input:
Tab ]   Previous   Item   Space]   Next Item   Ctrl-N]   Main   Menu   Esc] Page Up
1..8]   Select    Item    Enter]   Accept Item   Ctrl-R]   Screen Refresh   Q/q] quit
```

Set data port timing as table4.3.

Table 4.3: Data port timing

Option	Desciption
1. Internal	Device use internal clock
2. E1	Devie use E1 clock
3. Data Port	Device use data port DCE clock [TC]
4. External	Device use data port DTE clock [TT]
5. Recovery	Device use Recovery clock.

DSL Encoding

DSL encoding screen allows view, start or shutdown 32-Level TC-PAM Modulation.

DSL Encoding Screen

```
\Local\ Cfg \ Sys
Line CNT    DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====      DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================


                1. Application   Mod          : Two Pair
                2. Device        Type         : STU-R
                3. Clock         Source       : Recovery
                4. 32-Leve       PAM          : Disable
                5. System        Time         : 2004. 1.15. 1.56
                6. Power Feed    Mode         : None
                7. V.54          Host Addr.   :123
                8. User          Password     : *****
                9.LCD    Lock                 ：Disable
----------------------------------------------------------------------------------------------------
1). Enable   2). Disable
Tab ]   Previous   Item   Space]   Next Item   Ctrl-N]   Main   Menu   Esc] Page Up
1..7]   Select    Item    Enter]   Accept Item   Ctrl-R]   Screen Refresh   Q/q] quit
```

Configure System time

System time screen allows view and modify system time

..

System Time Screen

```
\Local\ Cfg \ Sys
Line CNT    DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====      DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================

                1. Application   Mod          : Two Pair
                2. Device        Type         : STU-R
                3. Clock         Source       : Recovery
                4. 32-Leve       PAM          : Disable
                5. System        Time         : 2004. 1.15. 1.56
                6. Power Feed    Mode         : None
                7. V.54          Host Addr.   :123
                8. User          Password     : *****
                9.LCD    Lock                 ：Disable
----------------------------------------------------------------------------------------------------
1 Input Format: Year-Month-Day-Hour[ 24 ] Minute-Second
 Input: 2003-08-05-23-00-00
Tab ]  Previous  Item  Space]  Next Item  Ctrl-N]  Main  Menu  Esc] Page Up
1..7]   Select   Item   Enter]  Accept Item Ctrl-R] Screen Refresh Q/q] quit
```

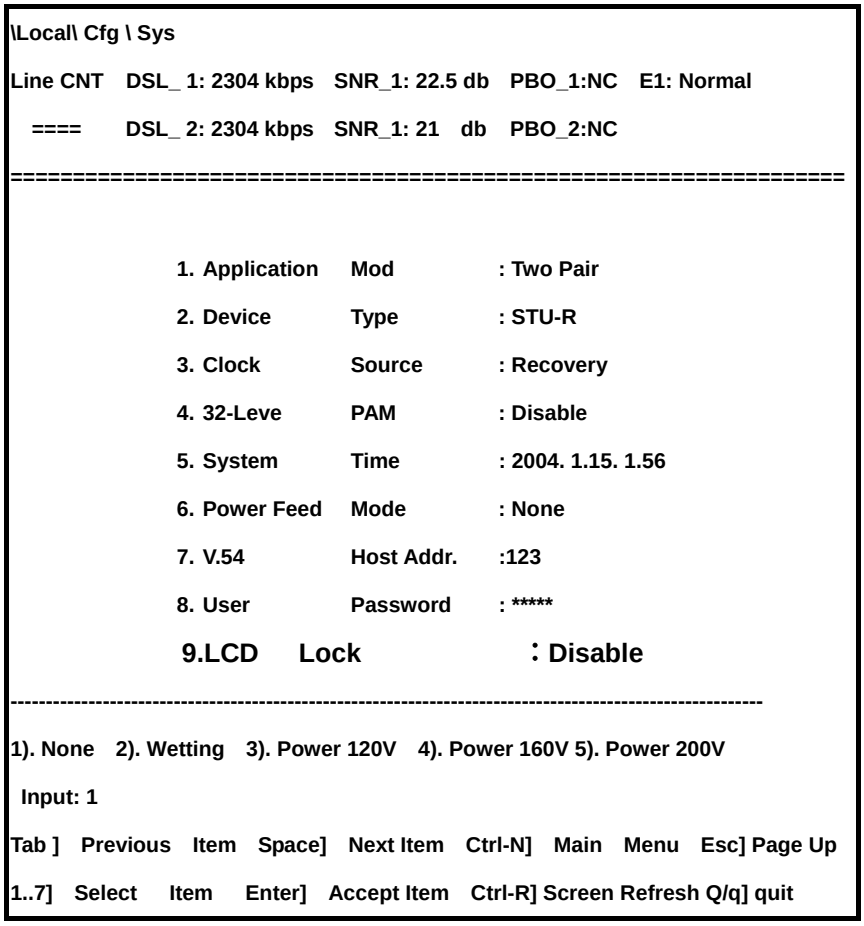
System time input format description.

Option	Description
System time	Input format should be YYYY-MM-DD-HR[24]-MM-SS.

Configure(Remote infeed/wetting current)

Remote infeed/wetting current screen allow view and modify system power supply mode.

Remote infeed/wetting current screen



Power supply mode configuration as table 4.4.

Table 4.4: Remote infeed/Wetting current configuration

Option	Description
1. None	STU-C or STU-R use local power supply mode
2. Wetting	Start STU-C send wetting current to DSLcircuit to STU-R.
3. Power 120V	Set remote infeed voltage as 120V.
4. Power 160V	Set remote infeed voltage as 160V.
5. Power 260V	Set remote infeed voltage as 200V.

Note：TC-200GTA model does not support providing remote power supply function, only supports recieving remote power supply function.

Configure User Password

User password screen allows set or modify password.

User password configuration screen

```
\Local\ Cfg \ Sys
Line CNT   DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====     DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================

              1. Application   Mod          : Two Pair
              2. Device        Type         : STU-R
              3. Clock         Source       : Recovery
              4. 32-Leve       PAM          : Disable
              5. System        Time         : 2004. 1.15. 1.56
              6. Power Feed    Mode         : None
              7. V.54          Host Addr.   :123
              8. User          Password     : *****
              9.LCD    Lock                 ：Disable
----------------------------------------------------------------------------------------------------
Input string length   <=6
Old pw:   *****
Tab ]   Previous   Item   Space]   Next Item   Ctrl-N]   Main   Menu   Esc] Page Up
1..7]   Select    Item    Enter]   Accept Item   Ctrl-R]   Screen Refresh   Q/q] quit
```

User Password description:

Option	Desciption
1. User Password	Default password is “**admin**”. If you need to set new password, the password rule is no empty, up to 6 english characters. While login, users have to enter password.

4.2 Configure Interface Parameters

As interface screen shows, TC-200GTA need to set three interfaces: DSL, E1 interface, serial data port and Ethernet. To get into view interface screen, based on menu enter sequence: **Local >>> Configuration >>> Interface**

Interface Screen

```
\Local\ Cfg \ Inter
Line CNT   DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====     DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
=================================================================

                    1. DSL          Port       < DIR >
                    2. E1           Port       < DIR >
                    3. Data         Port       < DIR >
                    4. Ethernet     Port       < DIR >



-----------------------------------------------------------------------------------------------------------
Tab ] Previous   Item   Space]   Next Item   Ctrl-N]   Main   Menu   Esc] Page Up
1..5]   Select    Item    Enter]   Accept Item Ctrl-R] Screen Refresh Q/q] quit
```

Configure DSL Transmission Parameters

DSL screen allows view and modify SHDSL loop parameters

DSL Screen

```
 \Local\ Cfg \ Inter \ DSL
Line CNT   DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====     DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
=================================================================

                    1. Annex                :   Annex A Sym
                    2. Clock       Mode     : Plesiochronou
                    3. Rate        Mode     Auto
                    4. PBO         Mode     Auto


-----------------------------------------------------------------------------------------------------------
1).Annex A Sym ,2).Annex A ASym,3).Annex B Sym ,4).Annex B ASym
Input: 2
Tab ] Previous   Item   Space] Next Item     Ctrl-N] Main   Menu   Esc] Page Up
1..2]   Select     Item   Enter] Accept Item   Ctrl-R] Screen Refresh   Q/q] quit
```

DSL Parameters configuration as Table 4.5.

Table 4.5: DSL parameters configuration

Option	Description
1. Annex	Configure SHDSL transmission mode.
	Option: 1).Annex A Sym ,2).Annex A ASym,3).Annex B Sym ,4).Annex B ASym
2. Clock Mode	Choose clock mode.
	Option: 1).Plesiochronous ,2).Synchronous ,3).Hybrid
3. Rate Mode	Configure rate mode.
	Option: 1).Auto ,2).Manual
4. PBO Mode	Configure PBO mode.
	Option: 1).Auto ,2).Manual

Configure DSL Clock

DSL clock screen allows view and modify SHDSL loop clock

DSL Clock screen

```
\Local\ Cfg \ Inter \ DSL
Line CNT   DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====     DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
=====================================================================


                  1.  Annex               : Annex A Sync
                  2.  Clock     Mode      : Plesiochronou
                  3.  Rate      Mode      Auto
                  4.  PBO       Mode      Auto


---------------------------------------------------------------------
1). Plesiochronous    2). Synchronous   3).    Hybrid
Input: 1
Tab ] Previous   Item   Space]   Next Item    Ctrl-N] Main   Menu   Esc] Page Up
1..3] Select      Item    Enter]   Accept Item Ctrl-R] Screen Refresh Q/q] quit
```

Configure DSL Clock, description as following

Option	Description
Clock Mode	Choose clock mode.
	Option: Plesiochronous; Synchronous; Hybrid

Configure E1 Intereface

View and modify E1 interface, based on menu enter sequence:

Local >>> Configuration >>> Interface >>> E1

E1 Interface Screen

