
257 T1 Echo Canceller User Interface Document

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1. General

This document has been revised to include information about Feature Package 1.3, which includes the following new features, modes, and options:

- CLEARCALL Noise Reduction (NR) feature — operates with the installation of the optional 82.25VX5 Subassembly
- Mode 38 — Send Side Echo Cancellation
- Mode 48 — ACE Noise Injection
- Options 2 and 3 for Mode 65, Idlecode Logic
- Options 3 and 4 for Mode 67, Active Channel Logic for CAS
- Options 4 and 5 for Mode 70, Data Tone Disabler Detection
- Mode 76 — ALC Double Talk Detection

2. Front Panel Controls

Pushbuttons, seven-segment displays, and LEDs on the 257X (2571/2572) Module's front panel provide the means for programming and monitoring both system and individual channel operating parameters (see Figure 2-1).

LEDs on the 257XLE (2571LE/2572LE) Module's front panel provide the means for monitoring system operating parameters (see Figure 2-2).

Note: Pushbuttons and seven-segment displays are not available on the 257XLE Modules.

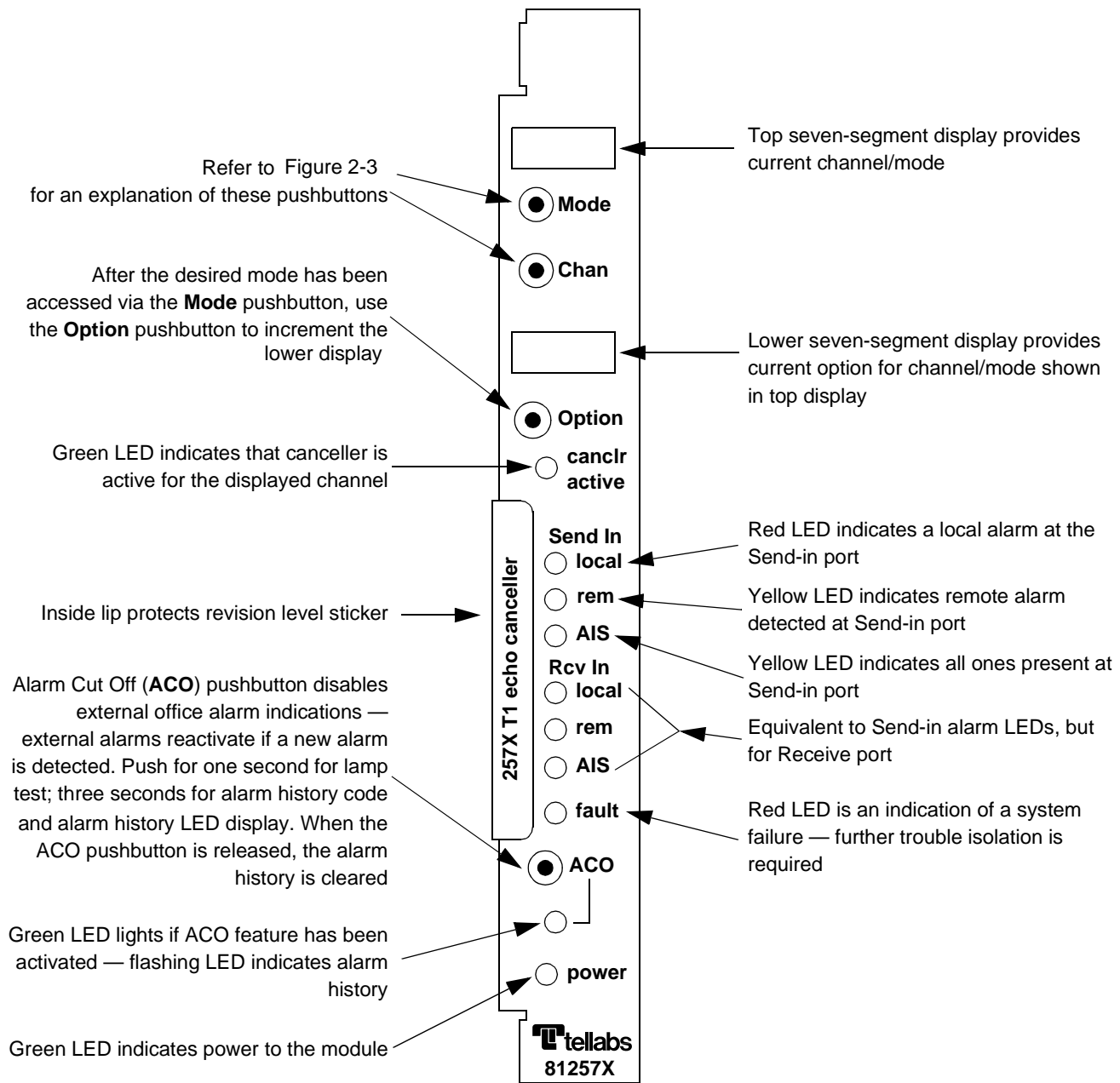


Figure 2-1 257X Module Front Panel

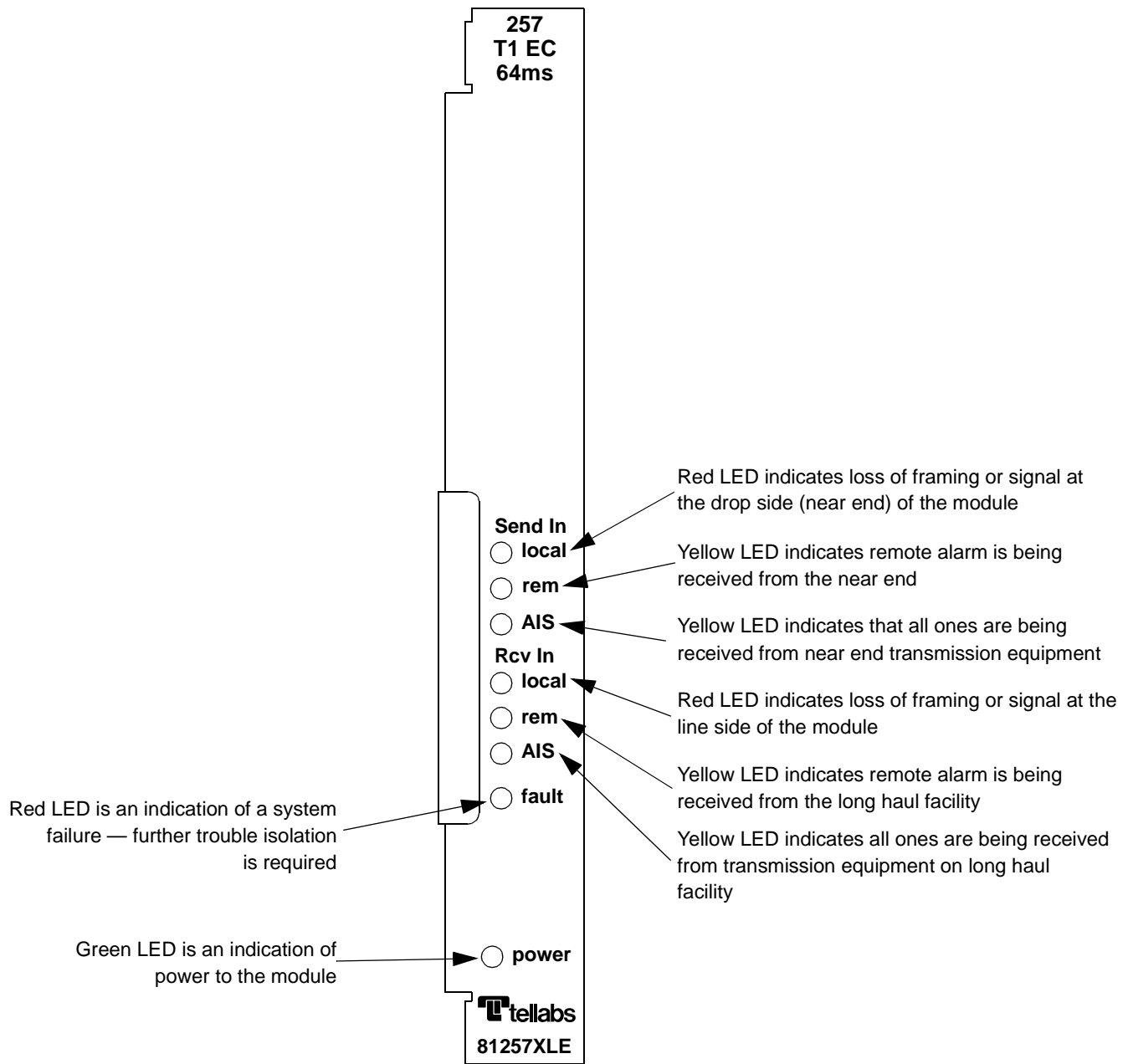


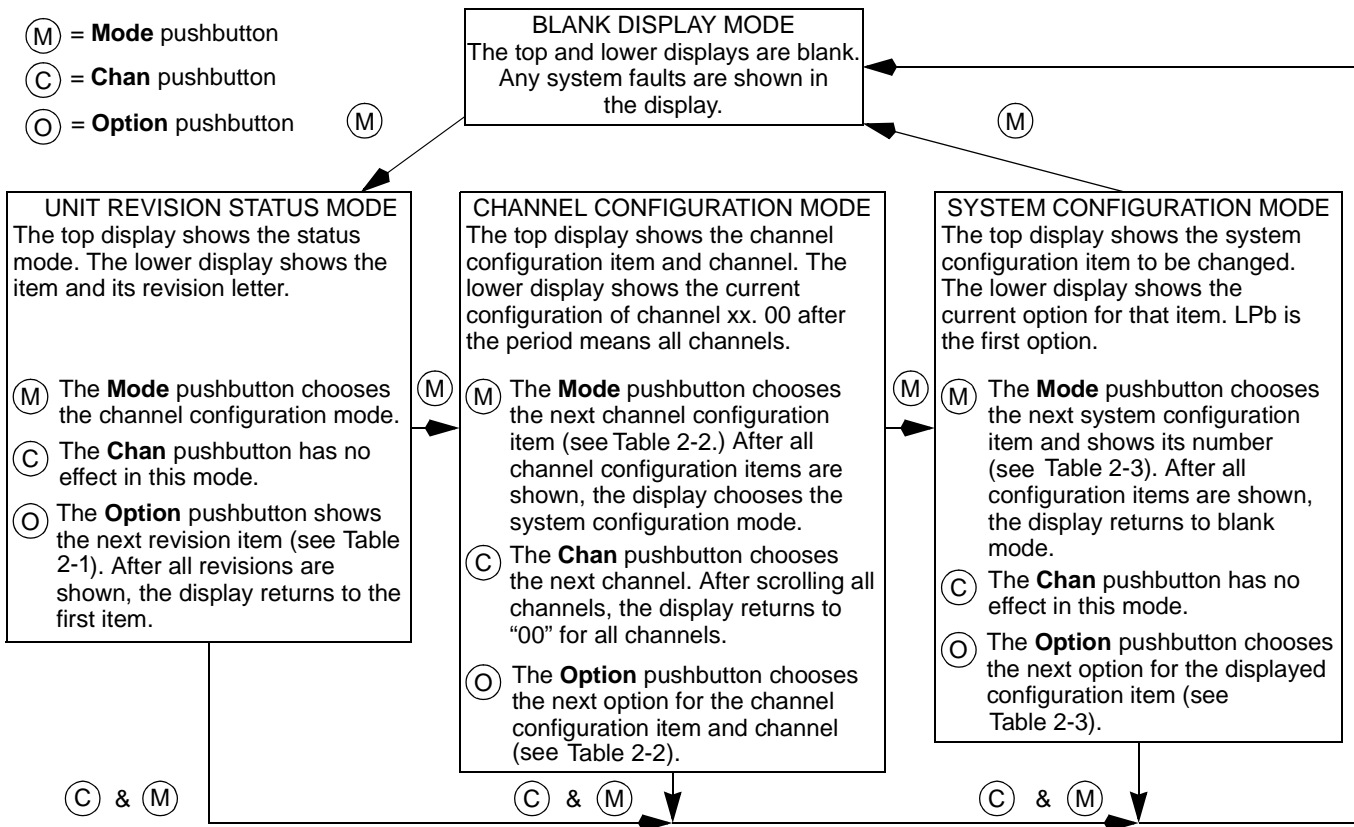
Figure 2-2 257XLE Module Front Panel

Front Panel Modes

The 257X Module's front panel consists of four modes:

- Blank Display Mode
- Channel Configuration Mode
- System Configuration Mode
- Unit Revision Status Mode

Figure 2-3 shows the pushbutton mapping to get to each of the modes.



Note: Pushing both the Mode and Chan pushbuttons in any option returns you to the BLANK DISPLAY MODE.

Figure 2-3 Front Panel Mode State Diagram

Configurations Tables

Tables 2-1 through 2-3 provide the configurations available in the Unit Revision Status, Channel Configuration, and System Configuration Modes. The configurations are listed in the order in which they are displayed on the 257X Module. Factory defaults are in **bold** in the shaded rows.

Note: Displays are not available on the 257XLE Modules.

Selection	Top Display (Mode)	Lower Display (Option)	Description
Systems Software/Flash Firmware Revision	OP	F.xx	Shows system software/flash firmware revisions
Boot Software/Boot Block Firmware Revision		b.xx	Shows boot software/firmware revision
2574 Endpath Expansion*		1.0	Not Installed
		1.1	2574G, 32ms, Is Installed
		1.2	2574H, 64ms, Is Installed
Subassembly*		2.0	No Subassembly Installed
		2.5	25VX1 Subassembly Is Installed
		2.6	25VX2 Subassembly Is Installed
		2.5A	25VX1 ACE-Enabled Subassembly Is Installed
		2.6A	25VX2 ACE-Enabled Subassembly Is Installed
		2.7A	25VX3 ACE-Enabled Subassembly Is Installed
		3.31	25VX5 Subassembly Is Installed
*Indicates that the mode and/or one or more of the options appear only when the associated hardware to support the setting is installed.			