```
\Local\ Cfg \ Inter \ E1
Line CNT   DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
   ====    DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
=================================================================

              1. Internal     Type        : E1
              2. Data         Rate        : 1984 k
              3. Frame                    : PCM 31
              4. Line         Code        : HDB3
              5. Impedance                : 75 OHM   :
-----------------------------------------------------------------
1). E1
Input : 1
Tab ] Previous Item    Space] Next Item    Ctrl-N] Main   Menu   Esc] Page Up
1..5] Select    Item    Enter] Accept Item   Ctrl-R] Screen Refresh Q/q] quit
```

Configure E1 interface refer to table 4.6.

Table 4.6: E1 Interface parameters configuration

Option	Description
1. Internal Type	Use program to set interface electrical characters.
	Option: **E1**;
2. Data Rate	Set interface data rate 64k bits multiple N.
	N= 0 ~ 31. **1984k**
3. Frame	Set E1 interfae frame format.
	Option:: Unframed; **PCM31** ; PCM30 ; PCM31C ; PCM30C
4. Line Code	Assign E1 interface encoding.
	Option: **HDB3**
5. Impedance	Assign E1 interface impedance.
	Option: **120 OHM** ; 75 OHM

Configure Data Rate

E1 interface data rate allows view and modify E1 data rate.

Data Rate Screen

```
\Local\ Cfg \ Inter \ E1
Line CNT   DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====     DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
=================================================================

               1. Internal      Type       : E1
               2. Data          Rate       : 1984 k
               3. Frame                    : PCM 31
               4. Line          Code       : HDB3
               5. Impedance                : 120 OHM
-----------------------------------------------------------------
Data Rate=Nx64k, N= 0 ~ 31
Input : 30_
Tab ]   Previous Item    Space] Next Item     Ctrl-N] Main   Menu   Esc] Page Up
1..6]   Select    Item    Enter] Accept Item   Ctrl-R] Screen Refresh Q/q] quit
```

Note: Data rate is 64K bits multiple N, N= 0 ~ 31.

Configure E1 Frame

E1 Frame screen allows view and modify E1 frame.

E1 Frame Screen

```
\Local\ Cfg \ Inter \ E1
Line CNT   DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====     DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================

                  1. Internal       Type          : E1
                  2. Data           Rate          : 1984 k
                  3. Frame                        : PCM 31
                  4. Line           Code          : HDB3
                  5. Impedance                    : 120 OHM   :
----------------------------------------------------------------------------------------------------
1). Unframed   2). PCM31   3). PCM30 4). PCM31C 5). PCM30C
Input : 2
Tab ]   Previous Item   Space]   Next Item    Ctrl-N]   Main   Menu   Esc] Page Up
1..6]    Select    Item   Enter]   Accept Item Ctrl-R]   Screen Refresh   Q/q] quit
```

Configure CRC Mode

While E1 choose PCM30C or PCM31C frame, it can set CRC mode as following:

CRC Mode screen

```
\Local\ Cfg \ Inter \ E1
Line CNT   DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====     DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================

                  1. Internal       Type          : E1
                  2. Data           Rate          : 1984 k
                  3. Frame                        : PCM 31C
                  4. Line           Code          : HDB3
                  5. Impedance                    : 120 OHM

                  6. CRC            Mode          : Generate
----------------------------------------------------------------------------------------------------
1). Generate 2). Pass through
Tab ] Previous   Item   Space]   Next Item   Ctrl-N]    Main   Menu   Esc] Page Up
1..6] Select      Item    Enter] Accept Item   Ctrl-R]   Screen Refresh   Q/q] quit
```

Option	Description
CRC Mode	Set CRC function. Option: Generation; Passthrough

Configure E1 Line Coding

E1 line encoding screen allows view and modify E1 line encoding.

E1 Line encoding Screen

```
\Local\ Cfg \ Inter \ E1
Line CNT    DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
   ====     DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
======================================================================


              1.  Internal      Type          : E1
              2.  Data          Rate          : 1984 k
              3.  Frame                       : PCM 31
              4.  Line          Code          : HDB3
              5.  Impedance                   : 120 OHM
------------------------------------------------------------------------------------------------------------------------
1). HDB3
Input :
Tab ] Previous   Item   Space]   Next Item   Ctrl-N]    Main   Menu   Esc] Page Up
1..6] Select       Item     Enter] Accept Item   Ctrl-R]   Screen Refresh   Q/q] quit
```

Configure Data Port

Data port screen allows view and modify Nx64K bits serial data port, based on menu enter sequence:

Local >>> Configuration >>> Interface >>> Data Port choose this screen

Data Port screen

```
\Local\ Cfg \ Inter\ DP
Line CNT   DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====     DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================

                1. Internal      Type          : V.35
                2. Data          Rate          : 2560k
                3. TT                          : Normal
                4. RT                          : Normal
                5. TxData        Invert        : Normal
                6. RxData        Invert        : Normal
                7. CTS                         : Standard
                8. DSR                         : Standard
                9. RL/LL                       : Disable
                A .DTR/RTS                     :Normal
                B .Tx Timing
                  Source                       :TT


----------------------------------------------------------------------------------------------------------------
1). V.35    2).RS530   3). X.21   4). RS449
Input: 1
Tab ]   Previous Item   Space]   Next Item   Ctrl-N]   Main   Menu   Esc] Page Up
1..8]   Select    Item    Enter]   Accept Item Ctrl-R]   Screen Refresh   Q/q] quit
```

Configure data port parameters, please refer to table 4.7.

Table 4.7: Data port parameter

Option	Description
1. Internal Typ	Use program to set interface electrical characteristics..
	Option: **V.35** ; .RS530; X..21; RS449
2. Data Rate	Set data rate as 64 K bits multiple N.
	N= 0 ~ 72（**4068K），G。bis support maximum 178（11392K**）
3. TT	Tranmisson timing Inverting polarity or to maintain the normal state
	Option: **Normal** ; Invert
4. RT	Receiving timing Inverting polarity or to maintain the normal state
	Option: **Normal** ; Invert
5. Tx Data Invert	Transmission of data inverting polarity or to maintain normal state.
	Option: **Normal** ; Invert
6. Rx Data Invert	Receive data inverting polarity or to maintain normal state.
	Option: **Normal** ; Invert
7 CTS	Allows Clear To Send. It can forced set ON or Standard
	If parameters set as Standard, CTS Request To Send control signal.
	Option: **Standard**; ON
8. DSR	Terminal Data Set Ready. It can forced set ON or Standard.
	Option: **Standard**; ON
9. RL/LL	Whether start Remote Loop (RL) or Local Loop (LL)
	Option: **Disable**; Enable
A. DTR/RTS	Normal;ON
B. **Tx Timing Source**	TT;ST

Configure data port interface Type (Internal Type)

Interface Type screen can view and modify parameters Nx64k bits data port, this port can be set as V.35, RS530, X.21 and RS449.

Interface Type Screen

```
\Local\ Cfg \ Inter\ DP
Line CNT   DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====     DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================

                1. Internal      Type        : V.35
                2. Data          Rate        : 2560k
                3. TT                        : Normal
                4. RT                        : Normal
                5. TxData        Invert      : Normal
                6. RxData        Invert      : Normal
                7. CTS                       : Standard
                8. DSR                       : Standard
                9. RL/LL                     : Disable
                A .DTR/RTS                   :Normal
                B .Tx Timing
                  Source                     :TT

----------------------------------------------------------------------------------------------------
1). V.35    2).RS530   3). X.21   4). RS449
Input: 1
Tab ]   Previous Item   Space]   Next Item   Ctrl-N]   Main   Menu   Esc] Page Up
1..8]   Select    Item    Enter]   Accept Item Ctrl-R]   Screen Refresh   Q/q] quit
```

Configure data port date rate

Data port screen allows view and modify Nx64k bits data port parameters port. Rate can be set as Nx64K, N= 0 ~ 72（**4068K），G。bis support maximum 178（11392K）**

Data Port Screen

```
Local\ Cfg \ Inter\ DP
Line CNT    DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====      DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================

                1. Internal      Type          : V.35
                2. Data          Rate          : 2560k
                3. TT                          : Normal
                4. RT                          : Normal
                5. TxData        Invert        : Normal
                6. RxData        Invert        : Normal
                7. CTS                         : Standard
                8. DSR                         : Standard
                9. RL/LL                       : Disable
                A .DTR/RTS                     :Normal
                B .Tx Timing
                  Source                       :TT


----------------------------------------------------------------------------------------------------------------------
Data Rate=Nx64k, N=0 ~ 72
Tab ] Previous   Item   Space]   Next Item     Ctrl-N]   Main Menu   Esc] Page u p
1..8] Select     Item     Enter]   Accept Item   Ctrl-R]   Screen Refresh   Q/q] quit
```

RxData Invert

At RXData Invert screen, it allows view and modify Nx64k bits data port recipient polarity

TxData Invert

At TxData Invert screen, it allows view and modify Nx64k bits data sender polarity.

CTS

Clear to Send (CTS) can be forced set as true (ON) or Standard. If parameters is set as stanadard, CTS control will follow RTS control signal.

DSR

Data Set Ready (DSR)True (ON)或Standard.

Data port Loop back

DL/LL screen allows start or shutdown digital interface loop (DL) or local loop (LL).

RL/LL Screen

```
Local\ Cfg \ Inter\ DP
Line CNT   DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====     DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================

                1. Internal      Type        : V.35
                2. Data          Rate        : 2560k
                3. TT                        : Normal
                4. RT                        : Normal
                5. TxData        Invert      : Normal
                6. RxData        Invert      : Normal
                7. CTS                       : Standard
                8. DSR                       : Standard
                9. RL/LL                     : Disable
                A .DTR/RTS                   :Normal
                B .Tx Timing
                  Source                     :TT


----------------------------------------------------------------------------------------------------------------------
1). Enable   2). Disable
Input: 1_
Tab ] Previous   Item   Space]   Next Item   Ctrl-N]   Main   Menu   Esc] Page u p
1..8]   Select    Item    Enter]   Accept Item Ctrl-R]   Screen Refresh   Q/q] quit
```

Confgire Ethernet Interface

At the screen below, it allow view and modify Ethernet Interface Parameters

```
Local\ Cfg \ Inter \ Ethernet
Line CNT    DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====      DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================

                1. Data          Rate          : 0K
                2. Mode                        : Auto
                3. Duplex                      : Half
                4. 802.3         Flow Control  : Enable
                5. Link          Monitoring    : Enable

----------------------------------------------------------------------------------------------------
Data Rate=Nx64k, N=0 ~ 72
Tab ] Previous   Item   Space]   Next Item   Ctrl-N]   Main   Menu   Esc] Page u p
1..5   Select    Item    Enter]   Accept Item   Ctrl-R]   Screen Refresh   Q/q] quit
```

Ethernet interface parameters, description as table 4.8

Table 4.8: Ethernet interface parameters

Option	Description
1. Data Rate	Set Ethernet interface data rate is 64 Kb bits multiple N Option: N= 0 ~ 72（**4068K**），**G。bis support maximum 178（11392K）**
2. Mode	Set Ethernet interface operate at 10M, 100M or self-detect mode. Option: **Auto**; 10M; 100M
3. Duplex	Set Ethernet interface operate at half/full duplex mode. Option: **Half**; Full
4. 802.3 flow control	Set enable or disable flow control Option: **Enable**; Disable
5.Link Monitoring	LAN interface connection managemnet Option :**Enable**; Disable

:

4.3 Configure Alarm Threshold Value

TC-200GTA whether set as STU-C or STU-R, if there is “alarm”, the message will automatically send to joint control unit. At the same time Trap message will automically send to assigned IP address (SNMP Manager). Alarm threshold value, 15 mins and 24 hours performance comparison with ES, SES, UAS. Choose 3. Alarm Threshold of Configuration Manual, it will show the screen below, based on the menu enter sequence: **Local >>>Configuration >>> Alarm Threshold** to set alarm threshold value

Alarm Threshold Screen

```
Local\ Cfg
Line CNT    DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====      DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================

                    1.System                    <DIR>
                    2.Interface                 <DIR>
                    3.Alarm       Threshold     <DIR>
                    4.Site        Name          :xxxxxxxxxxxxxxx
                    5.Factory     Default
                    6.Save


----------------------------------------------------------------------------------------------------
Tab ] Previous   Item   Space]   Next Item   Ctrl-N]   Main   Menu   Esc] Page u p
1..5   Select    Item    Enter]   Accept Item   Ctrl-R]   Screen Refresh   Q/q] quit
```

Configure Alarm Threshold Screen

```
Local\ Cfg \ Threshold
Line CNT    DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====      DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================


                  1.  DSL           Threshold     < DIR >
                  2.  E1            Threshold     < DIR >



----------------------------------------------------------------------------------------------------
Tab ] Previous   Item   Space]   Next Item   Ctrl-N]   Main Menu   Esc] Page u p
1..3]   Select    Item    Enter]   Accept Item Ctrl-R] Screen Refresh   Q/q] quit
```

Configure DSL alarm threshold

At DSL alarm threshold screen, it can set DSL performance alarm threshold. Based on the menu Enter the sequence to get into screen:

Local >>>Configuration >>> Alarm Threshold >>> DSL_[1,2]

.

DSL Alarm Threshold Screen

```
Local\ Cfg \ Threshold\ DSL
Line CNT   DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====     DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================

                    1. SNR          Margin      : 5
                    2. Loop      Attenuation    : 80
                    3  ES           15 Min      : 9
                    4. ES          24 Hour      : 80
                    5  SES          15 Min      : 2
                    6. SES         24 Hour      : 8
                    7. UAS          15 Min      : 1
                    8. UAS         24 Hour       2
                    9. LOSW         15 Min      : 2
                    A. LOSW        24 Hour      : 8
----------------------------------------------------------------------------------------------------
Range ( dB ): -64 ~ 30 , step=0.5 dB
Tab ] Previous   Item   Space]   Next Item   Ctrl-N]   Main   Menu   Esc] Page u p
1..A]   Select    Item    Enter]   Accept Item   Ctrl-R]   Screen Refresh   Q/q] quit
```

When STU-C or STU-R Synchronously detects “Loss of Sync Defect (LOSW Defect)” or “Loss of Sync Word Failure (LOSW failure)”, it will immediately generate “LOSW” alarm. When “LOSW” alarm happens at STU-C / STU-R, STU-C / STU-R will send it out to internet/Client side, DS1/E1 signal then replace with AIS signal.

Configure DSL alarm threshold table as following,

Table 4.11: DSL alarm threshold description

Option	Description
1. SNR	Set “Signal Noise Rate” alarm threshold. While SNR value reach or less than thresholdvalue, it generates alarm and trap message. Entry: -64 –30, Step=0.5 db, **0**
2. Loop Attenuation	Set loop attenuation threshold. While it reach or over than threshold, it generates alarm and trap message. Entry:.0 ~ 127, Step=0.5 db, **5**
3. ES 15 Min	Set 15 minutes Errored Seconds threshold. If ES reach or over than this value, it generates alarm and trap message. Entry: 0 ~ 900, **9**
4. ES 24 Hour	Set 96x15 minutes Errored Seconds threshold. If ES reach or over than this value, it generates alarm and trap message. Entry: 0 ~ 86400, **80**
5. SES 15 Min	Set 15 minutes Severely Errored Seconds threshold. If SES reach or over than this value, it generates alarm and trap message. Entry: 0 ~ 900, **2**
6. SES 24 Hour	Set 96x15 minutes Severely Errored Seconds threshold, If SES reach or over than this value, it generates alarm and trap message. Entry: 0 ~ 86400, **8**
7. UAS 15 Min	Set 15 minutes Unavailable Seconds threshold , If UAS reach or over than this value, it generates alarm and trap message. Entry: 0 ~ 900, **1**
8. UAS 24 Hour	Set 96x15 minutes Unavailable Seconds threshold. If UAS reach or over than this value, it generates alarm and trap message. Entry: 0 ~ 86400, **2**
9. LOSW 15 Min	Set 15 minutes Loss of Sync Word Seconds threshold. If LOSW reach or over than this value, it generates alarm and trap message. Entry: 0 ~ 900, **2**
A. LOSW 24 Hour	Set 96x15 minutes Loss of Sync Word Seconds threshold, If LOSW reach or over than this value, it generates alarm and trap message. Entry: 0 ~ 86400, **8**

Configure E1 Alarm Threshold Value

E1 alarm threshold screen allows configure alarm threshold value, based on the menu enter the sequence:

Local >>>Configuration >>> Alarm Threshold >>> E1

E1 Alarm Threshold Screen

```
Local\ Cfg \ Threshold\ E1

Line CNT   DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====     DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================

                    1. ES          15 Min      : 9
                    2. ES          24 Hour     : 80
                    3  SES         15 Min      : 2
                    4. SES         24 Hour     : 8
                    5. UAS         15 Min      : 1
                    6. UAS         24 Hour      2
----------------------------------------------------------------------------------------------------------------
Range ( S): 0 ~ 900
Tab ] Previous   Item   Space]   Next Item   Ctrl-N]   Main   Menu   Esc] Page u p
1..6]   Select    Item    Enter]   Accept Item   Ctrl-R]   Screen Refresh   Q/q] quit
```

Table 4.12: E1 Alarm Threshold Screen Description

Option	Description
1. ES 15 Min	Set 15 minutes Errored Seconds threshold. If ES reach or over than this value, it generates alarm and trap message. Entry: 0 ~ 900, **9**
2. ES 24 Hour	Set 96x15 minutes Errored Seconds threshold. If ES reach or over than this value, it generates alarm and trap message. Entry: 0 ~ 86400, **80**
3. SES 15 Min	Set 15 minutes Severely Errored Seconds threshold. If SES reach or over than this value, it generates alarm and trap message. Entry: 0 ~ 900, **2**
4. SES 24 Hour	Set 96x15 minutes Severely Errored Seconds threshold. If SES reach or over than this value, it generates alarm and trap message. Entry: 0 ~ 86400, **8**
5. UAS 15 Min	Set 15 minutes Unavailable Seconds threshold. If UAS reach or over than this value, it generates alarm and trap message. Entry: 0 ~ 900, **1**
6. UAS 24 Hour	Set 96x15 minutes Unavailable Seconds threshold. If UAS reach or over than this value, it generates alarm and trap message. . Entry: 0 ~ 86400, **2**

4.4 Factory Default Value

Provide default value as following

At Main menu, System Menu Factory Default press “Enter” button then it can be recovered back To factory default value.