Table 2-1 Unit Revision Status Mode Front Panel Options

Selection	Top Display (Mode)	Lower Display (Option)	Description
Channel Configuration (per channel) Notes: 1. xx is channel number 2. 00 indicates all channels 3. Options 03, 04, 05, 06 only appear if CAS is selected — e.g., by Mode 63.0 Important: The Forced Active Mode is to be used for diagnostic purposes only. Using the Forced Active Mode during normal operation allows echo at the beginning of the call.	c.xx	00	E&M/Idlecode Detection
		01	Forced Bypass (Clear Channel)
		02	Forced Active (Always Cancel)
		03	FXO-GS (Foreign Exchange Office-End With Ground Start Operation)
		04	FXO-LS (Foreign Exchange Office-End With Loop Start Operation)
		05	FXS-GS (Foreign Exchange Station-End With Ground Start Operation)
		06	FXS-LS (Foreign Exchange Station-End With Loop Start Operation)
Data Tone Disabling Control (per channel) Notes: 1. xx is channel number 2. 00 indicates all channels	d.xx	00	Disable
		01	Enable
Non Linear Processor (NLP) Control (per channel) Notes: 1. xx is channel number 2. 00 indicates all channels	n.xx	00	Disable
		01	Enable
CLEARCALL Enhancement Control (per channel)* Notes: 1. xx is channel number 2. 00 indicates all channels	E.xx	00	Disable
		01	Enable
*Indicates that the mode and/or one or more of the options appear only when the associated hardware to support the setting is installed.			

Table 2-2 Channel Configuration Mode Front Panel Options

Selection	Top Display (Mode)	Lower Display (Option)	Description
Functional Test Mode <i>Warning: These are out-of-service test configurations; changing this mode may interrupt service.</i>	LPb	0	In Service (all functional test modes deactivated)
		1	Facility Loopback
		2	Clear Channel Transparency
		3	Metallic Bypass
		4	Drop Side Payload Loopback
		5	Line Side Payload Loopback
Maintenance Port Baud Rate Notes: 1. This mode does not appear in a 253-Series or 255A Shelf. 2. This option is not affected by the Set Defaults command.	00	1.2	1200 Baud
		2.4	2400 Baud
		4.8	4800 Baud
		9.6	9600 Baud
		19.2	19200 Baud
		38.4	38400 Baud
Control Port Baud Rate Note: This option is not affected by the Set Defaults command.	01	1.2	1200 Baud
		2.4	2400 Baud
		4.8	4800 Baud
		9.6	9600 Baud
		19.2	19200 Baud
		38.4	38400 Baud
Line Side (Send-Out) Equalization	10	133	0 - 133 Feet
		256	133 - 256 Feet
		399	256 - 399 Feet
		533	399 - 533 Feet
		655	533 - 655 Feet
Drop Side (Receive-Out) Equalization	11	133	0 - 133 Feet
		256	133 - 256 Feet
		399	256 - 399 Feet
		533	399 - 533 Feet
		655	533 - 655 Feet
Framing Format	20	3	SF (Standard Super Frame) Format
		4	MBLT (F _T) Format
		5	ESF (Extended Super Frame) Format
SCP Module Address (Viewable Only)	30	xxx	xxx is 1 - 128
Address Mode	31	1	Shelf Auto
		2	Shelf 255D
continued . . .			

Table 2-3 System Configuration Mode Front Panel Options

Selection	Top Display (Mode)	Lower Display (Option)	Description
Send Side Echo Cancellation*	38	0	Disable
		1	Enable
FLEXWARE™ Performance Options*	39	1	Universal
		2	Mobile
		3	Gateway
Non Linear Processor Double Talk Operation	40	1	Off During Doubletalk (as per ITU-T recommendation)
		2	Always On
Dynamic Signal Transfer™ Control	41	0	Off
		1	On
Minimum ERL	42	0	0dB
		3	3dB
		6	6dB
Noise Reduction (NR)*	44	0	Disable
		1	Enable at Low Percentage
		2	Enable at Normal Percentage
		3	Enable at Maximum Percentage
Acoustic Coupling Elimination (ACE) Activation*	45	0	Disable
		1	Enable
ACE Minimum Weighted Acoustic Echo Path Loss (WAEPL)*	46	1	25dB
		2	35dB
		3	45dB
ACE Cellular Network Type*	47	1	GSM (Global System for Mobile Communications)
		2	TDMA (Time Division Multiple Access)
		3	CDMA (Code Division Multiple Access)
ACE Noise Injection*	48	0	Disable
		1	Enable
Maximum Endpath Delay*	50	32	32ms (Default for 2571 Module)
		64	64ms (Default for 2572 Module)
		96	96ms (Requires 2574H) (2572 Module Only)
		128	128ms (Requires 2574H) (2572 Module Only)
Line Coding	60	0	AMI With Bit 7 Stuffing
		1	B8ZS (Bipolar Eight Zero Substitution)
		2	AMI Transparent
*Indicates that the mode and/or one or more of the options appear only when the associated hardware to support the setting is installed.			
continued . . .			

Table 2-3 System Configuration Mode Front Panel Options

Selection	Top Display (Mode)	Lower Display (Option)	Description
Fault Operation	61	0	Bypass On Fault
		1	AIS On Fault
Framing/CRC Error Transparency Control	62	0	Errors Are Corrected
		1	Errors Are Passed Through (Regenerated)
Busy/Idle Detection Method Notes: Changing this mode causes defaults to be set on Mode c:xx. A/B bit integrity is NOT maintained if Option 1, Idlecode Detection, is selected.	63	0	CAS (Channel Associated Signaling)
		1	Idlecode Detection
		2	Idlecode Detection With CAS Pass-Through
Channel Idlecode Pattern	64	0	7F
		1	7F or FF
		2	F7
		3	FF
Idlecode Logic	65	0	Detection On Send OR Receive Side
		1	Detection On Send AND Receive Sides
		2	Detection On Send Side Only
		3	Detection On Receive Side Only
Signaling Disabler	66	0	Off
		1	ITU-T No. 5
		2	ITU-T No. 6 or No. 7
		3	2600Hz (SF)
Active Channel Logic for CAS	67	1	Detection On Send OR Receive Side
		2	Detection On Send AND Receive Sides
		3	Detection On Send Side Only
		4	Detection On Receive Side Only
Data Tone Disabler Detection	70	0	G.164 With Hold-Band
		1	G.165 With Hold-Band
		2	G.164 with Switched-56K
		3	G.165 with Switched-56K
		4	G.164 with Hold-Band/CLEARCALL End-Of-Call
		5	G.165 with Hold-Band/CLEARCALL End-Of-Call
Data Tone Disabler Release Mode Control	71	0	Hold-Band
		1	End-Of-Call
continued . . .			

Table 2-3 System Configuration Mode Front Panel Options

Selection	Top Display (Mode)	Lower Display (Option)	Description
ALC Double Talk Detection*	76	0	Disable Both Send and Receive Sides
		1	Enable Receive Side Only
		2	Enable Send Side Only
		3	Enable Both Send and Receive Sides
ALC Step Size*	77	3	3dB Increments
		3-6	6dB Increments
Receive Side ALC Target Audio Level (TAL)*	78	-15	-15dBm
		-18	-18dBm
		-21	-21dBm
		-24	-24dBm
		---	Off
Send Side ALC TAL*	79	-15	-15dBm
		-18	-18dBm
		-21	-21dBm
		-24	-24dBm
		---	Off
Dynamic Noise Substitution*†	85	0	Disable
		1	Enable Receive Side Only
		2	Enable Send Side Only
		3	Enable Both Send and Receive Sides
Set System Defaults	88	0	At least one System Default Parameter is not set to its default setting
		1	All System Default Parameter settings are currently active
Front Panel Lockout	89	0	Off (Optioning Allowed)
		1	On (View Only Mode Active)
*Indicates that the mode and/or one or more of the options appear only when the associated hardware to support the setting is installed.			
†The DNS feature is not supported when the 25VX5 Subassembly is installed.			

Table 2-3 System Configuration Mode Front Panel Options

3. Menu Screens

Menu screens are available from either SCP by connecting a terminal with the proper baud rate to the shelf RS-232 port (see baud rate in Table 2-3) and issuing the two-character command @X<cr>, where X represents the 257X Module's shelf position (see SCP Module Address in Table 2-3 for front panel display of address), and <cr> indicates a carriage return. For example, the first 257X Module in the shelf is 1, so the command @1<cr> would return the Main Menu for the first 257X Module.

The Address Mode (Mode 31) has two settings: Shelf Auto (the factory default) and Shelf 255D. The Shelf Auto setting should only be used when 257 Modules are not being mixed with 255 Modules within a shelf.

If 255 and 257 Modules are mixed within a shelf, the Shelf 255D setting should be used. This setting forces the 257 Module to interpret its system unit number as if it were in a 255D Shelf. If the Shelf 255D setting is not active when mixing 255 and 257 Modules within a shelf, the serial port addressing will not operate properly.

All 257 Modules can have this setting controlled via the serial port user interface as well as via the front panel. To set all 257 Modules (which are connected to the same serial link) to the Shelf Auto setting, the following sequence should be sent: "@257<cr>". Consequently, to set all 257 Modules (which are connected to the same serial link) to the Shelf 255D setting, the sequence "@255<cr>" should be sent.

Note: This mode is not reset when the factory default option is selected.

The autobaud feature (<break> <cr>) can be used to quickly synchronize the 257X Module baud rate with the controlling terminal's baud rate.

Table 3-1 provides a list of the menus in numeric order with figure number references.

- The **menu number** represents the actual keystrokes needed to bring you to that menu.
- The **figures** display the contents of each menu. Some menus are only available if the optional hardware exists.

Menu Description	Menu Number	Figure
Main	0 (no keystrokes needed)	3-1
Module Status	1	3-2
Module Identification	1-2	3-3
Serial Port Statistics	1-3	3-4
Module Configuration	2	3-5
Service State	2-1	3-6
Network Interface	2-2	3-7
Framing Format	2-2-1	3-8
Module Line Coding	2-2-2	3-9
Line Side Equalization	2-2-3	3-10
Drop Side Equalization	2-2-4	3-11
Minimum Echo Return Loss	2-4	3-12
Maximum Endpath Delay	2-5	3-13
Data Tone Disabler	2-6	3-14
Data Tone Disabler Release Mode	2-6-3	3-15
Data Tone Disabler Release Mode Help	2-6-3-H	3-16
Signaling Tone Disabler	2-7	3-17
Idle Channel Detection	2-8	3-18
CAS Active Channel Logic	2-8-2	3-19
Idle Channel Code	2-8-5	3-20
Idle Channel Code Help	2-8-5-H	3-21
Idle Detect Path-Logic	2-8-5-5	3-22
Serial Port Parameters	2-10	3-23
Control Link Baud Rate	2-10-1	3-24
Maintenance Link Baud Rate#	2-10-2	3-25
continued . . .		

Table 3-1 Menu Summary

Menu Description	Menu Number	Figure
CLEARCALL Enhancements*	2-12	3-26
ACE Options*	2-12-4	3-27
ACE Minimum WAEPL*	2-12-4-3	3-28
ACE Deployment Environment*	2-12-4-4	3-29
Dynamic Noise Substitution*	2-12-2	3-30
Automatic Level Control*	2-12-3	3-31
Send Side ALC Target Audio Level*	2-12-3-1	3-32
Receive Side ALC Target Audio Level*	2-12-3-2	3-33
ALC Double Talk Detection*	2-12-3-4	3-34
Noise Reduction*	2-12-5	3-35
FLEXWARE Performance Options	2-13	3-36
Channel Status/Configuration	3	3-37
Channel Configuration Legend	3-L	3-38
Configure One Channel	3-1	3-39
Channel Control Mode	3-1-1	3-40
Configure All Channels	3-2	3-41
Performance Statistics	4	3-42
#Serial Communications Port (SCP) not available in the 253 Shelf.		
*Configuration items are dependent upon the presence of the optional subassembly.		

Table 3-1 Menu Summary

TELLABS OPERATIONS, INC. 257 T1 ECHO CANCELLER MENUS

FLEXWARE and Dynamic Signal Transfer are
U.S. Trademarks of Tellabs Operations, Inc.

Use CONTROL-H or DEL to make entry corrections.
Use CONTROL-E to exit menu access from any point.
Use CONTROL-C to return to this menu from any point.

When entering letters, use UPPERCASE only.

FUNCTION:

- 1) Module Status
- 2) Module Configuration
- 3) Channel Status/Configuration
- 4) Performance Monitoring
- E) Exit Menus

[CANCELLER 001] Enter Option >1

Figure 3-1 Main Menu — Menu 0

```

MODULE STATUS:

Module Status.....IN SERVICE
Module Alarm State.....NONE
Accumulated Power On Hours..... 11079.25
Channel Test History.....NO FAILURES

PCM ALARMS (Current/History)
  Send.....LOS / NONE
  Receive.....LOS / NONE

Alarm Cutoff.....INACTIVE

1) Display Current Status
2) Display Module Identification
3) Display Serial Port Statistics
4) Activate Alarm Cutoff
5) Clear Channel Test History
E) End

[CANCELLER 001] Enter Option >2

```

Figure 3-2 Module Status — Menu 1

```

MODULE IDENTIFICATION:

Product Revision Levels:
Systems Software.....A July 7, 1999
Boot Software.....A
81.2571 Mother Board PCB Rev.....B
Optional Subassembly.....82.25VX5 Rev C
Endpath Extension Option.....Not Installed
ESF Data Link Processor.....Not Installed

Build Information:
Product Revision (Original/Current)..A/A
Serial Number.....IL12345678
Date Module Tested.....DD/MM/YY
Manufacturing Test Station.....9999
Manufacturing Test Revision Level ...TBD

1) Display Current Status
2) Display Module Identification
E) End

[CANCELLER 001] Enter Option >

```

Figure 3-3 Module Identification — Menu 1-2

```

SERIAL PORT STATISTICS:

                                Control      Maintenance
Parity Errors                    0          0
Framing Errors                   0          0
Noise Error Counter              0          0
Break Counter                    0          0

Buffer Size                      1024        80
Present Buffer Utilization        0          0
Number of Buffer Overflows       0          0

Characters Received              0          585
Characters Transmitted           0         243830

1) Display Serial Port Statistics
E) End

[CANCELLER 001] Enter Option>

```

Figure 3-4 Serial Port Statistics — Menu 1-3

```

MODULE CONFIGURATION:

1) Service State.....IN SERVICE
2) Network Interface.....SF B7 L0-133 D0-133 Corr BYPonF
3) Non-linear Processor Mode.....Always On
4) Minimum Echo Return Loss.....6 dB
5) Maximum Endpath Delay.....32 MS
6) Data Tone Disabler (TD1).....ITU-T G.165 End of Call Mode
7) Signalling Tone Disabler (TD2).....C6/C7
8) Idle Channel Detection.....Robbed Bit Signalling, OR
9) Front Panel Optioning.....Enabled
10) Serial Port Parameters.....CTL-9600 MAINT-9600
11) ESF Maintenance Link Communication....Link Is Transparent
12) CLEARCALL Enhancements.....DST On,DNS N/A,ALC Off,ACE Off,NR On
13) FLEXWARE(tm) Performance Options.....Universal
R) System RESET
D) Default ALL Parameters (ex baudrates)..Off
E) End

[CANCELLER 001] Enter Option >1