```
Local\ Cfg
Line CNT   DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====     DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================
                    1.System                    <DIR>
                    2.Interface                 <DIR>
                    3.Alarm       Threshold     <DIR>
                    4.Site        Name          :xxxxxxxxxxxxxxx
                    5.Factory     Default
                    6.Save
----------------------------------------------------------------
Tab ] Previous   Item   Space]   Next Item    Ctrl-N]   Main Menu   Esc] Page u p
```

4.5. Save Configuration Value

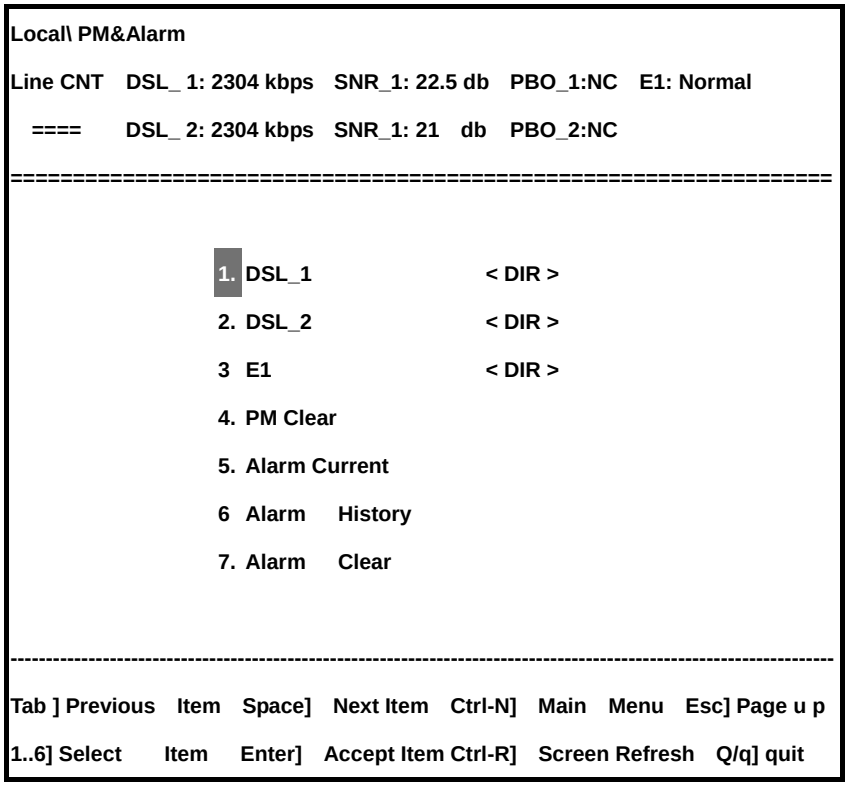
Either STU-C or STU-R, TC-200GTA provides 2M byte non-volatile flash memory to store all parameters. If TC-200GTA chassis itself needs to replace for maintainance, after the same slot replaced, all the needed parametners for TC-200GTA will automatically downlo from MC. While you have parameters modified, you have to save parameters through Configuration\Save sequence.

```
Local\ Cfg
Line CNT   DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====     DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================
                    1.System                    <DIR>
                    2.Interface                 <DIR>
                    3.Alarm       Threshold     <DIR>
                    4.Site        Name          :xxxxxxxxxxxxxxx
                    5.Factory     Default
                    6.Save
----------------------------------------------------------------
Tab ] Previous   Item   Space]   Next Item    Ctrl-N]   Main Menu   Esc] Page u p
```

5. Performance Monitor and Alarm

This chapter illustrates performance monitor data and alarm record for either desktop type or rack type. To get into “Performance Monitor and Alarm Screen“, based on the menu enter the sequence: **Local >>> PM & Alarm**

PM & Alarm Screen



5.1 DSL Performance

Display DSL performance data, based on menu enter the sequence: **Local >>> PM & Alarm >>> DSL _[1,2]**

DSL Performance Screen

```
Local\ PM\DSL_1
Line CNT    DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====      DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================

                    1. Cur                  15 Min
                    2. Cur                  24 Hour
                    3  History              15 Min
                    4. History              24 Hour
                    5  History   15 Min     Clear
                    6. History   24 Hour    Clear
----------------------------------------------------------------------------------------------------------------
Range (db):   -64-30,   step=0.5 db
Tab ] Previous   Item   Space]   Next Item   Ctrl-N]   Main   Menu   Esc] Page u p
1..6]   Select    Item    Enter]   Accept Item Ctrl-R]   Screen Refresh   Q/q] quit
```

Display and clean up performance records as table 5.1

Table 5.1: DSL Performance screen description

Option	Description
1. Cur 15 Min	Display 15 minutes interval performance data.
2. Cur 24 Hour	Display 24 hours interval performance data.
3. History 15 Min	Display 15 minutes interval performance history data.
4. History 24 Hour	Display 24 hours interval performance history data.
5. History 15 Min Clear	Clean up l15 minutes interval performance history data.
5. History 24 Hour Clear	Clean up 24 hours interval performance history data.

DSL 15 minutes interval performance

Display current 15 minutes interval DSL circuit status and error statistics, based on the menu enter the sequence: **Local >>> PM & Alarm >>> DSL_[1,2] >>> Current 15 Minutes.**

DSL / 15 Minutes Screen

```
Local\ PM\DSL_1\ Cur   15 Min
Line CNT   DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====     DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================

                        1. Cur        SNR          : 22.5
                        2. Max        SNR          : 23.5
                        3  Min        SNR          : 0
                        4. Loop Attenuation        : 0
                        5  ES                      : 0
                        6. SES                     : 0
----------------------------------------------------------------------------------------------------------------
Range (db):   -64-30,   step=0.5 db
Tab ] Previous   Item   Space]   Next Item   Ctrl-N]   Main   Menu   Esc] Page u p
1..6]   Select    Item    Enter]   Accept Item Ctrl-R]   Screen Refresh   Q/q] quit
```

15 minutes interval DSL performance statistics options as table 5.2.

Performance statistics display at the right-most part.

Table 5.2: DSL /Current 15 minutes interval screen description

Option	Description
1. Cur SNR	Display DSL circuit SNR, Signal to Noise Ratio
2. Max SNR	Display the statistics from boot-up or the last 24-hours, or the maximum SNR value after cleaning up
3. Min SNR	Display the statistics from boot-up or the last 24-hours, or the minimum SNR
4. Loop Attenuation	Display current DSL loop attenuation value.
5. ES	Calculate the current 15 minutes DSL loop Error Seconds (ES).
6. SES	Calculate the current 15 minutes DSL loop Severely Error Seconds (SES).

DSL 24- Hours interval performance

Display the last 24-hours interval DSL loop performance, based on the menu enter the sequence:

Local >>> PM & Alarm >>> DSL_[1,2] >>> Current 24 Hours

DSL / 24 hours screen

```
Local\ PM\DSL_1\ Cur 24 Hour
Line CNT    DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====      DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================

                        1. ES                    : 2
                        2. SES                   : 2
                        3  UAS                   : 44
                        4. LOSW                  : 2
----------------------------------------------------------------------------------------------------
Range ( s ):   0 ~ 86400
Tab ] Previous   Item   Space]   Next Item   Ctrl-N]   Main   Menu   Esc] Page u p
1..6]   Select    Item    Enter]   Accept Item Ctrl-R]   Screen Refresh   Q/q] quit
```

Display current 96 records, every 15-minutes interval DSL performance statistcs.

Table 6.3. Performance statistics display at the right-most bar screen

Table 5.3: DSL / 24 hours interval screen description

Option	Description
1. ES	Calculate the last 24 hours interval DSL loop Error Seconds (ES).
2. SES	Calculate the last 24 hours interval DSL loop Severely Error Seconds (SES).
3. UAS	Calculate the last 24 hours interval DSL loop Unavailable Second (UAS).
4. LOSW	Calculate the last 24 hours interval DSL loop Loss of Sync Word (LOSW).

DSL 15-minutes interval performance history

Display DSL loop performance every 15 minutes, based on the menu enter the sequence:

Local >>> PM & Alarm >>> DSL_[1,2] >>> History 15 Minutes

DSL / History 15 minutes screen

```
Local\ PM\DSL_1\ His 15 Min
Line CNT   DSL_ 1: 2304 kbps   SNR_1: 22.5 db    PBO_1:NC   E1: Normal
  ====     DSL_ 2: 2304 kbps   SNR_1: 21   db    PBO_2:NC
================================================================

          ID      ES      SES     UAS     LOSW    PM          Time
          1       0       0       0       0       2004. 1. 1. 0. 30. 10
          2       2       2       44      2       2004. 1. 1. 0. 15. 10




----------------------------------------------------------------------------------------------------------------
Tab ] Previous   Item   Space]   Next Item   Ctrl-N]   Main   Menu   Esc] Page u p
1..6]   Select    Item    Enter]   Accept Item   Ctrl-R]   Screen Refresh   Q/q] quit
```

DSL 15-minutes interval performance statistics history collection as following

Table 5.4: DSL / History 15 minutes interval screen description

Option	Description
ID	Performance message ID at every 15 minutes
ES	Calculate every 15 minutes interval DSL loop Error Seconds (ES).
SES	Calculate every 15 minutes interval DSL loop Severely Error Seconds (SES).
UAS	Calculate every 15 minutes interval DSL loop Unavailable Second (UAS).
LOSW	Calculate every 15 minutes interval DSL loop Loss of Sync Word (LOSW).
PM Time	Every 15 minutes interval unit start time

DSL 24-hours interval performance history

Display every 24 hours DSL loop performance.

Based on the menu, enter the sequence: **Local >>> PM & Alarm >>> DSL_[1,2] >>> History 24 Hours**

DSL 1 / History 24 Hours Screen

```
Local\ PM\DSL_1\ His   24 Hour
Line CNT   DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====     DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
==========================================================================
           ID   ES       SES      UAS      LOSW     PM        Time
           1    0        0        0        0        2004. 1. 1. 0. 30. 10
           2    2        2        44       2        2004. 1. 1. 0. 15. 10



--------------------------------------------------------------------------
Tab ] Previous   Item   Space]   Next Item   Ctrl-N]   Main   Menu   Esc] Page u p
1..6]   Select    Item    Enter]   Accept Item   Ctrl-R]   Screen Refresh   Q/q] quit
```

Every 24 hours interval collect DSL performance statistics, display options at table 5.5.

.

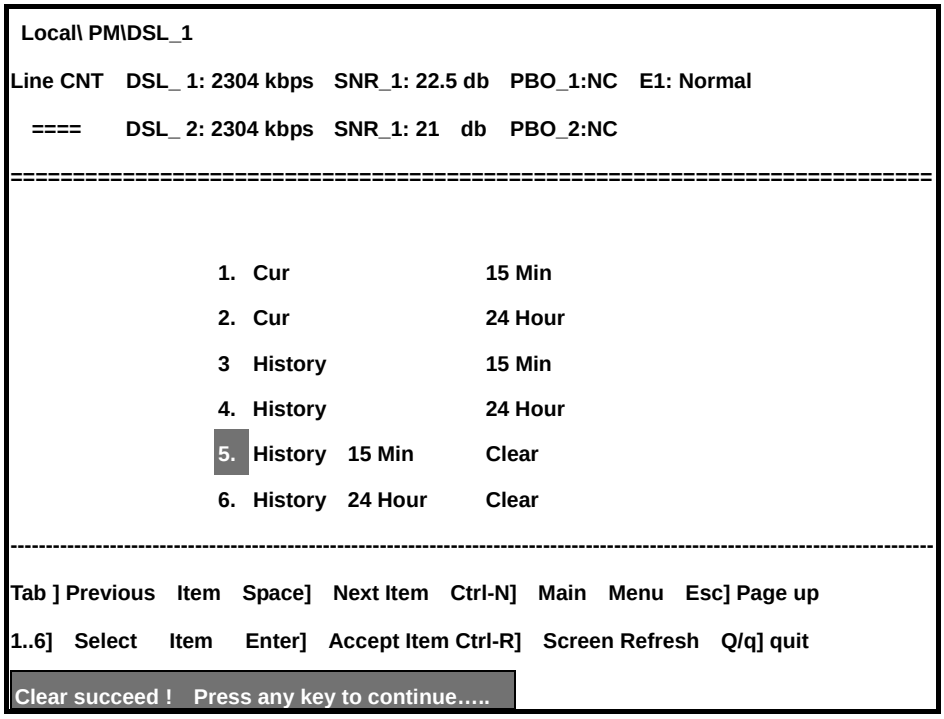
Table 5.5: DSL 1 / History 24 hours screen description

Option	Description
ID	Performance message ID at every 24 hours.
ES	Calculate every 24 hours interval DSL loop Error Seconds (ES) .
SES	Calculate every 24 hours interval DSL loop Severely Error Seconds (SES)
UAS	Calculate every 24 hours interval DSL loop Unavailable Second (UAS)
LOSW	Calculate every 24 hours interval DSL loop Loss of Sync Word (LOSW)
PM Time	Every 24 hours interval unit start time

Clean up DSL 15- minutes interval history data

At option " 5. History 15 Min. Clear ", press " Enter " button then it clean up statistics records..

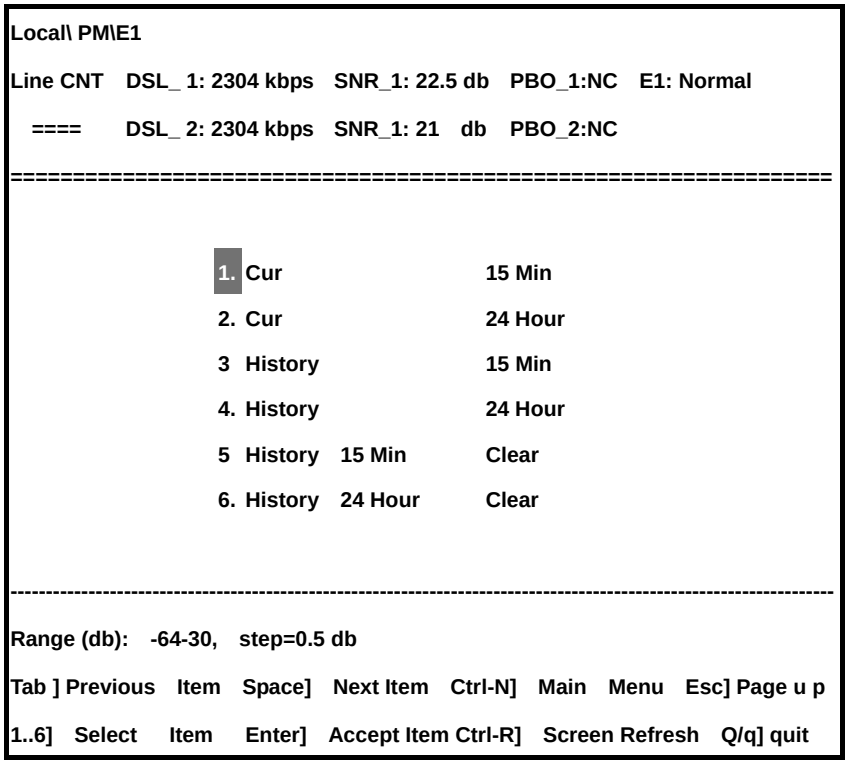
Clean up confirmation message is shown at white with black background " **Clear succeed ! Press any key to continue….** ".



5.2 E1 Performance

At Control screen, choose "local" or "remote" units,, TC-200GTA STU-C can monitor E1 performance from network side or client side. Based on the menu, enter the sequence: **Local >>> PM & Alarm >>> E1** display current or E1 circuit history performance data or events record. User can also use this screen to clean up history performance data.

E1 Performance Screen

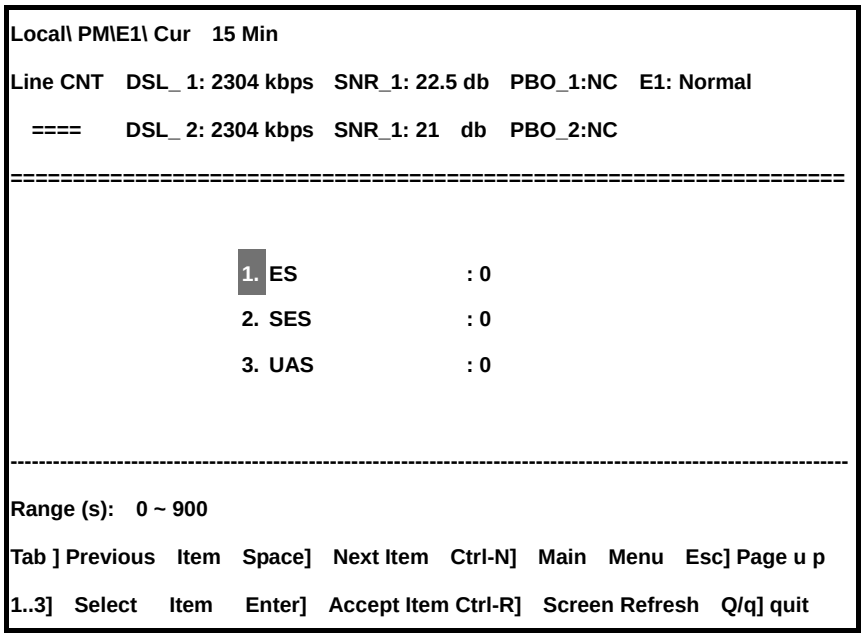


E1 15-minutes interval performance

Based on the menu, enter the sequence: **Local >>> Pm & Alarm >>> E1 >>> Current 15 Minutes**

Display E1 interval current 15-minutes interval performance statistics

E1/ Cur.15 Minutes Screen



15-minutes interval E1 performance statistics collection option as following.

Table 5.6 E1 Cur.15 Minutes Screen description

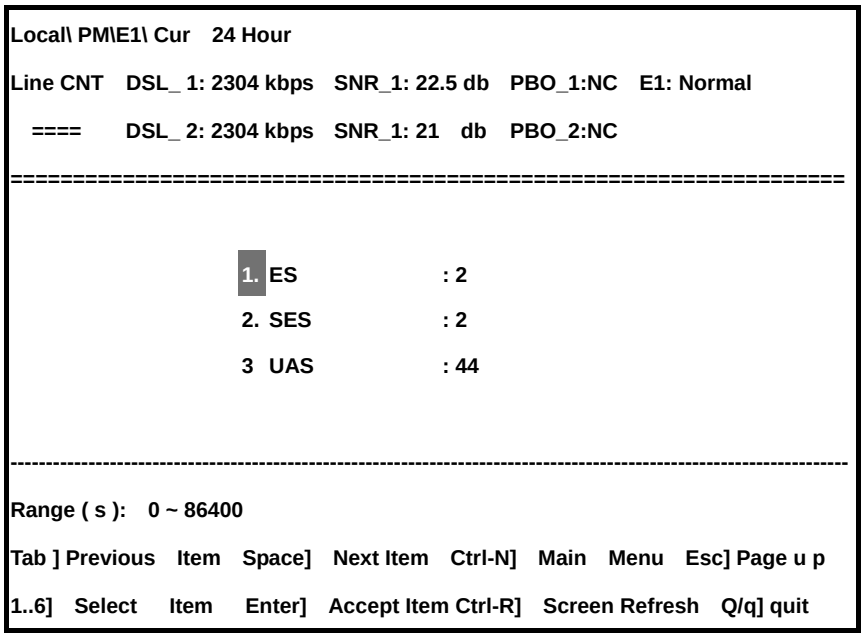
Option	Description
1. ES	Calculate current 15 minutes interval E1 circuit Error Seconds (ES).
2. SES	Calculate current 15 minutes interval E1 circuit Severely Error Seconds (SES).
3. UAS	Calculate current 15 minutes interval E1 circuit Unavailable Second (UAS).

E1 24-hours interval performance

Display the last 24 hours E1 circuit performance.

Based on the menu, enter the sequence: **Local >>> PM & Alarm >>> E1 >>> Current 24 Hours**

E1 / 24 Hours Performance Screen



96 x15- minutes interval E1 performance statistics option as following.

Table 5.7:E1 24-hours performance screen description

Option	Description
1. ES	Calculate the last 24 hours E1 circuit Error Seconds (ES).
2. SES	Calculate the last 24 hours E1 circuit Severely Error Seconds (SES).
3. UAS	Calculate the last 24 hours E1 circuit Unavailable Second (UAS).

E1 15-minutes Performance History

Display every 15 minutes E1 circuit performance.

Based on the menu, enter the sequence: **Local >>> Pm & Alarm >>> E1 >>> History 15 Minutes**

E1 History 15 Minutes Screen