```

Figure 3-5 Module Configuration — Menu 2

```

MODULE SERVICE STATE: Current State->IN SERVICE

1) In Service
2) Loopback
3) All Clear Channel
4) Activate Bypass Relays
5) Drop Side Payload Loopback
6) Line Side Payload Loopback
7) Toggle Send Side Echo Cancellation
E) End

[CANCELLER 001] Enter Option >

```

Figure 3-6 Service State — Menu 2-1

```

NETWORK INTERFACE:

1) Framing Format. . . . .SF
2) Line Coding . . . . .B7
3) Line Side Equalization. . . . .0-133 Feet
4) Drop Side Equalization. . . . .0-133 Feet
5) Send Path F-Bit Error Handling. . . . .Errors Passed Through
6) Fault Operation . . . . .Bypass On Fault
E) End

[CANCELLER 001] Enter Option >1

```

Figure 3-7 Network Interface — Menu 2-2

```

MODULE FRAMING FORMAT: Current State->SF

1) Standard Framing Format (SF)
2) Extended Superframe Format (ESF)
3) MBLT
E) End

[CANCELLER 001] Enter Option >

```

Figure 3-8 Framing Format — Menu 2-2-1

```

MODULE LINE CODING: Current State->B7

1) AMI With Bit 7 Stuffing (B7)
2) AMI With Bipolar 8 Zero Substitution (B8ZS)
3) AMI With No Zero Control (Transparent)
E) End

[CANCELLER 001] Enter Option >

```

Figure 3-9 Module Line Coding — Menu 2-2-2

```

LINE SIDE EQUALIZATION: Current State->0-133 Feet

1) 0 to 133 Feet
2) 133 to 256
3) 256 to 399
4) 399 to 533
5) 533 to 655
E) End

[CANCELLER 001] Enter Option >

```

Figure 3-10 Line Side Equalization — Menu 2-2-3

```
DROP SIDE EQUALIZATION: Current State->0-133 Feet

1) 0 to 133 Feet
2) 133 to 256
3) 256 to 399
4) 399 to 533
5) 533 to 655
E) End

[CANCELLER 001] Enter Option >
```

Figure 3-11 Drop Side Equalization — Menu 2-2-4

```
MINIMUM ECHO RETURN LOSS: Current State->6 dB

1) 0 dB
2) 3 dB
3) 6 dB
E) End

[CANCELLER 001] Enter Option >
```

Figure 3-12 Minimum Echo Return Loss — Menu 2-4

```
MAXIMUM ENDPATH DELAY: Current State->32 MS

1) 32 MS
2) 64 MS
3) 96 MS
4) 128 MS
E) End

[CANCELLER 001] Enter Option >
```

Figure 3-13 Maximum Endpath Delay — Menu 2-5

```
DATA TONE DISABLER (TD1): Current State->ITU-T G.165 End of Call Mode

1) 2100 Hz (ITU-T G.164)
2) 2100 Hz With Phase Reversal (ITU-T G.165)
3) Release Mode. . . . . End of Call Mode
E) End

[CANCELLER 001] Enter Option >
```

Figure 3-14 Data Tone Disabler — Menu 2-6


```

DATA TONE DISABLER RELEASE MODE: Current State->End of Call Mode

1) Hold Band/Normal Operation (HB)
2) Switched 56KB Data (SW56K)
3) End Of Call Mode (EOC)
4) Hold Band/CLEARCALL End Of Call Mode (HB/CEOC)
H) Help
E) End

[CANCELLER 001] Enter Option >H

```

Figure 3-15 Data Tone Disabler Release Mode — Menu 2-6-3

```

Data Tone Disabler Release Modes
  HB   Hold Band mode holds a data disabled channel in that state only as
        long as hold band energy requirements are met.
  SW56K Switched 56KB operates in the same manner as Hold Band, with the
        added feature of holding the channel disabled as long as bit 8
        remains high, regardless of hold band energy.
  EOC  End Of Call mode holds a data disabled channel in that state until
        idle detection via either Idle Pattern or CAS as selected in the
        System Menu.
  HB/CEOC Hybrid Echo Canceller: Hold Band with CLEARCALL End Of Call Mode
        holds a data disabled channel in that state only as long as hold band
        energy requirements are met.
  HB/CEOC CLEARCALL Features: Hold Band with CLEARCALL End Of Call Mode
        holds a data disabled channel in that state until idle detection via
        either Idle Pattern or CAS as selected in the System Menu.

[CANCELLER 001] Hit Enter to continue:

```

Figure 3-16 Data Tone Disabler Release Mode Help — Menu 2-6-3-H

```

SIGNALLING TONE DISABLER (TD2): Current State->C6/C7

1) Disable
2) ITU-T SS No. 5 (C5)
3) ITU-T SS No. 6/7 (C6/C7,2000 Hz.)
4) SF 2600 Hz.
E) End

[CANCELLER 001] Enter Option >

```

Figure 3-17 Signalling Tone Disabler — Menu 2-7

```

IDLE CHANNEL DETECTION: Current State->Robbed Bit Signalling, OR

1) Robbed Bit Signalling (CAS)
2) CAS Active-Channel Logic . . . . . OR
3) Idle Code Detection, CAS Transparent
4) Idle Code Detection, No CAS Transparency
5) Idle Code Detection Options . . . . . AND, 7F,FF
E) End

[CANCELLER 001] Enter Option >2

```

Figure 3-18 Idle Channel Detection — Menu 2-8

```
CAS ACTIVE CHANNEL LOGIC: Current State->OR
1) AND
2) OR
3) Send Only
4) Recv Only
E) End
[CANCELLER 001] Enter Option >
```

Figure 3-19 CAS Active Channel Logic — Menu 2-8-2

```
IDLE CHANNEL CODE: Current State->AND, 7F,FF
1) 7F
2) 7F,FF
3) F7
4) FF
5) Idle Detect Path-Logic . . . . . AND
H) Help
E) End
[CANCELLER 001] Enter Option >H
```

Figure 3-20 Idle Channel Code — Menu 2-8-5

```
Idle Channel Control Via Channel Idle Patterns

7F,FF Allows for either 7F or FF code in either path.

Path Logic,
AND   Requires idle pattern in both send and receive
      paths simultaneously to declare channel idle.

OR    Will declare channel idle when idle pattern is
      present in either or both paths.

SEND  Will declare channel idle when idle pattern is
ONLY  present in the send path. The recv. path is ignored.

RECV  Will declare channel idle when idle pattern is
ONLY  present in the recv. path. The send path is ignored.
```

Figure 3-21 Idle Channel Code Help — Menu 2-8-5-H

```
IDLE DETECT PATH-LOGIC: Current State->AND
1) AND
2) OR
3) Send Only
4) Recv Only
E) End
[CANCELLER 001] Enter Option >
```

Figure 3-22 Idle Detect Path-Logic — Menu 2-8-5-5

```

SERIAL PORT PARAMETERS:

1) Control Link Baud Rate. . . . .9600
2) Maintenance Link Baud Rate. . . . .9600
3) Auto-baud Determination . . . . .Disabled
E) End

[CANCELLER 001] Enter Option >1
    
```

Figure 3-23 Serial Port Parameters — Menu 2-10

```

CONTROL LINK BAUD RATE SELECTION: Current State->9600
1) 1200
2) 2400
3) 4800
4) 9600
5) 19200
6) 38400
E) End

[CANCELLER 001] Enter Option >
    
```

Figure 3-24 Control Link Baud Rate — Menu 2-10-1

```

MAINTENANCE LINK BAUD RATE SELECTION: Current State->9600
1) 1200
2) 2400
3) 4800
4) 9600
5) 19200
6) 38400
E) End

[CANCELLER 001] Enter Option >
    
```

Figure 3-25 Maintenance Link Baud Rate — Menu 2-10-2

```

CLEARCALL ENHANCEMENTS: Current State->DST On,DNS N/A,ALC Off,ACE Off,NR On

1) Dynamic Signal Transfer . . . . .On
*2) Dynamic Noise Substitution. . . . .Not Available
3) Automatic Level Control . . . . .RCV:Off SND:Off, 3dB, Off
4) Acoustic Coupling Elimination . . . . .Off, 25dB, TDMA, On
5) Noise Reduction . . . . .On, Low
E) End

*THIS FEATURE NOT CURRENTLY SELECTABLE (SEE TECHNICAL MANUAL)

[CANCELLER 001] Enter Option >4
    
```

Figure 3-26 CLEARCALL Enhancements — Menu 2-12

```
ACE: Current State->Off, 25dB, TDMA, On

1) Enable Ace
2) Disable Ace
3) Ace Minimum WAEPL . . . . . 25dB
4) Ace Deployment Environment . . . . . TDMA Network
5) Ace Noise Injection . . . . . On
D) Set To Factory Defaults (Ace Off, Waep1=35dB, Deployment=GSM, Noise=On)
E) End

[CANCELLER 001] Enter Option >3
```

Figure 3-27 ACE Options — Menu 2-12-4

```
ACE MINIMUM WAEPL: Current State->Off, 25dB, TDMA, On

1) 25dB Minimum WAEPL
2) 35dB Minimum WAEPL
3) 45dB Minimum WAEPL
E) End

[CANCELLER 001] Enter Option >
```

Figure 3-28 ACE Minimum WAEPL — Menu 2-12-4-3

```
ACE DEPLOYMENT ENVIRONMENT: Current State->Off, 25dB, TDMA, On

1) GSM Network
2) TDMA Network
3) CDMA Network
E) End

[CANCELLER 001] Enter Option >
```

Figure 3-29 ACE Deployment Environment — Menu 2-12-4-4

```
DYNAMIC NOISE SUBSTITUTION:

1) Send-Side . . . . . On
*2) Receive-Side . . . . . Off
D) Set To Factory Defaults
E) End

* THIS FEATURE NOT CURRENTLY SELECTABLE (SEE TECHNICAL MANUAL)

[CANCELLER 001] Enter Option >
```

Figure 3-30 Dynamic Noise Substitution — Menu 2-12-2

```

ALC: Current State->RCV:Off SND:Off, 3dB, Off

1) Send-side TAL . . . . .Off
2) Receive-side TAL . . . . .Off
3) Step Size . . . . .3dB steps
4) Double Talk Detection . . . . .Off
D) Set to factory defaults
E) End

[CANCELLER 001] Enter Option >1

```

Figure 3-31 Automatic Level Control — Menu 2-12-3

```

SEND-SIDE TAL: Current State->RCV:Off SND:-15dB, 6dB, Off

1) -15dB
2) -18dB
3) -21dB
4) -24dB
5) Off
E) End

[CANCELLER 001] Enter Option>

```

Figure 3-32 Send Side ALC Target Audio Level — Menu 2-12-3-1

```

RECEIVE-SIDE TAL: Current State->RCV:Off SND:-15dB, 6dB, Off

1) -15dB
2) -18dB
3) -21dB
4) -24dB
5) Off
E) End

[CANCELLER 001] Enter Option >

```

Figure 3-33 Receive Side ALC Target Audio Level — Menu 2-12-3-2

```

DBL TALK DETECTION : Current State->RCV:Off SND:Off, 3dB, Off

1) Enable Send and Recv Side Detection
2) Enable Recv Side Only Detection
3) Enable Send Side Only Detection
4) Disable Send and Recv Side Detection

E) End

[CANCELLER 001] Enter Option >

```

Figure 3-34 ALC Double Talk Detection — Menu 2-12-3-4

```

NOISE REDUCTION: Current State->On, Low

1) Disable Noise Reduction (default)
2) Enable Low Noise Reduction
3) Enable Normal Noise Reduction
4) Enable Maximum Noise Reduction
E) End

[CANCELLER 001] Enter Option >
    
```

Figure 3-35 Noise Reduction — Menu 2-12-5

```

FLEXWARE(tm) PERFORMANCE OPTIONS: Current State->Universal

1) Universal
2) Mobile
3) Gateway

E) End

[CANCELLER 001] Enter Option >
    
```

Figure 3-36 FLEXWARE Performance Options — Menu 2-13

STATE	TONE		C T N T C					STATE	TONE		C T N T C										
C ACT(+)	DISABLE		F D L S C					C ACT(+)	DISABLE		F D L S C										
H BYP(-)	TD1	TD2	CFG	CCS	CAS	G	1	P	T	E	H BYP(-)	TD1	TD2	CFG	CCS	CAS	G	1	P	T	E
1	-					+	0	1	1	. 1	13	-					-	0	1	1	. 1
2	-					-	0	1	1	. 1	14	-					-	0	1	1	. 1
3	-					-	0	1	1	. 0	15	-					-	0	1	1	. 1
4	-					-	0	1	1	. 1	16	-					-	0	1	1	. 1
5	-					-	0	1	1	. 1	17	-					-	0	1	1	. 1
6	-					-	0	1	1	. 1	18	-					-	0	1	1	. 1
7	-					-	0	1	1	. 1	19	-					-	0	1	1	. 1
8	-					-	0	1	1	. 1	20	-					-	0	1	1	. 1
9	-					-	0	1	1	. 1	21	-					-	0	1	1	. 1
10	-					-	0	1	1	. 1	22	-					-	0	1	1	. 0
11	-					-	0	1	1	. 1	23	-					-	0	1	1	. 1
12	-					-	0	1	1	. 1	24	-					-	0	1	1	. 1

Channel Status/Configuration:

```

1) Configure One Channel
2) Configure All Channels           H-Hold (all channels): Off
3) Toggle Menu                     L) Screen Legend
E) End

[CANCELLER 001] Enter Option >L
    
```

Figure 3-37 Channel Status/Configuration — Menu 3


```

CHANNEL CONTROL MODE: Channel 1

1) E&M
2) Forced Bypass
3) Forced Active
4) FXO/GS
5) FXO/LS
6) FXS/GS
7) FXS/LS
E) End

[CANCELLER 001] Enter Option >

```

Figure 3-40 Channel Control Mode — Menu 3-1-1

```

CONFIGURE ALL CHANNELS: Current State->Mode:Mix TD1:On NLP:On H-Hold:Off
                        H-Reset:On Log:17 CCE:Mix

1) Channel Mode
2) Data Tone Disabler On
3) Data Tone Disabler Off
4) Non-linear Processor On
5) Non-linear Processor Off
6) H Register Hold On
7) H Register Hold Off
8) H Register Reset On
9) H Register Reset Off
10) Reset Channel Test Log
11) CLEARCALL Enhancements On
12) CLEARCALL Enhancements Off
E) End

[CANCELLER 001] Enter Option >

```

Figure 3-41 Configure All Channels — Menu 3-2

```

PCM PERFORMANCE STATISTICS:

```

	SEND		RECEIVE	
	TOTAL	PREV. 24 HR	TOTAL	PREV. 24 HR
Errored Seconds	5	5	0	0
Bursty Errored Seconds	3	3	0	0
Severely Errored Seconds	3	3	0	0
Unavailable Seconds	0	0	29	29
Loss of Frame Events	1	1	1	1
Slip Events (Seconds)			0	0
Error Events	9		513	
Loss of Signal Events	1		1	
Loss of Frame Sync. Events	0		0	
Framing Bit Error Events	0		0	
Bipolar Coding Violations	9		513	
Current Status	CLEAR		CLEAR	
Time Since Reset (DDDD+HH:MM:SS)	00000+18:41:14		00000+18:41:14	
1) Send Side Interval Data				
2) Receive Side Interval Data				
3) Clear				
E) End				

```

[CANCELLER 001] Enter Option >

```

Figure 3-42 Performance Statistics — Menu 4

4. ASCII Character Command Set

The 257X Module has three states of operation:

- Normal Mode
- Responsive Failure Mode
- Critical Failure Mode

This section defines the ASCII command set that is available with the Normal Mode. The module responds to a limited subset of the command set in Responsive Failure Mode and does not respond to any command when in Critical Failure Mode. If the module transitions to either failure mode, record the failure code from the front panel display and contact Tellabs; for phone numbers, refer to Section 6.