```
Local\ PM\E1\ His 15 Min
Line CNT   DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====     DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================

              ID      ES      SES     UAS     PM          Time
              1       0       0       0       2004. 1. 1. 0. 59. 2
              2       0       0       0       2004. 1. 1. 0. 44. 20
              3       0       0       0       2004. 1. 1. 0. 29. 38
              4       1       1       0       2004. 1. 1. 0. 14. 56
----------------------------------------------------------------------------------------------------------------
Tab ] Previous   Item   Space]   Next Item   Ctrl-N]   Main   Menu   Esc] Page u p
1..6]   Select    Item    Enter]   Accept Item   Ctrl-R]   Screen Refresh   Q/q] quit
```

E1 15-minutes performance history statistics option as following.

Table 5.8: E1 History 15 minutes screen description

Option	Description
ID	Performance message ID at every 15 minutes
ES	Calculate 15 minutes interval E1 circuit Error Seconds (ES).
SES	Calculate 15 minutes interval E1 circuit Severely Error Seconds (SES).
UAS	Calculate 15 minutes interval E1 circuit Unavailable Second (UAS).
PM Time	Every 15 minutes interval unit start time.

E1 24-Hours Performance history

Display E1 circuit 24 hours interval performance.

E1 / History 24 Hours Screen

```
Local\ PM\E1\ His   24 Hour
Line CNT   DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====     DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================
            ID      ES      SES     UAS     PM          Time
            1       0       0       0       2004. 1. 1. 0. 30. 10
            2       2       2       44      2004. 1. 1. 0. 15. 10
----------------------------------------------------------------
Tab ] Previous   Item   Space]   Next Item   Ctrl-N]   Main   Menu   Esc] Page u p
1..6]   Select    Item    Enter]   Accept Item   Ctrl-R]   Screen Refresh   Q/q] quit
```

24 hours interval E1 performance options as following.

Table 5.9:E1 History 24 hours screen description

Options	Description
ID	Performance message ID at every 24 hours
ES	Calculate 24 hours interval E1 circuit Error Seconds (ES) .
SES	Calculate 24 hours interval E1 circuit Severely Error Seconds (SES)
UAS	Calculate 24 hours interval E1 circuit Unavailable Second (UAS)
PM Time	Every 24 hours interval unit start time.

Clean up E1 15 –minutes performance history data

At option 5. “ History 15 Min Clear“, press “ Enter “ button to clean it up.

Clean up confirmation message is shown as white with black background “ **Clear succeed ! Press any key to continue….** “.

```
Local\ PM\E1
Line CNT   DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====     DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================

                    1.  Cur                  15 Min
                    2.  Cur                  24 Hour
                    3   History              15 Min
                    4.  History              24 Hour
                    5.  History  15 Min      Clear
                    6.  History  24 Hour     Clear
----------------------------------------------------------------------------------------------------------------
Tab ] Previous   Item   Space]   Next Item   Ctrl-N]   Main   Menu   Esc] Page u p
1..6]   Select    Item    Enter]   Accept Item Ctrl-R]   Screen Refresh   Q/q] quit
Clear succeed !   Press any key to continue…..
```

5.3 Alarm History

Alarm History screen is shown as following, there are four fields about alarm happens at assigned interface.

To get into this screen, based on the menu, enter the sequence: **Local >>> PM & Alarm >>> Alarm History**

Alarm History Screen

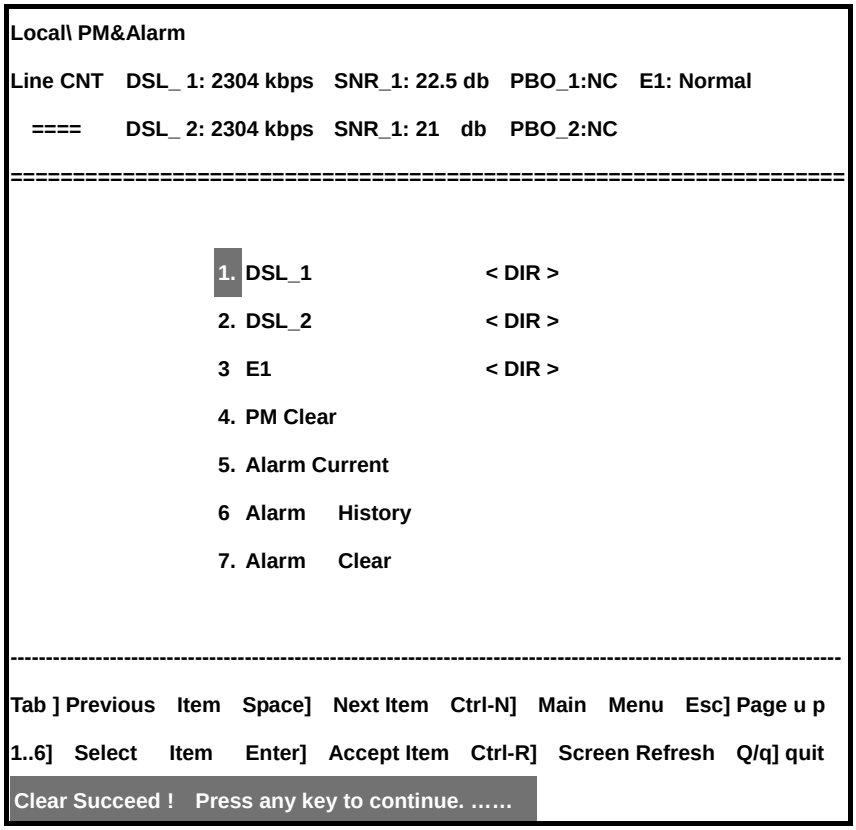
```
Local\ PM&Alarm\ Alarm   History
Line CNT   DSL_ 1: 2304 kbps   SNR_1: 22.5 db   PBO_1:NC   E1: Normal
  ====     DSL_ 2: 2304 kbps   SNR_1: 21   db   PBO_2:NC
================================================================

              ID  Port          Type          Alarm Time
              1.  E1            LOS           2004. 1. 1. 0. 0.16
              2   DSL_1         NO SYNC       2004. 1. 1 0. 0. 0