Dual Serial Communications Port Description

The 257X Module has been designed with two (EIA [Electronics Industries Association] RS-232-D) compatible, full duplex asynchronous serial ports, the Control Port and the Maintenance Port. Both ports have the same command set, but perform different tasks.

The Control Port is a high-speed signaling interface that allows direct per-call control of the 257X Module by a switch. The firmware task associated with this port has a high priority so that requests on this port can be handled immediately. The port has been designed to process up to 60 ASCII commands per second. This data rate is only valid if the switch waits for the module to respond before issuing another command. Proper operation of the module is not guaranteed if this command/response protocol is not strictly adhered to.

Additionally, the stated commands-per-second rate refers to the aggregate number of commands transmitted by the switch per second, not the number of commands each 257X Module on the same port can handle. Therefore, in applications that require high-speed communications to individual modules, serial ports should be designed to minimize the number of modules per port. The Control Port is also the designated backwards-compatible port for applications where the module is used in 253-Series Shelves.


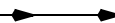

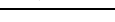
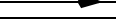
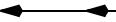



The second serial port is called the Maintenance Port. This port has been designed for use in a network management system that sets up the units, then polls them periodically for network status. This port will allow up to 128 cancellers to be uniquely addressed. This is the port that should be used to configure and examine the canceller whether it's from a network management system using the 257X Module's ASCII character commands, or via a dumb terminal using the built-in menus. Thus, this one terminal can talk to any module in either the menu mode or ASCII command mode. (For menu modes, see Section 2.) As such, be sure to exit all menus before continuing to the next 257X Module command sequence.

Serial Communications Port Specifics

Protocol:



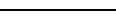

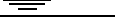
- Full duplex asynchronous
- Seven data bits
- One start bit
- One stop bit
- Even parity
- Remote echoplex operation
- Flow control off
- 1200, 2400, 4800, 9600, 19200, 38400 baud rate (rate can be optioned uniquely for each port, with 9600 as the default)
- 80 columns by 24 rows
- DTR (Data Terminal Ready) handshake (Control Port only)

Signals:

DTE Side		Cable Wiring	257 Side (DCE)	
Signal	Pin No.		Pin No.	Signal
FRAME GND	1		1	FRAME GND
TXD	2		2	TXD
RXD	3		3	RXD
RTS	4		4	RTS
CTS	5		5	CTS
DSR	6		6	DSR
GND	7		7	GND
DCD	8		8	DCD
DTR*	20		20	DTR*

Note: *This signal is only available on the Control Port. It is a no-connect on the Maintenance Port.

Table 4-1 Diagram for First (or Only) Cable in Daisy Chain

DTE Side		Cable Wiring	257 Side (DCE)	
Signal	Pin No.		Pin No.	Signal
FRAME GND	1		1	FRAME GND
TXD	2		2	TXD
RXD	3		3	RXD
GND	7		7	GND
DTR*	20		20	DTR*

Note: *This signal is only available on the Control Port. It is a no-connect on the Maintenance Port.

Table 4-2 Diagram for All Other Cables in Daisy Chain

Commands

Table 4-3 provides a summary of all the 257X Module serial port commands.

257X Module Command	Char	Hex
Set Configuration Parameter Defaults	!	21
Front Panel Lockout Enable	"	22
Front Panel Lockout Disable/Select Baud Rate*	#	23
Per-Channel Self-Test Failure History	\$	24
PCM Alarm History	%	25
Set Global Selection*	&	26
Data Tone Disabler/Signaling Disabler On	(	28
Data Tone Disabler/Signaling Disabler Off	)	29
Abbreviated Alarm Status*	*	2A
Data Tone Disabler Status	+	2B
Receive Side Detailed Performance Monitoring	,	2C
*Command available in Responsive Failure Mode.		
continued . . .		

Table 4-3 Summary of All 257X Module Serial Port Commands

257X Module Command	Char	Hex
Send Side Detailed Performance Monitoring	-	2D
Performance Monitoring Status	.	2E
E&M Signaling Control Select	/	2F
Receive Side Detailed Performance Monitoring Data (32 Bit)	3	33
Send Side Detailed Performance Monitoring Data (32 Bit)	4	34
Performance Monitoring Status Data (32 Bit)	5	35
Extended Command Set	6	36
— CLEARCALL Per Channel Control	CCE	—
— Automatic Level Control	ALC	—
— Dynamic Noise Substitution	DNS	—
— FLEXWARE Control	FLX	—
— Acoustic Coupling Elimination	ACE	—
— Noise Reduction	NRE	—
— Send Side Echo Cancellation	SEC	—
FXS-LS Signaling	:	3A
FXO-LS Signaling	;	3B
Channel Signaling Status	<	3C
Module Information*	=	3D
FXS-GS Signaling	>	3E
FXO-GS Signaling	?	3F
Dynamic Signal Transfer	@	40
Framing Format	A	41
Clear Channel	B	42
NLP Off	C	43
NLP Enable	D	44
Clear Channel Status	E	45
Test Configurations	F	46
In-Service	G	47
H-Hold On	H	48
H-Hold Off	I	49
Busy/Idle Status	J	4A
Forced Active Status	K	4B
Endpath Delay/ERL	L	4C
Alarm Status	M	4D
Forced Active	N	4E
Alarm Cutoff	O	4F
Rerun Power-Up Diagnostic*	P	50
H-Reset Off	Q	51
H-Reset On	R	52
Single Channel Status	S	53
*Command available in Responsive Failure Mode.		
continued . . .		

Table 4-3 Summary of All 257X Module Serial Port Commands

257X Module Command	Char	Hex
Per-Channel Self-Test Result Status	T	54
CCS Busy	U	55
Disable CCS	V	56
CCS Idle	W	57
Line Coding/F-Bit Error/CO Equalizer/Fault Operation	X	58
CCS Busy/Idle Status	Y	59
Module Configuration Status	Z	5A
CAS/Idle Code Control	[	5B
NLP Operation During Doubletalk	\	5C
Data Tone Disabler Release Mode Control	]	5D
Global S.U.N.	^	5E
Disabling Tone Detected Status	_	5F

Table 4-3 Summary of All 257X Module Serial Port Commands

Command Definition

Each command definition is in the format shown in Table 4-4. The first field is the ASCII value for the command. The second field is its hex representation. The third field gives the command syntax with any variable field explained in the command description. The fourth field indicates whether the command is executed from the RS-232 only or from either the RS-232 or front panel. The fifth field is the command description.

The syntax for each command is given by a sequence of either four or more characters, such as axyz. The first character is the System Unit Number (SUN). The character a, used in most of the examples, represents a SUN of 1. The SUNs for the first 32 units have a V.3 (or ASCII) equivalent, as shown in Table 4-5. Units with a SUN above 32 must be addressed with the global addressing scheme defined in the Command Descriptions subsection of this document. The second and third characters represent either a channel number (01 to 32 with 00 being all channels) or a special parameter for the command. For example, SS is used as the second and third characters for most system configuration commands as a status request for the parameters. The fourth character specifies the command to be executed. To help with programming, an ASCII to hex conversion chart is given in Table 4-6.

ASCII	Hex	Syntax	Executed From
Description			

Table 4-4 Command Definition Format

V.3 or ASCII SUN	ASCII Hex	Decimal SUN	V.3 or ASCII SUN	ASCII Hex	Decimal SUN
a	61	1	q	71	17
b	62	2	r	72	18
c	63	3	s	73	19
d	64	4	t	74	20
e	65	5	u	75	21
f	66	6	v	76	22
g	67	7	w	77	23
h	68	8	x	78	24
i	69	9	y	79	25
j	6A	10	z	7A	26
k	6B	11	{	7B	27
l	6C	12	|	7C	28
m	6D	13	}	7D	29
n	6E	14	~	7E	30
o	6F	15		7F	31
p	70	16	'	60	32

Table 4-5 System Unit Number Conversion Chart

Left Digit	Right Digit															
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2	<sp>	!	"	#	\$	%	&	'	()	*	+	,	-	.	/	
3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5	P	Q	R	S	T	U	V	W	X	Y	Z	[/]	^	_
6	'	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	<del>

Table 4-6 ASCII/Hex Table

Special Command Responses are as follows:

Output:		
ACK (Hex 06)	Command Acknowledge	The command has been received error free.
NAK (Hex 15)	Command Not Acknowledged	The command was received with errors or with illegal options in the channel/option field.
<break>	Buffer Full	A break character returned from any unit indicates that its input buffer is full or close to full. A break character is an ASCII character that is transmitted as a start bit, with no data bits, no parity bit, and no stop bit.

Table 4-7 Special Command Responses

The all-channel status reply returned for certain channel status query commands produces the following response:

a00XXXXXX, where a is the SCP address of the 257X Module being targeted; 00 are two ASCII characters designating all channels; and XXXXXX is a string of six hexadecimal characters which, when translated into binary, produce 24 bits, each of which designates a yes or no status for one of the 24 channels. Table 4-8 shows how this six-character string translates into channel numbers and their status.

Hex Character	1st	2nd	3rd	4th	5th	6th
Bit Position	4 3 2 1	4 3 2 1	4 3 2 1	4 3 2 1	4 3 2 1	4 3 2 1
Channel Represented	4 3 2 1	8 7 6 5	12 11 10 9	16 15 14 13	20 19 18 17	24 23 22 21
Logic 1 — affirmative, Logic 0 — negative						

Table 4-8 All-Channel-Status Reply Bit Map

Command Descriptions

Set Configuration Parameter Defaults

!	21	axx!	RS-232 & Front Panel
<p>Select default values for configuration parameters xx=MR Resets all parameters to default values Response: ACK/NAK</p> <p>xx=MS Shows if unit is in the default mode for all parameters configuration Response: aMS0 All parameters NOT set to default values aMS1 All parameters set to default values</p> <p>xx=05 Resets all 257 Rev F parameters (all parameters except serial port baud rates) to default values Response: ACK/NAK</p> <p>xx=S5 Shows if unit is in default mode for 257 Rev F defaults Response: aS50 All 257 Rev F parameters are NOT set to default values aS51 All 257 Rev F parameters are set to default values</p> <p>xx=04 Resets all 257 Rev D and E parameters (all parameters except serial port baud rates) to default values Response:ACK/NAK</p> <p>xx=S4 Shows if unit is in default mode for 257 Rev D and E defaults Response:aS40 All 257 Rev D and E parameters are NOT set to default values aS41 All 257 Rev D and E parameters are set to default values</p> <p>xx=03 Resets all 257 Rev A through C parameters (all parameters except CLEARCALL ACE and serial port baud rates) to default values Response: ACK/NAK</p> <p>xx=S3 Shows if unit is in default mode for 257 Rev A through C defaults Response: aS30 All 257 Rev A through C parameters are NOT set to default values aS31 All 257 Rev A through C parameters are set to default values</p> <p>xx=02 Resets all 255 Rev J through K parameters (all parameters except CLEARCALL ACE, FLEXWARE, and serial port baud rates) to default values Response: ACK/NAK</p> <p>xx=S2 Shows if unit is in default mode for 255 Rev J through K defaults Response: aS20 All 255 Rev J through K parameters are NOT set to default values aS21 All 255 Rev J through K parameters are set to default values</p> <p>xx=01 Resets all 255 Rev H parameters (all parameters except CLEARCALL, FLEXWARE, and serial port baud rates) to default values Response: ACK/NAK</p> <p>xx=S1 Shows if unit is in default mode for 255 Rev H defaults Response: aS10 All 255 Rev H parameters are NOT set to default values aS11 All 255 Rev H parameters are set to default values</p> <p>xx=00 Resets all 255 pre-Rev H parameters (all parameters except Active Channel Logic, CLEARCALL, FLEXWARE, and serial port baud rates) to default values Response: ACK/NAK</p> <p>xx=SS Shows if unit is in default mode for 255 pre-Rev H defaults Response: aSS0 All 255 pre-Rev H parameters are NOT set to default values aSS1 All 255 pre-Rev H parameters are set to default values</p>			

Front Panel Lockout Enable

"	22	a00"	RS-232 & Front Panel
Disables front panel control Response: ACK/NAK			

Front Panel Lockout Disable/Select Baud Rate

#	23	apx#	RS-232 & Front Panel
<p>px = 00 Enables front panel control (default) Response: ACK/NAK</p> <p>Select baud rate for a particular RS-232 port. The "#" or "<" prefix indicates which port to change the baud rate on. Status for the baud rate is provided via the LC option of the Z command. The a<x# command will NAK if the Maintenance port is not available.</p> <p>p=# Changes baud rate on the Control port < Changes baud rate on the Maintenance port</p> <p>x=3 1200 4 2400 5 4800 6 9600 (default) 7 19200 8 38400</p> <p>Response: ACK/NAK</p> <p>px=AN Disables the autobaud feature for both serial ports Response: ACK/NAK</p> <p>px=AY Enables the autobaud feature for both serial ports (default) Response: ACK/NAK</p> <p><break> <cr> Autobaud</p> <p>A break character followed by a carriage return allows all modules on the port to automatically synchronize to the baud rate of the controlling terminal. This makes autobaud a convenient way to return all cancellers on a port back to a nondefault baud rate after the Set Configuration Parameter Defaults command (!) is executed. Autobaud MUST be disabled if different baud rates are used on the same port. There is a six-second timeout that the <cr> must be received within after the <break> character.</p>			

Set Global Selection

&	26	axx&	RS-232 & Front Panel
<p>Select a specific canceller to become part of the active group of units that respond to global commands for the Maintenance or Control port. This command enhances the capability to allow more than 32 units on the RS-232 port and to configure multiple units concurrently. (This command sets the global selection only for the port on which the command is received.)</p> <p>xx=00-7F hex Selects a single unit to communicate with. The unit number is actually xx+1 – i.e., xx=00 is the first unit. A command within this range disables any previous groups and selects the specified unit only.</p> <p>Response: ACK</p> <p>xx=80-FF hex Adds a specific unit to the current group. The unit numbers in this range are the same as above (xx+1), but the most significant bit is set to indicate that it is to be added to the group rather than selected as the only unit to communicate with.</p> <p>Response: ACK</p> <p>xx=SA Selects all; puts all units on the port into a group.</p> <p>Response: No response</p> <p>xx=SN Selects none; resets the group selection for all units.</p> <p>Response: No response</p> <p>Example: ^05)^00! Set unit 6 to default parameters</p> <p>Each four-character group “)” command generates an ACK/NAK response to indicate that it was received properly. Once the group has been set up, commands given for the group do not have a response. For instance, the ^00” in the last example above does not have a response because it is actually controlling eight units. Only commands that normally have the ACK/NAK response can be used with the group command.</p>			

Data Tone Disabler/Signaling Disabler On

(	28	axx(	RS-232 & Front Panel
<p>Enable data tone disabler, select type of data tone disabler operation, and select type of signaling disabler operation.</p> <p>xx=00 Enables data tone disabler for all channels</p> <p>xx=01-24 Enables data tone disabler for the specified channel</p> <p>Response: ACK/NAK</p> <p>xx=D1 Sets the data tone disabler detection to G.164</p> <p>xx=D2 Sets the data tone disabler detection to G.165 (default)</p> <p>xx=D3 Sets the data tone disabler detection to G.164 with switched 56K</p> <p>xx=D4 Sets the data tone disabler detection to G.165 with switched 56K</p> <p>xx=D5 Sets the data tone disabler detection to G.164 with Hold-Band/CLEARCALL End-of-Call</p> <p>xx=D6 Sets the data tone disabler detection to G.165 with Hold-Band/CLEARCALL End-of-Call</p> <p>Response: ACK/NAK</p> <p>xx=DS Returns the data tone disabler status</p> <p>Response: G.164 or G.165.xxxxxxx (13 characters total) decoded as follows: xxxxxxx=“NORMAL ” or “SW56K ” or “HB/CEOC”</p> <p>xx=S1 Sets the signaling disabler to ITU-T No. 5</p> <p>xx=S2 Sets the signaling disabler to ITU-T No. 6 or No. 7 (default)</p> <p>xx=S3 Sets the signaling disabler to 2600Hz (SF)</p> <p>Response: ACK/NAK</p>			

Data Tone Disabler/Signaling Tone Disabler Off

)	29	axx)	RS-232 & Front Panel
<p>Configure the specified channel such that the data tone disabler does not cause cancellation to be disabled, or disable the signaling tone disabler.</p> <p>xx=00 Disables data tone disabler for all channels</p> <p>xx=01-24 Disables data tone disabler for the specified channel</p> <p>Response: ACK/NAK</p> <p>xx=SD Disables the signaling tone disabler (for all channels)</p> <p>Response: ACK/NAK</p>			

Abbreviated Alarm Status

*	2A	a*	RS-232 only
<p>Request the status of current and remembered major or minor alarms. (Remembered alarms are those which have occurred since the last time the alarm status was read.)</p> <p>Response: aX</p> <p>X is bit encoded</p> <ul style="list-style-type: none"> Bit 4 is set for Remembered Minor alarm Bit 3 is set for Remembered Major alarm Bit 2 is set for current Minor alarm Bit 1 is set for current Major alarm <p>Note: The command axx*, where xx is any characters except 00, or CL also responds with the status of the current and remembered major or minor alarms.</p> <p>Note: The command a00* or aCL* also respond with the status of the current and remembered major or minor alarms, and clear the remembered alarm information.</p>			

Data Tone Disabler Status

+	2B	axx+	RS-232 & Front Panel
<p>Request the enable/disable configuration status of the data tone disablers.</p> <p>xx=00 Requests the data tone disabler status for all channels</p> <p>Response: a00xxxxx, where the channel x's are either all ones or all zeros, depending upon the current data tone disabler configuration. All logic ones indicate that data tone disabler has been enabled.</p> <p>Note: See Table 4-8 for mapping of response to channel numbers.</p> <p>xx=01-24 Requests the data tone disabler status for the specified channel.</p> <p>Response: axxY, where the channel number is followed by either one or zero, depending upon the current tone disabler configuration. One indicates that the data tone disabler has been enabled.</p>			

Receive Side Detailed Performance Monitoring

,	2C	axx,	RS-232 & Front Panel
<p>Request detailed performance monitoring information for the Receive side.</p> <p>xx=00 Requests Receive side detailed performance monitoring data for the current interval</p> <p>Response: a0TTTT:AAAA:BBBB:CCCC:DDDD:EEEE:FFFF decoded as follows:</p> <p>TTTT=Seconds in the current interval (FFFF hex max.)</p> <p>AAAA=Errored seconds in the current interval (FFFF hex max.)</p> <p>BBBB=Severely errored seconds in the current interval (FFFF hex max.)</p> <p>CCCC=Unavailable seconds in the current interval (FFFF hex max.)</p> <p>DDDD=Bursty errored seconds in the current interval (FFFF hex max.)</p> <p>EEEE=Loss of frame events in the current interval (FFFF hex max.)</p> <p>FFFF=Slip events in the current interval (FFFF hex max.)</p> <p>xx=01-96 Requests Receive side detailed performance monitoring data for the specified interval</p> <p>Response: axxTTTT:AAAA:BBBB:CCCC:DDDD:EEEE:FFFF decoded as follows:</p> <p>TTTT=0000 if the interval xx is invalid or 0001 if the interval xx is valid</p> <p>AAAA=Errored seconds in the interval xx (FFFF hex max.)</p> <p>BBBB=Severely errored seconds in the interval xx (FFFF hex max.)</p> <p>CCCC=Unavailable seconds in the interval xx (FFFF hex max.)</p> <p>DDDD=Bursty errored seconds in the interval xx (FFFF hex max.)</p> <p>EEEE=Loss of frame events in the interval xx (FFFF hex max.)</p> <p>FFFF=Slip events in the interval xx (FFFF hex max.)</p> <p>xx=AD Requests Receive side detailed performance monitoring data for the previous 24-hour period</p> <p>Response: aADTTTT:AAAA:BBBB:CCCC:DDDD:EEEE:FFFF decoded as follows:</p> <p>TTTT=Number of valid intervals since last reset (FFFF hex max.)</p> <p>AAAA=Errored seconds in previous 24 hours (FFFF hex max.)</p> <p>BBBB=Severely errored seconds in previous 24 hours (FFFF hex max.)</p> <p>CCCC=Unavailable seconds in previous 24 hours (FFFF hex max.)</p> <p>DDDD=Bursty errored seconds in previous 24 hours (FFFF hex max.)</p> <p>EEEE=Loss of frame events in previous 24 hours (FFFF hex max.)</p> <p>FFFF=Slip events in previous 24 hours (FFFF hex max.)</p>			

Send Side Detailed Performance Monitoring

-	2D	axx-	RS-232 & Front Panel
<p>Request detailed performance monitoring information for the Send side. xx=00 Requests Send side detailed performance monitoring data for the current interval Response: a00TTTT:AAAA:BBBB:CCCC:DDDD:EEEE:FFFF decoded as follows: TTTT=Seconds in the current interval (FFFF hex max.) AAAA=Errored seconds in the current interval (FFFF hex max.) BBBB=Severely errored seconds in the current interval (FFFF hex max.) CCCC=Unavailable seconds in the current interval (FFFF hex max.) DDDD=Bursty errored seconds in the current interval (FFFF hex max.) EEEE=Loss of frame events in the current interval (FFFF hex max.) FFFF=Slip events in the current interval (FFFF hex max.)</p> <p>xx=01-96 Requests Send side detailed performance monitoring data for the specified interval Response: axxTTTT:AAAA:BBBB:CCCC:DDDD:EEEE:FFFF decoded as follows: TTTT=0000 if the interval xx is invalid or 0001 if the interval xx is valid AAAA=Errored seconds in the interval xx (FFFF hex max.) BBBB=Severely errored seconds in the interval xx (FFFF hex max.) CCCC=Unavailable seconds in the interval xx (FFFF hex max.) DDDD=Bursty errored seconds in the interval xx (FFFF hex max.) EEEE=Loss of frame events in the interval xx (FFFF hex max.) FFFF=Slip events in the interval xx (FFFF hex max.)</p> <p>xx=AD Requests Send side detailed performance monitoring data for the previous 24-hour period Response: aADTTTT:AAAA:BBBB:CCCC:DDDD:EEEE:FFFF decoded as follows: TTTT=Number of valid intervals since last reset (FFFF hex max.) AAAA=Errored seconds in previous 24 hours (FFFF hex max.) BBBB=Severely errored seconds in previous 24 hours (FFFF hex max.) CCCC=Unavailable seconds in previous 24 hours (FFFF hex max.) DDDD=Bursty errored seconds in previous 24 hours (FFFF hex max.) EEEE=Loss of frame events in previous 24 hours (FFFF hex max.) FFFF=Slip events in previous 24 hours (FFFF hex max.)</p>			

Performance Monitoring Status

.	2E	apx.	RS-232 only
<p>px=00 Requests 82.2531 compatible response. Response: a00SSSSBBBBBOOOOLLLLFFFF decoded as follows: SSSS=Controlled slips on the Send input side followed by those on the Receive input side BBBB=Bipolar violations on the Send input side followed by those on the Receive input side OOOO=Loss of framing events on the Send input side followed by those on the Receive input side LLLL=Loss of signal on the Send input side followed by those on the Receive input side FFFF=Framing errors for SF or CRC errors for ESF on the Send input side followed by those on the Receive input side</p> <p>Request performance monitoring register data and/or clear the data for the Send input side or Receive input side. The "R" or "S" prefix indicates which side the request is for. p=R Requests performance monitoring data for the Receive input side S Requests performance monitoring data for the Send input side x=R Resets all current counters Response: ACK/NAK</p> <p>x=C Requests CRC error count (data valid for ESF only) F Requests framing bit error count (data valid for SF only) B Requests bipolar violation count O Requests loss of frame count L Requests loss of signal count S Requests controlled slip count E Requests errored seconds count U Requests unavailable seconds count Y Requests severely errored seconds count T Requests total errored seconds events Response: XXXX (4F hex max.)</p> <p>x=N Requests current status Response: "aRN1" if available or "aRN0" if unavailable</p>			

Receive Side Detailed Performance Monitoring Data (32 Bit)

3	33	axx3	RS-232 only
<p>Request detailed performance monitoring information for the Receive side.</p> <p>xx=00 Requests Receive side detailed performance monitoring data for the current interval</p> <p>Response: a00TTTT:AAAA:BBBB:CCCC:DDDD:EEEE:FFFF decoded as follows:</p> <p>TTTT=Seconds in the current interval (FFFF hex max.)</p> <p>AAAA=Errored seconds in the current interval (FFFF hex max.)</p> <p>BBBB=Severely errored seconds in the current interval (FFFF hex max.)</p> <p>CCCC=Unavailable seconds in the current interval (FFFF hex max.)</p> <p>DDDD=Bursty errored seconds in the current interval (FFFF hex max.)</p> <p>EEEE=Loss of frame events in the current interval (FFFF hex max.)</p> <p>FFFF=Slip events in the current interval (FFFF hex max.)</p> <p>xx=01-96 Requests Receive side detailed performance monitoring data for the specified interval</p> <p>Response: axxTTTT:AAAA:BBBB:CCCC:DDDD:EEEE:FFFF decoded as follows:</p> <p>TTTT=0000 if the interval xx is invalid or 0001 if the interval xx is valid</p> <p>AAAA=Errored seconds in the interval xx (FFFF hex max.)</p> <p>BBBB=Severely errored seconds in the interval xx (FFFF hex max.)</p> <p>CCCC=Unavailable seconds in the interval xx (FFFF hex max.)</p> <p>DDDD=Bursty errored seconds in the interval xx (FFFF hex max.)</p> <p>EEEE=Loss of frame events in the interval xx (FFFF hex max.)</p> <p>FFFF=Slip events in the interval xx (FFFF hex max.)</p> <p>xx=AD Requests Receive side detailed performance monitoring data for the previous 24-hour period</p> <p>Response: aADTTTT:AAAAAAAA:BBBBBBBB:CCCCCCCC:DDDDDDDD:EEEEEEEE:FFFFFFFF decoded as follows:</p> <p>TTTT=Number of valid intervals since last reset (FFFF hex max.)</p> <p>AAAAAAAA=Errored seconds in previous 24 hours (FFFFFFFF hex max.)</p> <p>BBBBBBBB=Severely errored seconds in previous 24 hours (FFFFFFFF hex max.)</p> <p>CCCCCCCC=Unavailable seconds in previous 24 hours (FFFFFFFF hex max.)</p> <p>DDDDDDDD=Bursty errored seconds in previous 24 hours (FFFFFFFF hex max.)</p> <p>EEEEEEEE=Loss of frame events in previous 24 hours (FFFFFFFF hex max.)</p> <p>FFFFFFFF=Slip events in previous 24 hours (FFFFFFFF hex max.)</p>			

Send Side Detailed Performance Monitoring Data (32 Bit)