----------------------------------------------------------------------------------------------------------------
Tab ] Previous   Item   Space]   Next Item   Ctrl-N]   Main   Menu   Esc] Page u p
1..5]   Select    Item    Enter]   Accept Item   Ctrl-R]   Screen Refresh   Q/q] quit
```

Table 5.10: Alarm History Screen Desciption

Option	Description
1. ID	Alarm ID
2. Type	Alarm Type.
3. Alarm Time	Alarm date and time .

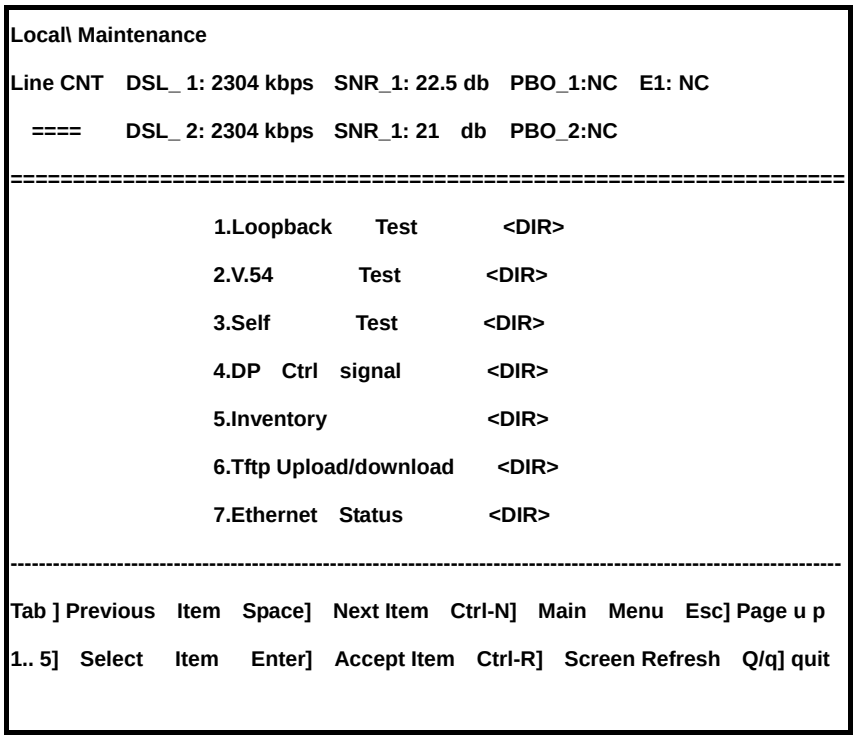
5.4 Clean up Alarm History

Choose “ PM&Alarm “ Menu, at option 6, then press “ Enter “ button to clean it up. The clean up Confirmation message is shown as highligh“ **Clear succeed ! Press any key to continue….** “



6.Maintainance

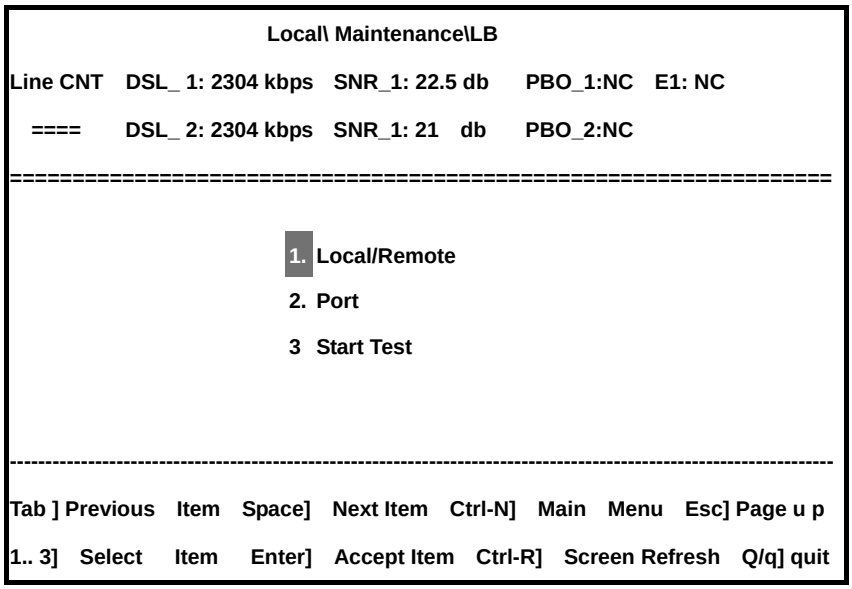
This chapter provides how to get related message and execute the tests about DSL network interface and client device interface. Perform the units self-testing and checking device related message icon is shown at the screen figure below. To preform the maintainance, choose “3. Maintence” at main menu and press “Enter” button.



6.1 Loop Back

To find the possible failure point at point-to-point connection, choose loop back function, and execute “1. Loop Back Test” at main menu “ Maintenance.

Figure 6.1: Loop Back Screen



To observer from local units, it can perform loop back test on local or remote units by network or client side interface.

Description at table 6.1.

Table 6.1: Loop back test

Option	Description
1.Local/Remote	Choose local or remote units to perform loop back test. Entry: Local; Remote
2. Port	Assign interface to perform loop back test. Entry: E1; Data Port; System
3. Start Test	Start test. **Testing ……..** **Enter: Stop Test !** Press " Enter " button to terminuate test and return back to normal data transfer

TC-200GTA provides from STU-C and STU-R Near end loopback (NLB), Local loopback, Remote loopback (RLB) and Remote payload loopback (PLB) isolation and test SHDSL system partial capability.

Different loop back path is shown at following table and figure.

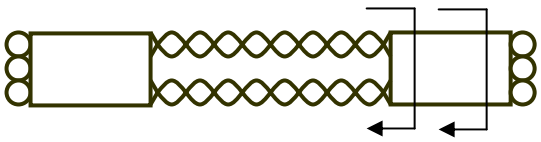
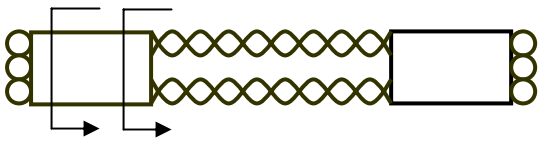
Description	**Function Abbreviation**	**Remark**
1. Local loopback at client DTE port	Near end loopback (NLB)	local>>DTE LB
2. Local loopback at DSL loop	Local loopback (LLB)	local>>System LB
3. Remote loopback at remote device DSL loop	Remote loopback (RLB)	Remote>>System LB
4. Remote loopback at remote device DTE port	Payload Loopback (PLB)	Remote >>DTE LB
5. Remote loopback at remote device DTE port (Use V.54 in-band code)	V.54 in-band	V.54

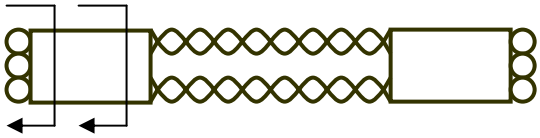
Note: DTE can be 1. E1 or 2. Data Port

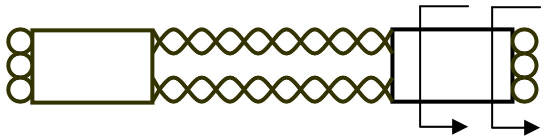
Observer NLB, LLB, RLB and PLB from STU-C and STU-R detail description as following:-

1. From local STU-C perform lookback, DTE loopback (LB)signal send to client side from client DTE interface and then back to client device.
   From local STU-C perform loopback, System LB signal received near DSL interface and then back To client device.
2. From STU-R perform local loopback, DTE LB signal send from client DTE interface and then back To client device
   From STU-R perform local loopback, System LB signal recieved near DSL interface and then back to
   Client device.
3. From STU-C perform remote loop back, DTE LB signal received at STU-R DTE interface and then back to network.
   From STU-C perform remote loop back, System LB signal received at STU-R DSL interface and then back to network.
4. From STU-R perform remote loop back, DTE LB signal received at STU-C DTE interface and then back to network.
   From STU-R perform remote loop back, System LB signal received at STU-C DSL interface and then back to network.
   Detail loop back description shown at table 6.2 below.

Table 6.2 LoopBack

Option	Description
Remote Loopback (R LB)	 RLB viewed from STU-C DTE could be E1or Data Port
Remote Loopback	 RLB viewed from STU-R DTE could be E1 or Data Port

Option	Description
Local Loop back (Local LB)	



6.2 V.54 LoopBack

TC-200GTA provides ITU-T V.54 in-band loopback function. Once choosen V.54 loopback, it will generate 2048 bits at 1+x(-4)+x(-7) format and send to remote assigned address device. Remote device will perform loopback at assigned interface.

Figure 6.2: V.54 Generation Screen

```
Local\ Maintenance\ V.54 Generation
  Line CNT     DSL_ 1: NO SYNC  SNR_1: NC    PBO_1:NC   E1: Alarm
    == ==      DSL_ 2: NO SYNC  SNR_1: NC    PBO_2:NC
==================================================================
                   Host    Addr.              :123
                1. Port                       :Data Port
                2. Direction                  :To DSL Line
                3. Target  Addr.              :0
                4. V.54    Start