4	34	axx4	RS-232 only
<p>Request detailed performance monitoring information for the Send side.</p> <p>xx=00 Requests Send side detailed performance monitoring data for the current interval Response: a0TTTT:AAAA:BBBB:CCCC:DDDD:EEEE:FFFF decoded as follows:</p> <p>TTTT=Seconds in the current interval (FFFF hex max.) AAAA=Errored seconds in the current interval (FFFF hex max.) BBBB=Severely errored seconds in the current interval (FFFF hex max.) CCCC=Unavailable seconds in the current interval (FFFF hex max.) DDDD=Bursty errored seconds in the current interval (FFFF hex max.) EEEE=Loss of frame events in the current interval (FFFF hex max.) FFFF=Slip events in the current interval (FFFF hex max.)</p> <p>xx=01-96 Requests Send side detailed performance monitoring data for the specified interval Response: axxTTTT:AAAA:BBBB:CCCC:DDDD:EEEE:FFFF decoded as follows:</p> <p>TTTT=0000 if the interval xx is invalid or 0001 if the interval xx is valid AAAA=Errored seconds in the interval xx (FFFF hex max.) BBBB=Severely errored seconds in the interval xx (FFFF hex max.) CCCC=Unavailable seconds in the interval xx (FFFF hex max.) DDDD=Bursty errored seconds in the interval xx (FFFF hex max.) EEEE=Loss of frame events in the interval xx (FFFF hex max.) FFFF=Slip events in the interval xx (FFFF hex max.)</p> <p>xx=AD Requests Send side detailed performance monitoring data for the previous 24-hour period Response: aADTTTT:AAAAAAAA:BBBBBBBB:CCCCCCCC:DDDDDDDD:EEEEEEEE:FFFFFFFF decoded as follows:</p> <p>TTTT=Number of valid intervals since last reset (FFFF hex max.) AAAAAAAA=Errored seconds in previous 24 hours (FFFFFFFF hex max.) BBBBBBBB=Severely errored seconds in previous 24 hours (FFFFFFFF hex max.) CCCCCCCC=Unavailable seconds in previous 24 hours (FFFFFFFF hex max.) DDDDDDDD=Bursty errored seconds in previous 24 hours (FFFFFFFF hex max.) EEEEEEEE=Loss of frame events in previous 24 hours (FFFFFFFF hex max.) FFFFFFFF=Slip events in previous 24 hours (FFFFFFFF hex max.)</p>			

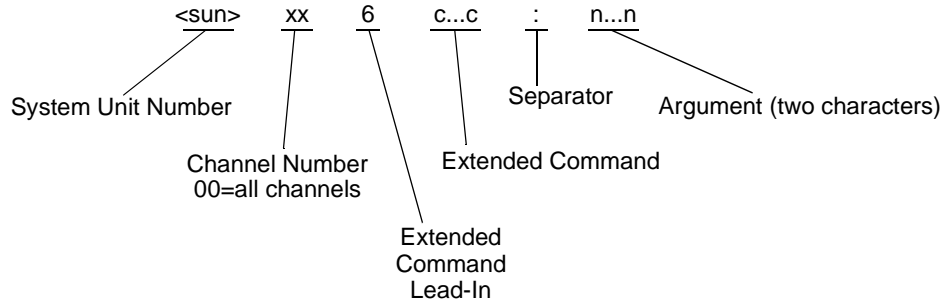
Performance Monitoring Status Data (32 Bit)

5	35	apx5	RS-232 only
<p>px=00 Requests 82.2531 compatible response. Response: a00SSSSSSSS:SSSSSSSS:BBBBBBBB:BBBBBBBB:OOOOOOOO:OOOOOOOO: LLLLLLLL:LLLLLLLL:FFFFFFFF:FFFFFFFF decoded as follows: SSSSSSSS=Controlled slips on the Send input side followed by those on the Receive input side BBBBBBBB=Bipolar violations on the Send input side followed by those on the Receive input side OOOOOOOO=Loss of framing events on the Send input side followed by those on the Receive input side LLLLLLLL=Loss of signal on the Send input side followed by those on the Receive input side FFFFFFFFFF=Framing errors for SF or CRC errors for ESF on the Send input side followed by those on the Receive input side</p> <p>Request performance monitoring register data and/or clear the data for the Send input side or Receive input side. The "R" or "S" prefix indicates which side the request is for. p=R Requests performance monitoring data for the Receive input side S Requests performance monitoring data for the Send input side x=R Resets all current counters Response: ACK/NAK</p> <p>x=C Requests CRC error count (data valid for ESF only) F Requests framing bit error count (data valid for SF only) B Requests bipolar violation count O Requests loss of frame count L Requests loss of signal count S Requests controlled slip count E Requests errored seconds count U Requests unavailable seconds count Y Requests severely errored seconds count T Requests total errored seconds events Response: XXXXXXXX</p> <p>x =N Requests current status Response: "aRN1" if available or "aRN0" if unavailable</p>			

E&M Signaling Control Select

/	2F	axx/	RS-232 only
<p>Select E&M signaling when the canceller is optioned for CAS operation. xx=00 Selects E&M signaling for all channels Response: ACK/NAK</p> <p>xx=01-24 Selects E&M signaling for the specified channel Response: ACK/NAK</p>			

Extended Command Set — CLEARCALL ALC, CLEARCALL DNS, and FLEXWARE — use the extended command set format for configuration, the format of which is shown below.



CLEARCALL Enhancement Control

axx6CCE:yy	RS-232 & Front Panel (per channel only on RS-232)
<p>Request to change the per channel configuration of the CLEARCALL enhancement.</p> <p>xx=00 Requests to change the per channel configuration of the CLEARCALL enhancement for all channels</p> <p>yy=00 Disables CLEARCALL</p> <p>yy=01 Enables CLEARCALL</p> <p>Response: ACK/NAK</p> <p>yy=SS Requests CLEARCALL configuration status</p> <p>Response: a006CCE:-- when no 25VX Subassembly is present</p> <p>xx=01-24 Requests to change the per channel configuration of the CLEARCALL enhancement for the specified channel</p> <p>yy=00 Disables CLEARCALL</p> <p>yy=01 Enables CLEARCALL</p> <p>Response: ACK/NAK</p> <p>yy=SS Requests CLEARCALL configuration status</p> <p>Response: axx6CCE:tt decoded as follows:</p> <p>tt="00" for Off or "01" for On</p> <p>tt=-- when no 25VX Subassembly is present</p>	

Automatic Level Control

axx6ALC:yy	RS-232 & Front Panel (per channel only on RS-232)
<p>Request to change the configuration of the CLEARCALL ALC feature.</p> <p>xx=00 for configuration options on both sides</p> <p>yy=00 Disables ALC for all channels</p> <p>yy=01 Enables ALC for all channels</p> <p>yy=03 Selects 3dB step size for ALC</p> <p>yy=06 Selects 6dB step size for ALC (default)</p> <p>yy=15 Selects -15dBm Target Audio Level (TAL)</p> <p>yy=18 Selects -18dBm TAL</p> <p>yy=21 Selects -21dBm TAL</p> <p>yy=24 Selects -24dBm TAL</p> <p>Response: ACK/NAK</p> <p>yy=SS Requests CLEARCALL ALC configuration status</p> <p>Response: a006ALC:vv,wwDB,zzzzz (see following Note) decoded as follows:</p> <p>vv="00" for Off or "01" for On or "11" for mixed channels</p> <p>ww=step size of either "03" or "06"</p> <p>zzzzz="-15dBm", "-18dBm", "-21dBm", "-24dBm", "OFF . . .", "MIXED."</p> <p>Response: a006ALC:-, -DB, -DBM when no 25VX Subassembly is present</p> <p>(Note: This response is for Rev C or later modules — Rev B or earlier modules respond a006ALC:vv,wwDB,-zzDBM; where zz="15", "18", "21", or "24")</p> <p>xx=SO for changing Send side only</p> <p>xx=RO for changing Receive side only</p> <p>yy=00 Disables ALC for all channels</p> <p>yy=01 Enables ALC for all channels</p> <p>Response: ACK/NAK</p> <p>yy=SS Requests CLEARCALL ALC configuration status</p> <p>Response: au06ALC:tt decoded as follows:</p> <p>u="S" for Send side or "R" for Receive side</p> <p>tt="00" for Off or "01" for On or "11" for mixed channels</p> <p>tt=-, -DB, -DBM when no 25VX Subassembly is present</p>	

ALC Double Talk Detection

aDT6ALC:yy	RS-232 & Front Panel (per channel only on RS-232)
<p>Request to change the configuration of the CLEARCALL ALC Double Talk Detection feature.</p> <p>yy=00 Disables Send and Receive side ALC Double Talk Detection</p> <p>yy=01 Enables Receive side ALC Double Talk Detection only</p> <p>yy=10 Enables Send side ALC Double Talk Detection only</p> <p>yy=11 Enables Send and Receive side ALC Double Talk Detection</p> <p>Response: ACK/NAK</p> <p>yy=SS Displays current status of ALC Double Talk Detection for both paths</p> <p>Response: aDT6ALC:tt decodes as follows:</p> <p>tt="00" for Off or "01" for Receive side only or "10" for Send side only or "11" for Send and Receive sides or "- " for NOT AVAILABLE</p>	

Dynamic Noise Substitution

axx6DNS:yy	RS-232 & Front Panel (per channel only on RS-232)
<p>Request to change the configuration of the CLEARCALL DNS feature.</p> <p>xx=00 for configuration options on both sides</p> <p>yy=00 Disables DNS for all channels</p> <p>yy=01 Enables DNS for all channels</p> <p>Response: ACK/NAK</p> <p>yy=SS Requests CLEARCALL DNS configuration status</p> <p>Response: a006DNS:vv decoded as follows:</p> <p>vv="00" for Off or "01" for On or "11" for mixed channels</p> <p>vv=- - when no 25VX Subassembly is present</p> <p>xx=SO for changing Send side only</p> <p>xx=RO for changing Receive side only</p> <p>yy=00 Disables DNS for all channels</p> <p>yy=01 Enables DNS for all channels</p> <p>Response: ACK/NAK</p> <p>yy=SS Requests CLEARCALL DNS configuration status</p> <p>Response: au06DNS:tt decoded as follows:</p> <p>u="S" for Send side or "R" for Receive side</p> <p>tt="00" for Off or "01" for On or "11" for mixed channels</p> <p>tt=- - when no 25VX Subassembly is present</p> <p>Note: This feature is not supported when the 25VX5 Subassembly is installed.</p>	

FLEXWARE Control

a006FLX:yy	RS-232 & Front Panel
<p>Request to change the configuration of the FLEXWARE feature.</p> <p>yy=01 Selects the FLEXWARE Universal option (default)</p> <p>yy=02 Selects the FLEXWARE Mobile option</p> <p>yy=03 Selects the FLEXWARE Gateway option</p> <p>Response: ACK/NAK</p> <p>yy=SS Requests FLEXWARE configuration status</p> <p>Response: a006FLX:vv decoded as follows:</p> <p>vv="01" for Universal option, "02" for Mobile option, "03" for Gateway option</p>	

Send Side Echo Cancellation

a006SEC:yy	RS-232 & Front Panel
<p>Request to change the configuration of the Send Side Echo Cancellation feature.</p> <p>yy=00 Disables the Send Side Echo Cancellation feature</p> <p>yy=01 Enables the Send Side Echo Cancellation feature</p> <p>yy=SS Requests Send Side Echo Cancellation feature configuration status</p> <p>Response: a006SEC:tt decoded as follows:</p> <p>tt="00" for disabled or "01" for enabled or "- -" for NOT AVAILABLE</p>	

Acoustic Coupling Elimination

axx6ACE:yy	RS-232 & Front Panel (per channel only on RS-232)
xx=00 (always) yy=00 Disables ACE yy=01 Enables ACE yy=25 Sets WAEPL for 25dB yy=35 Sets WAEPL for 35dB yy=45 Sets WAEPL for 45dB yy=02 Selects GSM cellular environment yy=03 Selects TDMA cellular environment yy=04 Selects CDMA cellular environment Response: ACK/NAK yy=SS Requests ACE configuration status Response: axx6ACE:tt decoded as follows: tt="00" for Off, "01" for On, or "11" for mixed channels, 45dB or 35dB or 25dB for WAEPL, GSM, or TDMA or CDMA for cellular environment tt=-, -DB, - - - - when no 25VX Subassembly is present	

ACE Noise Injection

aNI6ACE:yy	RS-232 & Front Panel (per channel only on RS-232)
Request to change the configuration of the CLEARCALL ACE Noise Injection feature. yy=00 Disables ACE Noise Injection yy=01 Enables ACE Noise Injection Response: ACK/NAK yy=SS Displays current status of ACE Noise Injection Response: aNI6ACE:tt decodes as follows: tt = "00" for Disabled or "01" for Enabled or "- -" for NOT AVAILABLE	

Noise Reduction

a006NRE:yy	RS-232 & Front Panel (per channel only on RS-232)
Request to change the configuration of the Noise Reduction feature. yy=00 Disables Noise Reduction feature yy=01 Enables Noise Reduction feature at Low Percentage yy=10 Enables Noise Reduction feature at Normal Percentage yy=11 Enables Noise Reduction feature at Maximum Percentage Response: ACK/NAK yy=SS Displays current status of Noise Reduction feature Response: a006NRE:tt decodes as follows: tt="00" for Disabled or "01" for Low or "10" for Normal or "11" for Maximum or "- -" for NOT AVAILABLE	

FXS-LS Signaling

:	3A	axx:	RS-232 & Front Panel
<p>Select FXS-LS signaling when the canceller is optioned for CAS operation. xx=00 Selects FXS-LS signaling for all channels Response: ACK/NAK</p> <p>xx=01-24 Selects FXS-LS signaling for the specified channel Response: ACK/NAK</p> <p>Note: The canceller responds with a NAK if it is programmed for idlecode detection.</p>			

FXO-LS Signaling

;	3B	axx;	RS-232 & Front Panel
<p>Select FXO-LS signaling when the canceller is optioned for CAS operation. xx=00 Selects FXO-LS signaling for all channels Response: ACK/NAK</p> <p>xx=01-24 Selects FXO-LS signaling for the specified channel Response: ACK/NAK</p> <p>Note: The canceller responds with a NAK if it is programmed for idlecode detection.</p>			

Channel Signaling Status

<	3C	axx<	RS-232 & Front Panel
<p>Request the type of CAS selected for each channel. xx=00 Requests the CAS status for all channels Response: a00xxxxxxxxxxxxxxxxxxxxxxx, where the channel x's are a single character depending upon the current CAS configuration.</p> <ul style="list-style-type: none"> x=0 indicates forced active, forced clear channel, or idlecode mode x=1 indicates E&M x=2 indicates FXO-GS x=3 indicates FXO-LS x=4 indicates FXS-GS x=5 indicates FXS-LS <p>xx=01-24 Requests the CAS status for the specified channel Response: axxY, where the channel number is followed by a single character, depending upon the current CAS configuration.</p> <ul style="list-style-type: none"> Y=0 indicates forced active, forced clear channel or idlecode mode Y=1 indicates E&M Y=2 indicates FXO-GS Y=3 indicates FXO-LS Y=4 indicates FXS-GS Y=5 indicates FXS-LS 			

Module Information

=	3D	ayy=	RS-232 only
<p>Request the module information. yy=MN Model Number. Response: 81.257m, where m is the model number of "1", "2", "1 LE" or "2 LE".</p> <p>yy=00 Current module revision level. This revision level reflects the module's current capabilities, based on the produced revision and the changes that have been incorporated. Response: 81.257 REV x, where x is the BOM revision.</p> <p>yy=PR Produced revision level. The original manufactured revision level Response: 81.257 REV x, where x is the produced revision</p> <p>yy=#1 257 PCB revision level Response: 81.257m REV x, where m is the module model number and x is the main PCB revision level</p> <p>yy=#2 25VX Subassembly PCB revision level Response: 81.25VXn REV x, where n is the subassembly model number (i.e., 81.25VX1/2), and x is the subassembly's PCB revision level. If the optional subassembly is not attached, then the command responds with NOT AVAILABLE. Note: If the module is ACE-enabled, the response will be 82.25VXn REV x</p> <p>yy=#4 2574 Extended Delay Subassembly PCB revision level Response: 81.2574m REVx, where m is the subassembly model number (i.e., 81.2574G/H) and x is the Extended Delay Subassembly's PCB revision level. If the optional subassembly is not attached, then the command responds with NOT AVAILABLE.</p> <p>yy=FR Firmware revision level (Flash memory) Response: x where x is the firmware revision level</p> <p>yy=ER EPROM revision level (Boot PROM) Response: x where x is the Boot PROM's revision level</p> <p>yy=SN Module Serial Number Response: XXXXXXXXXX ten alphanumeric digits that represent the bar code serial number</p> <p>yy=DA Date tested by manufacturing Response: MM/DD/YY, where MM is the month, DD is the date, and YY is the year the module was tested</p> <p>yy=TN Manufacturing test set number Response: XXXXXX six alphanumeric digits that represent the cell number of the test set</p> <p>yy=SW Manufacturing test set software revision level Response: VV.RR, where VV is the software version and RR is the revision of that version of software</p>			

FXS-GS Signaling

>	3E	axx>	RS-232 & Front Panel
<p>Select FXS-GS signaling when the canceller is optioned for CAS operation. xx=00 Selects FXS-GS signaling for all channels Response: ACK/NAK</p> <p>xx=01-24 Selects FXS-GS signaling for the specified channel Response: ACK/NAK</p> <p>Note: The canceller responds with a NAK if it is programmed for idlecode detection.</p>			

FXO-GS Signaling

?	3F	axx?	RS-232 & Front Panel
<p>Select FXO-GS signaling when the canceller is optioned for CAS operation. xx=00 Selects FXO-GS signaling for all channels Response: ACK/NAK</p> <p>xx=01-24 Selects FXO-GS signaling for the specified channel Response: ACK/NAK</p> <p>Note: The canceller responds with a NAK if it is programmed for idlecode detection.</p>			

Dynamic Signal Transfer

@	40	ayy@	RS-232 & Front Panel
<p>Select whether the DST function is enabled or disabled yy=#1 Disables DST #2 Enables DST (default) Response: ACK/NAK</p>			

Framing Format

A	41	ayyA	RS-232 & Front Panel
<p>Select the framing mode for both the Send and Receive ports. yy=D3 Selects SF (default) D4 Selects MBLT D5 Selects ESF Response: ACK/NAK</p>			

Clear Channel

B	42	axxB	RS-232 & Front Panel
<p>Select channel cancellation to forced bypass. xx=00 Selects forced bypass for all channels Response: ACK/NAK</p> <p>xx=01-24 Selects forced bypass for the specified channel Response: ACK/NAK</p>			

NLP Off

C	43	axxC	RS-232 & Front Panel
<p>Disable the NLP. xx=00 Disables the NLP for all channels Response: ACK/NAK</p> <p>xx=01-24 Disables the NLP for the specified channel Response: ACK/NAK</p>			

NLP Enable

D	44	axxD	RS-232 & Front Panel
<p>Enable the NLP. xx=00 Enables the NLP for all channels Response: ACK/NAK</p> <p>xx=01-24 Enables the NLP for the specified channel Response: ACK/NAK</p>			

Clear Channel Status

E	45	axxE	RS-232 & Front Panel
<p>Request a summary list of the channels that are in the bypassed state xx=00 Lists channels that do not have cancellation active Response: a00xxxxxx, where the x's represent the bit encoded all channel reply. A logic 1 indicates that the channel is bypassing cancellation. Note: See Table 4-8 for mapping of channel numbers.</p> <p>xx=01-24 List cancellation status for the specified channel Response: axxY, where Y is 1 indicates that the channel is bypassing cancellation or 0 indicates is not bypassing cancellation.</p> <p>xx=CC Lists channels which have been forced bypass Response: aCCxxxxxx, where the x's represent the bit encoded all channel reply. A logic 1 indicates that the channel is bypassing cancellation.</p>			

Test Configurations

F	46	ayyF	RS-232 & Front Panel
<p>Enter an out-of-service test mode. yy=00 Metallic bypass #1 Line Loopback #2 Clear Channel Transparency #4 Payload Loopback (Drop Side) #5 Payload Loopback (Line Side) Response: ACK/NAK</p>			

In-Service

G	47	a00G	RS-232 & Front Panel
<p>Exit test mode and return to service. Response: ACK/NAK</p>			

H-Hold On

H	48	a00H	RS-232 only
<p>Freeze the model of the near-end circuit path for the all channels by disabling updates to the convolution processor's memory for all channels. Issuing this command causes self-test failure for all of the channels and the fault LED illuminates until H-Hold is turned off.</p> <p>Response: ACK/NAK</p>			

H-Hold Off

I	49	a00I	RS-232 only
<p>Restore the updating of the convolution processors for all channels.</p> <p>Response: ACK/NAK</p>			

Busy/Idle Status

J	4A	a00J	RS-232 only
<p>Request a list of the signaling busy/idle status for all channels. Logic 0 indicates that the channel is busy and logic 1 indicates that the channel is idle.</p> <p>Response: a00xxxxxx, where the x's are the bit encoded all channel status reply</p> <p>Note: See Table 4-8 for mapping of bit encoded channel numbers.</p>			

Forced Active Status

K	4B	a00K	RS-232 only
<p>Request a list of the forced active status for all channels. Logic 1 indicates that the channel is forced active.</p> <p>Response: a00xxxxxx, where the x's are the bit encoded all channel status reply</p> <p>Note: See Table 4-8 for mapping of bit encoded channel numbers.</p>			

Endpath Delay/ERL

L	4C	ayyL	RS-232 & Front Panel
<p>Select the endpath delay for the canceller (defaults to longest endpath module is capable of); select the configuration for the minimum endpath ERL</p> <p>yy=L2 or 32 32 milliseconds L3 or 64 64 milliseconds L4 or 96 96 milliseconds L5 128 milliseconds</p> <p>Response: ACK/NAK</p> <p>yy=E0 0dB select ERL E1 3dB select ERL E2 6dB select ERL (default)</p> <p>Response: ACK/NAK</p> <p>Note: The module responds with a NAK for L3, L4, and L5 if the options are not installed.</p>			

Alarm Status

M	4D	a00M	RS-232 only
<p>Request the alarm status for a specific unit. All channels are forced to Bypass Mode when any Send-in or Receive-in alarm is declared. A logic 1 indicates that an alarm/error has been declared and logic 0 is no alarm. Response: a00bbbb, where the b's are bit encoded as in Table 4-9.</p>			

Alarm Type	Char	Bit	Status Indication
Send-in	1st	4th	Loss of Framing (LOF)
		3rd	Yellow Alarm
		2nd	Unassigned
		1st	Unassigned
	2nd	4th	Unassigned
		3rd	AIS
		2nd	Unassigned
		1st	Loss of Signal (LOS)
Receive-in	3rd	4th	Loss of Framing (LOF)
		3rd	Yellow Alarm
		2nd	Unassigned
		1st	Unassigned
	4th	4th	Unassigned
		3rd	AIS
		2nd	Unassigned
		1st	Loss of Signal (LOS)
System	5th	4th	ACO Active
		3rd	Unassigned
		2nd	Minor Alarm Active
		1st	Major Alarm Active

Table 4-9 Alarm Status a00M

Forced Active

N	4E	axxN	RS-232 & Front Panel
<p>Force echo cancellation active for the specified channel. xx=00 Forces echo cancellation active for all channels Response: ACK/NAK</p> <p>xx=01-24 Forces echo cancellation active for the specified channel Response: ACK/NAK</p>			

Alarm Cut Off

O	4F	a00O	RS-232 & Front Panel
<p>Cut off external alarm indicators. After this command is issued, the front panel ACO LED remains ON until the alarm status changes on either port. Response: ACK/NAK</p>			

Rerun Power-Up Diagnostics

P	50	a00P	RS-232 only
<p>Rerun the power-up diagnostics.</p> <p>WARNING: Only perform this command when the canceller is not carrying traffic.</p> <p>Response: ACK/NAK</p>			

H-Reset Off

Q	51	axxQ	RS-232 only
<p>Release the H-register from the reset state (axxR) for the selected channel. This command returns the convolution processor to normal operation for that channel. The "00" all channel specifier can be used to remove reset from all channels.</p> <p>Response: ACK/NAK</p>			

H-Reset On

R	52	axxR	RS-232 only
<p>Initialize the specified channel's convolution processor H-register and hold it in this state until an H-Reset off command (axxQ) is issued. Issuing this command results in a self-test failure, causing the fault LED to illuminate for those channels to which the command has been targeted and are currently in bypass mode; echo cancellation also ceases. The "00" all channel specifier can be used to set H-Reset for all channels.</p> <p>Response: ACK/NAK</p>			

Single Channel Status

S	53	axxS	RS-232 only
<p>Report the operational status for the channel specified by "xx". The all channel status (xx=00) option is not available for this command.</p> <p>Response: axxXXX, where "XXX" is bit encoded as in Table 4-10.</p>			

Char	Bit	Status Indication
1st	4th	Tone Disabler Enabled
	3rd	H-Reset on
	2nd	Cancellation Forced Active
	1st	Forced Clear Channel
2nd	4th	Busy
	3rd	Self-test failure
	2nd	H-Hold on
	1st	Cancellation Bypassed
3rd	4th	NLP Off
	3rd, 2nd, & 1st	Signaling (111=FXO-GS or Forced Bypass or Forced Active, 100=E&M or idlecode, 011=FXS-LS, 010=FXS-GS, 001=FXO-LS)
(Logic 1 = true, Logic 0 = false)		

Table 4-10 Single Channel Status a00S

Per-Channel Self-Test Result Status

T	54	axxT	RS-232 & Front Panel
<p>Request the result of the last channel self-test performed and the specified or all channels xx=01-24 channel number</p> <p>Response: axxP indicates that an individual channel passed axxF indicates that an individual channel failed</p> <p>xx=00 Request results for all channels</p> <p>Response: a00xxxxxx, where the x's represent the bit encoded all channel status. A logic 1 indicates test failure and 0 indicates no failure.</p> <p>Note: See Table 4-8 for mapping of bit encoded channel numbers.</p>			

Common Channel Signaling (CCS) Busy

U	55	axxU	RS-232 only
<p>Tell the unit that the specified channel is busy, thus stopping self-test on that channel. This command does not override the Forced Bypass or Forced Active mode. The "00" all channels specifier can be used.</p> <p>Response: ACK/NAK</p>			

Disable CCS

V	56	axxV	RS-232 only
<p>Negate the CCS Busy or CCS Idle command and restore the channel to optioned Busy/Idle Signaling Detection Mode. The "00" all channels specifier can be used.</p> <p>Response: ACK/NAK</p>			

CCS Idle

W	57	axxW	RS-232 only
<p>Tell the unit that the specified channel is idle, thus allowing self-test to be performed on that channel. If the channel is already busy, the call is not dropped, but cancellation is disabled. The "00" all channels specifier can be used.</p> <p>Response: ACK/NAK</p>			

Line Coding/F-Bit Error/CO Equalizer/Fault Operation

X	58	ayyX	RS-232 & Front Panel
<p>Select the line coding, F-bit error regeneration, CO equalization, and fault operation for the module</p> <p>yy=#1 Selects B7 line code with PCM error corrected (default)</p> <p>#2 Selects B8ZS line code with PCM error corrected</p> <p>#3 Selects B7 line code with PCM error regenerated</p> <p>#4 Selects B8ZS line code with PCM error regenerated</p> <p>#5 Selects transparent line code with PCM error corrected</p> <p>#6 Selects transparent line code with PCM error regenerated</p> <p>FA=AIS on fault</p> <p>FB=bypass on fault</p> <p>Response: ACK/NAK</p> <p>yy=S0 Selects 0-133 feet equalization for Send out side (default)</p> <p>S1 Selects 133-256 feet equalization for Send out side</p> <p>S2 Selects 256-399 feet equalization for Send out side</p> <p>S3 Selects 399-533 feet equalization for Send out side</p> <p>S4 Selects 533-655 feet equalization for Send out side</p> <p>R0 Selects 0-133 feet equalization for Receive out side (default)</p> <p>R1 Selects 133-256 feet equalization for Receive out side</p> <p>R2 Selects 256-399 feet equalization for Receive out side</p> <p>R3 Selects 399-533 feet equalization for Receive out side</p> <p>R4 Selects 533-655 feet equalization for Receive out side</p> <p>Response: ACK/NAK</p> <p>yy=FS (fault operation status)</p> <p>Response:0=bypass on fault</p> <p>1=AIS on fault</p>			

CCS Busy/Idle Status

Y	59	axxY	RS-232 only
<p>Query whether a specified channel is CCS busy, CCS idle, or neither</p> <p>Response: axxL indicates that echo cancellation is CCS idle</p> <p>axxM indicates that echo cancellation is CCS busy</p> <p>axxE indicates that no CCS command has been received for the channel</p> <p>The "00" all channel status option is available for this command</p>			

Module Configuration Status

Z	5A	axxZ	RS-232 only
<p>Request a summary of the configuration for a particular unit</p> <p>xx=00 Requests the 82.253X compatible system configuration status</p> <p>Response: a00Zxxxx, where "xxxx" is a string of bit encoded hex characters as in Table 4-11</p>			

Char	Bit	Status Indication
1st	4th	Test Mode (1=any test mode, 0=in service)
	3rd	Signaling Mode (1=idlecode, 0=CAS)
	2nd & 1st	Framing Format (11=SF, 01=MBLT, 00=ESF)
2nd	4th	Cancellation on A&B bits in idlecode
	3rd	Framing Format (1=ESF)
	2nd	PCM Error Control (1=regenerate)
	1st	Line Code (1=B8ZS, 0=B7)
3rd	4th	32ms Extended Delay Subassembly (1=installed)
	3rd	64ms Extended Delay Subassembly (1=installed)
	2nd & 1st	Maximum Endpath Delay (10=64ms, 01=32ms, 00=128ms)
4th	4th	Dynamic Signal Transfer (1=DST On)
	3rd	NLP Mode (1=ITU-T On)
	2nd & 1st	Functional Test (11=In Service, 10=Clear Channel Pass-through, 01=Loopback, 00=Metallic Bypass Relays)

Table 4-11 System Configuration Status a00Z

xx=#0 request the system configuration status

Response: a#0Zxxxx, where "xxxx" is a string of bit encoded hex characters as in Table 4-12

Char	Bit	Information
1st	4th	Default Parameters Set (1=On)
	3rd	Not Used (=0)
	2nd	Not Used (=0)
	1st	Front Panel View Only Mode (1=On)
2nd	4th	End of Call Operation (1=On)
	3rd	Not Used (=0)
	*2nd & 1st	Data Tone Disabler (11=G.165 with SW56K, 10=G.164 with SW56K, 01=G.165, 00=G.164)
3rd	4th	Not Used (=1)
	3rd	Not Used (=0)
	2nd & 1st	Signaling Tone Disabler (11=2600Hz, 10=C6/C7, 01=C5, 00=off)
4th	4th	Test Mode (1=any test mode, 0=in service)
	3rd, 2nd, & 1st	Functional Test Mode (110=Payload Loopback [Line Side], 100=Metallic Bypass Relays, 010=Clear Channel Pass-through, 000=In Service)

*When the data tone disabler is set to Hold-Band/CLEARCALL End-Of-Call mode, the status indicated by the 2nd and 1st bits in the 2nd character will be incorrect. Use the "aDS(" command to see the data tone disabler setting.