------------------------------------------------------------------
1).Data Port   2). E1
Tab ] Previous  Item   Space]  Next Item  Ctrl-N]   Main Menu   Esc] Page u p
1.. 4]  Select  Item   Enter]  Accept Item Ctrl-R]  Screen Refresh  Q/q] quit
```

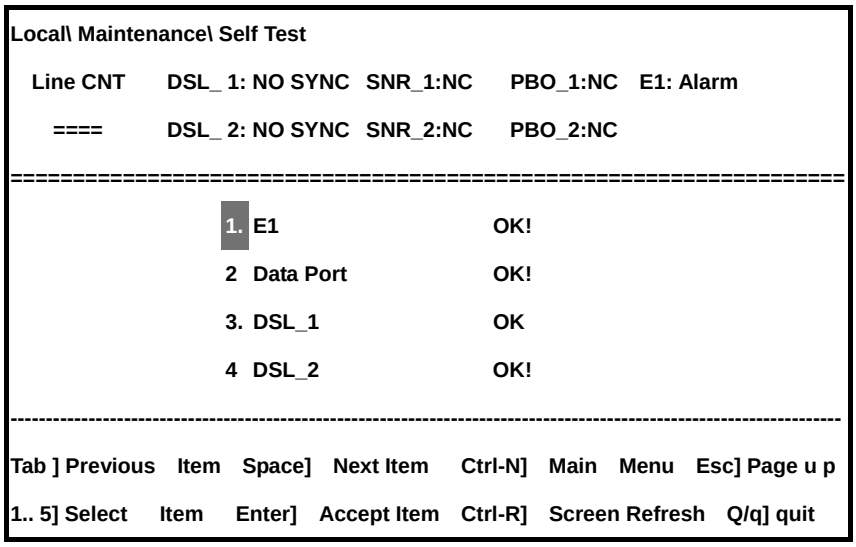
Table 6.3: V.54 Loopback

Option	Description (8.5.7)
1. Port	Assign interface to perform loopback. Entry: Data Port; E1
2. Direction	Entry: To DSL Line; To DTE Port
3. Target Addr.	Target unit address(Perform loopback) Entry: 0 ~ 255, Decimal
4, V.54 start	Starts the test. **Testing ……..** **Enter: Stop Test !** Press " Enter " stop testing and return back to normal data transfer

6.3 Self Test

Maintain menu, choose option 4: " Self Test " to perform interface testing as table below.

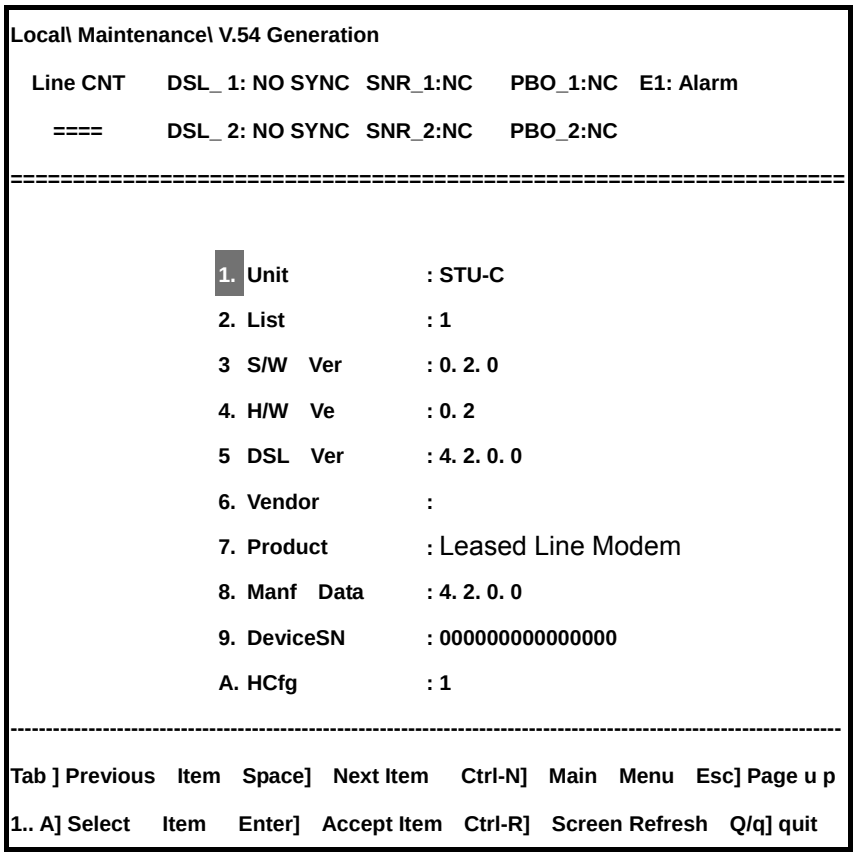
For example: E1 test, check E1 interface function is normal..



6.4 Product Information

This screen provides the device related information.

Figure 6.3: Inventory Screen



Leased Line Modem

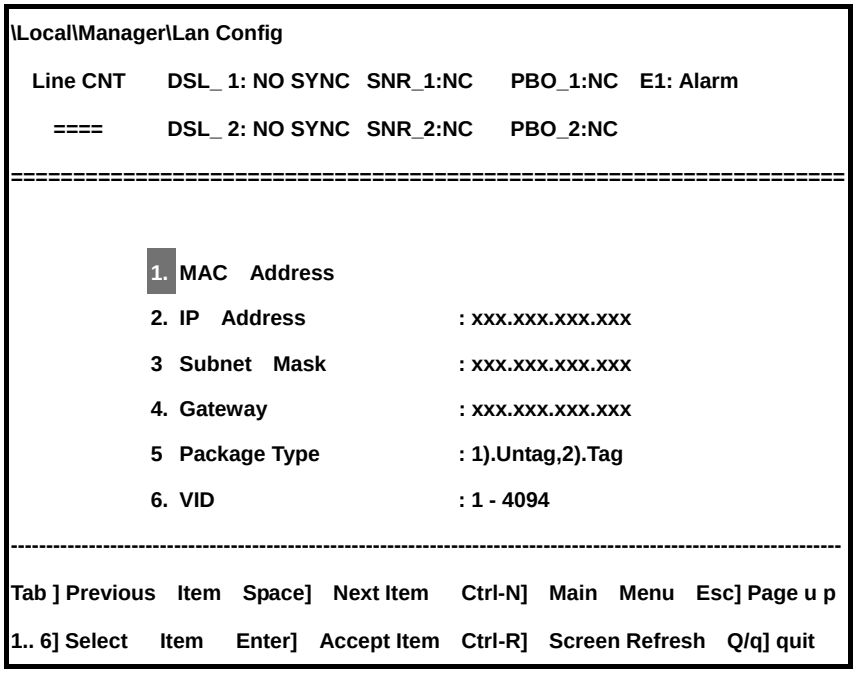
Inventory Screen option description as below

1. Unit : Display device is STU-C or STU-R.
2. List : Display device ID.
3 S/W Ver : Display device software version.
4. H/W Ve : Display circuit hardware version.
5 DSL Ver : Display DSL circuit version.
6. Vendor : Display device vendor .
7. Product : Display device product name.
8. Manf Data : Display device manufacture.
9. DeviceSN : Display device serial number.
A HCfg : Display hardware configure.

7. In-Band Network Management

TC-200GTA provides in-band network management function. While the LAN interface doing normal data transfer service, administrator can perform in-band network management function at the same time to configure parameters, manage and monitor STU-C or STU-R devices.

Figure 7.1： Network Management Screen



LAN Screen options descriptions shown as followings

1. **MAC Address** : Display MAC address
2. **IP Address** : Set network management IP address
3 **Subnet Mask** : Subnet Mask
4. **Gateway** : Gateway
5 **Package Type** : In-band management data package adding Tag or not
6. **VID** : In-band management data package ID

8. LCD Panel Operation

Stand-alone device either STU-C or STU-R all come with LCD display. It can configure and manage by buttons.

8.1 LCD Display

LCD 2 X 16 characters screen can display current TC-200GTA status, use buttoms to configure Parameters and display events statistics or preform analysis.

Figure 9.1 LCD Display.

LCD display 5 working zone as below.

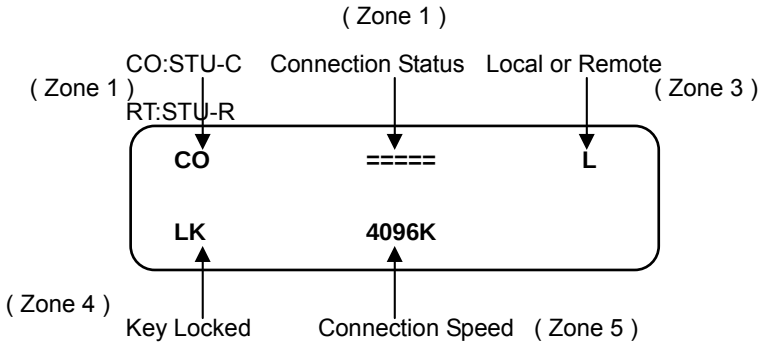


Figure 9.1: LCD Display

Zone 1	CO indicates TC-200GTA set as STU-C, RT indicates TC-200GTA set as STU-R
Zone 2	DSL connection status (1): Sync ===== (2): DSL loss == == (3): DSL sync but crossover == x == (4): Single loop -----
Zone 3	Local or remote indication. L: Perform at local device R: Perform at remote device
Zone 4	LK: If the button is left idle for more than three minutes the system will automatically lock button.
Zone 5	Load rate: 64K～4608Kbps interval 64K.（G.bis mode maximum rate support11392Kbps）

Enter	: Configure Button	Enter selected item
△	: Up button	Go to upper level menu
▽	: Down button	Go to next level menu
▷	: Right button	Go to next item
◁	: Left button	Go to previous item
Menu	: Back to main menu	
L/R	: Choose local or remote device	

8.2 LCD Display Configuration

User can use LCD dispaly, based on 4.1 menu architecture to configure parameters to display performance statistics and perform loopback test.

The example below describes the detail operation.

Configuration:

1. Set " System " parameter, press "Left button" and "Right button"
   It will display the LCD screen as following.

LCD Screen1

```
[    Main Menu    ]    L
1. Config.
```

2. Press "Down button" choose " System " to check all parameters

LCD Screen 2

```
[    Config       ]    L
1. System
```

3. Pres "Down button" choose 1st option " Application Mode ""System " parameter

LCD Screen 3

```
[    System       ]    L
1. App  Mode
```

4. Press "Down button" choose 1st option " Two Pair " at "Application Mode " parameter

LCD 画面 4

```
App       Mode          L
1. Two Pair
```

5. Use "Left button " or "Right button" to choose other options. Such as " Single Pair ", " 1+1" or " PTM " parameter. Press "Enter" button to confirm it.

6. Press “Up button“ back to LCD Screen 3.

7 Press “Right button“ and choose 2nd option “ Device Type “ parameter, as LCD Screen 5..

LCD Screen 5

```
[      System        ]     L
2. Device Type
```

8. Repeat same steps to configure other “ System “ parameter.

Perfoamnce monitor and alarm

1. At LCD screen 1, press “Right button” to display performance monitor screen as below 下

LCD Screen 6

```
[ Main   Menu        ]    L
2. PM & Alarm
```

2. Press “Down button” and choose 1st option “ DSL_1 PM “ monitor DSL1, shown at LCD Screen 7.

LCD Screen 7

```
[   PM & Alarm      ]     L
1. DSL_1 PM
```

3. Press “Down Button” and choose 1st option “ Current 15 Min. “ monitor DSL1, shown at LCD Screen 8.

LCD Screen 8

```
[   DSL_1 PM    ]        L
1. Cur 15
```

4. Press “Down button” and choose 1st option “ Current SNR “ moinitor DSL1, shown at LCD Screen 9

LCD Screen 9

```
[ DSL 1 Cur 15 Min ]     L
1. Cur SNR:0
```

5. Under DSL1 monitor 2. Maximum SNR Value, 3. Minimum SNR Value, 4. Loop Attenuation, 5. ES, and 6. SES will sequentially display at “ 1. Cur SNR:0 “ fields such as LCD Screen 9 .

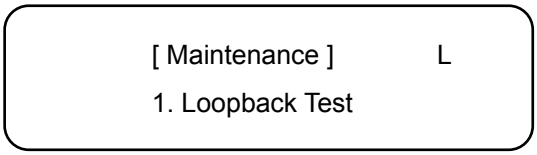
6 Repeat the same steps to display DSL_2, E1 Performance in 24 hours

LoopBack Maintainance

1. At LCD Screen 1, press “Right button” twice and display loopback testing screen as

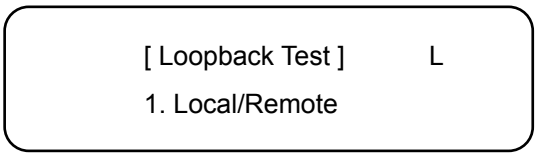
following.

LCD Screen 10



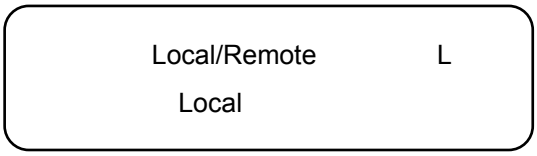
2. Press “Down button” and choose local or remote TC-200GTA to perform loopback testing.

LCD Screen 11



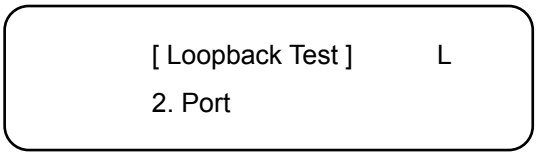
3. Press “Down button” and choose local or remote then press “Right button” to select loopback test.

LCD Screen 12



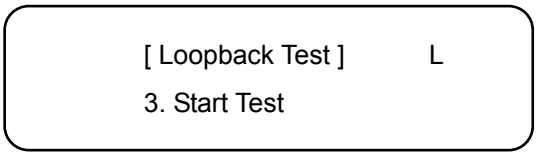
4. Press “Right button“ and choose 2nd option “ Port “ to perform loopback test.

LCD Screen 13



5. Press “Right button“ and choose “Start Test” loopback, shown as below screen

LCD Screen 14



6. Press “Down button” to start loopback.