Table 4-12 System Configuration Status a#0Z

xx=T1 request the T1 configuration status

Response: aT1Zxxxxxx, where "xxxxxx" is a string of bit encoded hex characters as in Table 4-12

Char	Bit	Information
1st	4th	Not Used (=0)
	3rd, 2nd & 1st	Send Out CO Equalization (100=533-655 feet, 011=399-533 feet, 010=256-399 feet, 001=133-256 feet, 000=0-133 feet)
2nd	4th	Not Used (=0)
	3rd, 2nd, & 1st	Receive Out CO Equalization (100=533-655 feet, 011=399-533 feet, 010=256-399 feet, 001=133-256 feet, 000=0-133 feet)
3rd	4th	Not Used (=0)
	3rd	Not Used (=0)
	2nd	Not Used (=0)
	1st	Not Used (=0)
4th	4th & 3rd	Line Code (10=Transparent, 01=B8ZS, 00=AMI [B7])
	2nd	Not Used (=0)
	1st	Not Used (=0)
5th	*4th	Idlecode Mode (1=Send AND Receive, 0=Send OR Receive)
	*3rd	CAS Active Channel Logic (1=Send AND Receive, 0=Send OR Receive)
	2nd & 1st	Framing Format (10=ESF, 01=MBLT, 00=SF)
6th	4th & 3rd	Signaling Mode (10=Idlecode CAS Transparent, 01=Idlecode, 00=CAS (Robbed Bit Signaling))
	2nd & 1st	Idlecode Pattern (11=FF, 10=F7, 01=7F or FF, 00=7F)

*When either the CAS Active Channel Logic or the Idlecode mode is set to Send Only or Receive Only, the status indicated by the 4th or 3rd bits in the 5th character will be incorrect. Use the "aSS[" command to view the Idlecode mode and CAS Active Channel Logic status.

Table 4-13 System Configuration Status aT1Z

xx=CA request the echo cancellation parameters configuration status

Response: aCAZxxxx, where "xxxx" is a string of bit encoded hex characters as in Table 4-12

Char	Bit	Information
1st	4th	Not Used (=0)
	3rd	Not Used (=0)
	2nd	Not Used (=0)
	1st	Not Used (=0)
2nd	4th	Not Used (=0)
	3rd, 2nd, & 1st	ERL (110=6dB, 011=3dB, 000=0dB)
3rd	4th	32ms Extended Delay Subassembly (2574G) (1=on)
	3rd	64ms Extended Delay Subassembly (2574H) (1=on)
	2nd & 1st	Endpath (11=128ms, 10=96ms, 01=64ms, 00=32ms)
4th	4th	Dynamic Signal Transfer (1=DST on)
	3rd	NLP Mode (1=ITU-T On)
	2nd & 1st	Maximum endpath available (11=96/128ms, 01=64ms, 00=32ms)

Table 4-14 System Configuration Status aCAZ

xx=LC request information on the configuration of the serial ports. (This option of the command is available in the Responsive Failure Mode.)
 Response: aLCxxxx, where "xxxx" is a string of bit encoded hex characters as in Table 4-12

Char	Bit	Information
1st	4th	Not Used (=0)
	3rd	Not Used (=0)
	2nd	Not Used (=0)
	1st	Not Used (=0)
2nd	4th	System Alarms (1=Active Alarms)
	3rd	Per-Channel Self-test History (1=one or more channels failed tests, 0=no failures)
	2nd	Not Used (=0)
	1st	Port Connected (1=Maintenance, 0=Control)
3rd	4th, 3rd, 2nd, & 1st	Control Port Baud Rate (1000=38400, 0111=19200, 0110=9600, 0101=4800, 0100=2400, 0011=1200, 0000=Port Not Available)
4th	4th, 3rd, 2nd, & 1st	Maintenance Port Baud Rate (1000=38400, 0111=19200, 0110=9600, 0101=4800, 0100=2400, 0011=1200, 0000=Port Not Available)

Table 4-15 System Configuration Status aLCZ

CAS/Idle Code Control

[	5B	ayy[	RS-232 & Front Panel
<p>Select Busy/Idle Detection Mode yy=#0 Selects CAS (Robbed Bit Signaling) (default) #1 Selects idlecode, no CAS Transparency #2 Selects idlecode with CAS Transparency Response: ACK/NAK</p> <p>Select Idlecode Pattern yy=I1 Selects 0x7F I2 Selects 0x7F or 0xFF (default) I3 Selects 0xF7 I4 Selects 0xFF Response: ACK/NAK</p> <p>Select Idlecode Logic yy=IA Selects Send AND Receive (default) IO Selects Send OR Receive IS Selects Send only IR Selects Receive only Response: ACK/NAK</p> <p>Select CAS Active Channel Logic yy=LA Selects AND LO Selects OR LS Selects Send only LR Selects Receive only Response: ACK/NAK</p> <p>yy=SS Requests status of busy/idle detection mode, idlecode pattern, idlecode logic, and CAS active channel logic Response: aSS[mmmmmmmmmmmmmmmmmm,ppppp,l:iii,L:III decoded as follows: mmmmmmmmmmmmmmmmmm=busy/idle detection mode of "ROBBED BIT (CAS)" or "IDLECODE-PASS CAS" or "IDLECODE-NO CAS" ppppp=idlecode pattern of "7F" or "7F/FF" or "F7" or "FF" iii=idlecode logic of "AND", "OR", "SND", or "RCV" III=CAS active channel logic of "AND", "OR", "SND", or "RCV"</p>			

NLP Operation During Doubletalk

\	5C	ayy\	RS-232 & Front Panel
<p>Select whether the non linear processor is always on or off during doubletalk, ITU-T specification. yy=#1 Selects ITU-T mode (off during doubletalk) (default) #2 Selects continuously on Response: ACK/NAK</p>			

Data Tone Disabler Release Mode Control

]	5D	ayy]	RS-232 & Front Panel
<p>Select the Data Tone Disabler Release Mode yy=#1 Selects hold-band mode (default) #2 Selects end-of-call mode Response: ACK/NAK</p> <p>yy=SS Requests status of the data tone disabler release mode Response: aSS]y, where "y" is 1 indicates end-of-call and 0 indicates hold-band</p>			

Global S.U.N.

^	5E	^xxy	RS-232 only
<p>This character is used to expand the available SUNs. Notice that it is the first character, not the last. This new SUN is used to broadcast any of the existing commands to all or a group of units on the serial port. Groups of units can be selected using the "&" group command. This command cannot be used as a fourth character command because the SUNs are used to synchronize command processing. xx=Channel number or system parameter selection y=Any command character. The ASCII response is deleted Response: Responds with ACK/NAK if one unit is in group, otherwise there is no response</p>			

Disabling Tone Detected Status

_	5F	axx_	RS-232 & Front Panel
<p>Request a list of channels which are currently tone disabled xx=DD Requests the status for the data tone disabler Response: aDD_XXXXX, where the x's represent the bit encoded all channel status response. Logic 1 indicates that the channel is currently being tone disabled by the data tone disabler.</p> <p>xx=SD Requests the status for the signaling tone disabler Response: aSD_XXXXX, where the x's represent the bit encoded all channel status response. Logic 1 indicates that the channel is currently being tone disabled by the signaling tone disabler.</p> <p>xx=00 Combine the status from all disablers Response: a00_XXXXX, where the x's represent the bit encoded all channel status response. Logic 1 indicates that the channel is currently tone disabled by any tone disabler.</p> <p>Note: See Table 4-8 for mapping of bit encoded channel numbers.</p>			

5. Acronyms

ACE	Acoustic Coupling Elimination
ACK	Acknowledge (ASCII Hex 06h)
ACO	Alarm Cut Off
AIS	Alarm Indication Signal
ALC	Automatic Level Control
AMI	Alternate Mark Inversion
ASCII	American Standard Code for Information Interexchange
B8ZS	Binary Eight Zero Substitution
CAS	Channel Associated Signaling
CDMA	Code Division Multiple Access
CCS	Common Channel Signaling
CO	Central Office
CRC	Cyclic Redundancy Check
DNS	Dynamic Noise Substitution
DST	Dynamic Signal Transfer
DTE	Data Terminal Equipment
DTR	Data Terminal Ready
EIA	Electronics Industries Association
EOC	End of Call
ERL	Echo Return Loss
ESF	Extended Superframe
FXO, GS	Foreign Exchange Office-End With Ground Start Operation
FXO, LS	Foreign Exchange Office-End With Loop Start Operation
FXS, GS	Foreign Exchange Station-End With Ground Start Operation
FXS, LS	Foreign Exchange Station-End With Loop Start Operation
GSM	Global System for Mobile Communications
ITU-T	International Telecommunication Union — Telecommunication Standardization Sector
LOF	Loss of Frame
LOS	Loss of Signal
LS	Loop Start
MBLT	Mobile Both-Way Line Termination
NAK	Not Acknowledge (ASCII Hex 15)
NLP	Non Linear Processor
NR	Noise Reduction
PCM	Pulse Code Modulation
SCP	Serial Communications Port
SF	Superframe
SUN	System Unit Number
TAL	Target Audio Level
TDMA	Time Division Multiple Access
WAEPL	Weighted Acoustic Echo Path Loss

6. Technical Assistance, Repair and Return

Contact Tellabs Technical Assistance as follows:

Location	Telephone	FAX
Argentina — Tellabs International, Inc., Sucursal Buenos Aires	+54.11.4345.9000	+54.11.4345.9601
Australia — Tellabs Pty Ltd., Milson's Point NSW, Sydney	+61.2.9966.1043	+61.2.9966.1038
Austria — Tellabs Austria, Vienna, Austria	+43.1.516.333.123 or .146	+43.1.516.333.037
Brazil — Tellabs International, Inc., Rio de Janeiro	+55.21.518.2224	+55.21.516.7063
Brazil — Tellabs International, Inc., Sao Paulo	+55.11.5505.3009	+55.11.5506.7175
Canada — Tellabs Comm. Canada Ltd., Mississauga, Ontario	905.858.2058	905.858.0418
China — Tellabs International, Inc., Beijing	+86.10.6510.1871	+86.10.6510.1872
China — Tellabs International, Inc., Shanghai	+86.21.6218.8660	+86.21.6218.8999
Colombia — Tellabs International, Santa Fe de Bogota	+571.623.3162 or .3216	+571.623.3047
Dubai — Tellabs International, Dubai, U.A.E.	+971.4.819608	+971.4.819606
England — Tellabs U.K. Ltd., Bucks	+44.1494.555800	+44.1494.555801
Finland — Tellabs Oy, Espoo	+358.9.413.121-main #	+358.9.4131.2815
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Hong Kong — Tellabs H.K. Ltd.	+852.2821.9100	+852.2866.2965
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Mexico — Tellabs de Mexico	+525.241.9800	+525.241.9801
Netherlands — Tellabs Netherlands b.v.	+31.30.6004070	+31.30.6004090
Philippines — Tellabs International, Inc., Sucat, Muntinlupa City	+63.2.838.0970	————
Singapore — Tellabs Singapore Pte, Ltd.	+65.336.7611	+65.336.7622
Republic of South Africa — Tellabs Pty Ltd., Hennopsmeer	+27.12.672.8025	+27.12.672.8024
South Korea — Tellabs International, Inc., Seoul	+82.2.589.0667	+82.2.589.0669
Spain — Tellabs Southern Europe s.a., Madrid	+34.91.323.9920	+34.91.315.7770
Sweden — Tellabs AB, Stockholm	+46.8.440.4340	+46.8.440.4341
Thailand — Tellabs International, Inc., Bangkok	+662.642.7817	+662.642.7820
USA and Puerto Rico	800.443.5555*	630.512.7097
*All other Caribbean and South American locations, or if the toll-free number is busy, telephone 630.378.8800		

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Repair and Return

If equipment needs repair, contact Tellabs' Product Services Department with the equipment's model and issue numbers and warranty date code. You will be issued a Material Return Authorization (MRA) number and instructions on how and where to return the equipment.


Location	Telephone	FAX
Finland — Tellabs Oy, Espoo	+358.9.413.121-main #	+358.9.4131.2815
Canada — Tellabs Comm. Canada Ltd., Mississauga, Ontario	905.858.2058	905.858.0418
Ireland — Tellabs, Ltd., County Clare	+353.61.703000	+353.61.703333
Lisle, IL USA — Tellabs Operations, Inc.	800.443.5555 (USA and Puerto Rico only) 630.378.8800 (other International)	630.512.7097 (both)

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