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# 258 E1 Echo Cancellor User Interface Document

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## Revision Notice

This document has been revised to add information about Feature Package 3.5, which includes the following new features:

- CLEARCALL Acoustic Coupling Elimination (ACE)
- CLEARCALL Long-Distance Processor (LDP)
- Timeslot 16 signaling AND function

## 1. Overview

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- 1.1 This document describes the three methods for control access:
- front panel
  - menu screens
  - V.24 American Standard Code for Information Interchange (ASCII) character command set

## 2. Front Panel Controls

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### Controls/Displays

- 2.1 Module front panel pushbuttons, dot matrix displays (master canceller only), and LEDs provide the means for provisioning and monitoring both system and individual channel operating parameters. Figures 2-1 and 2-2 provide an illustration of the modules' front panels.

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**Caution:** Do not activate the front panel if a download is in progress, because this will disrupt the download.

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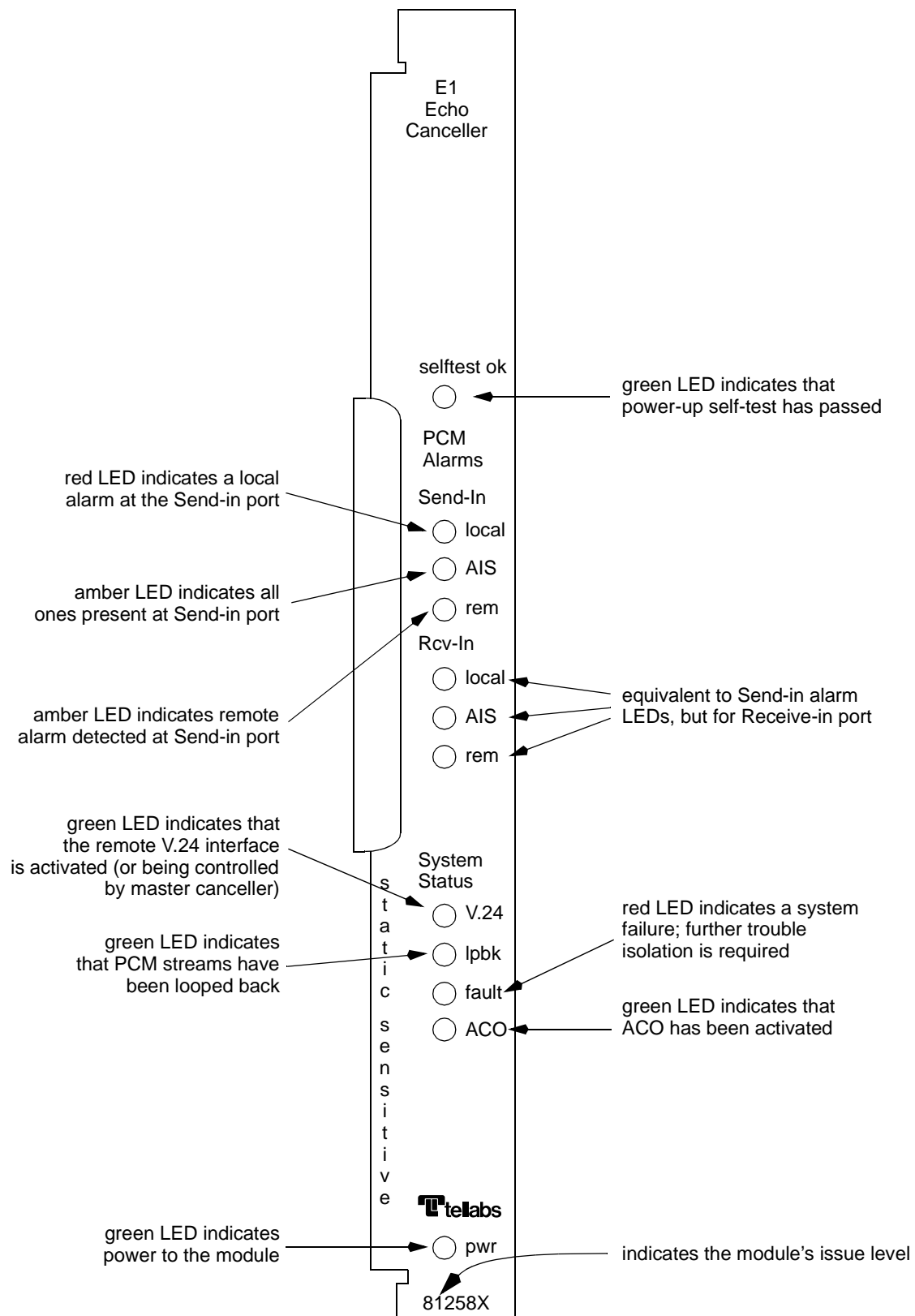
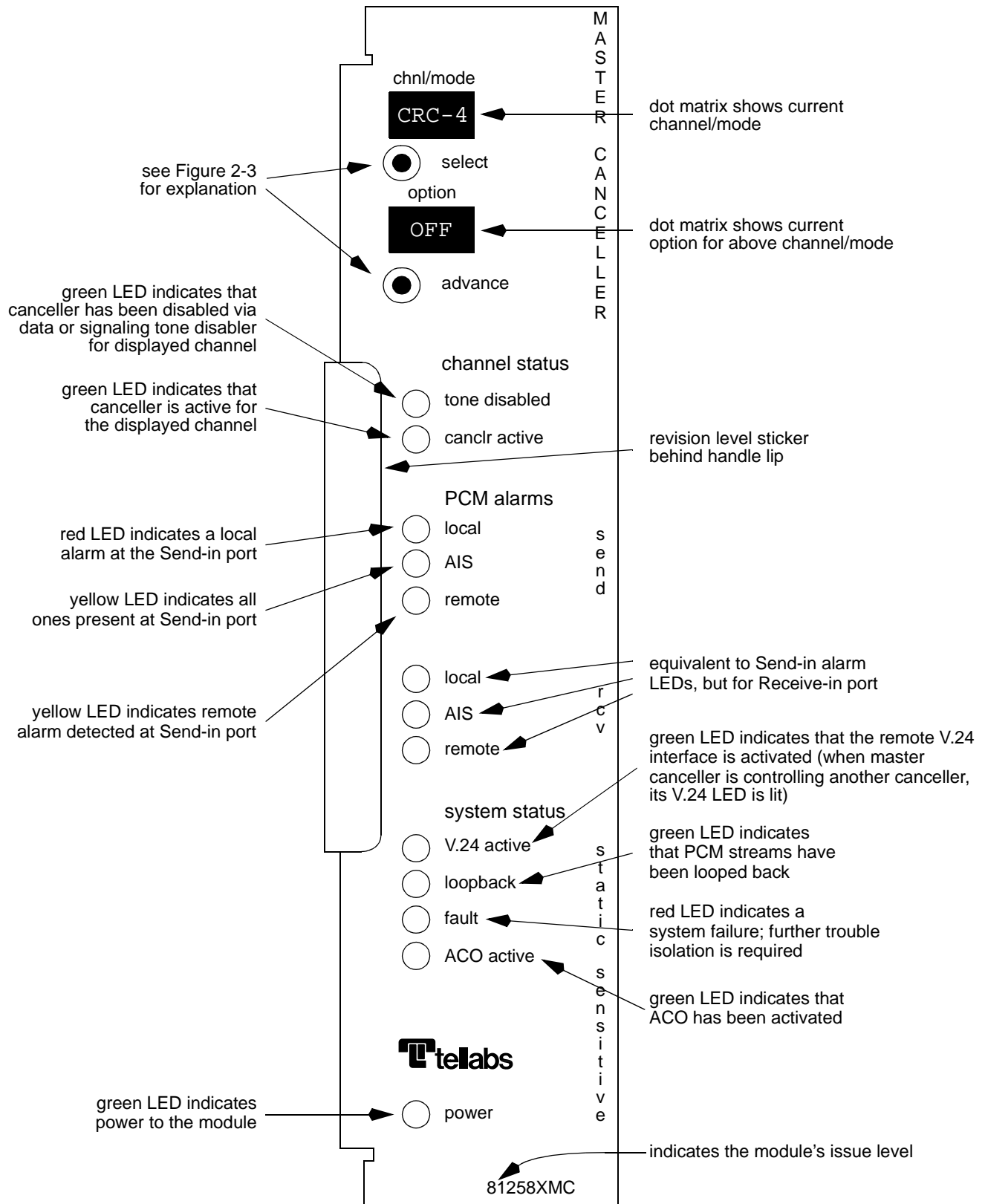


Figure 2-1 258X module front panel



## Front Panel Modes

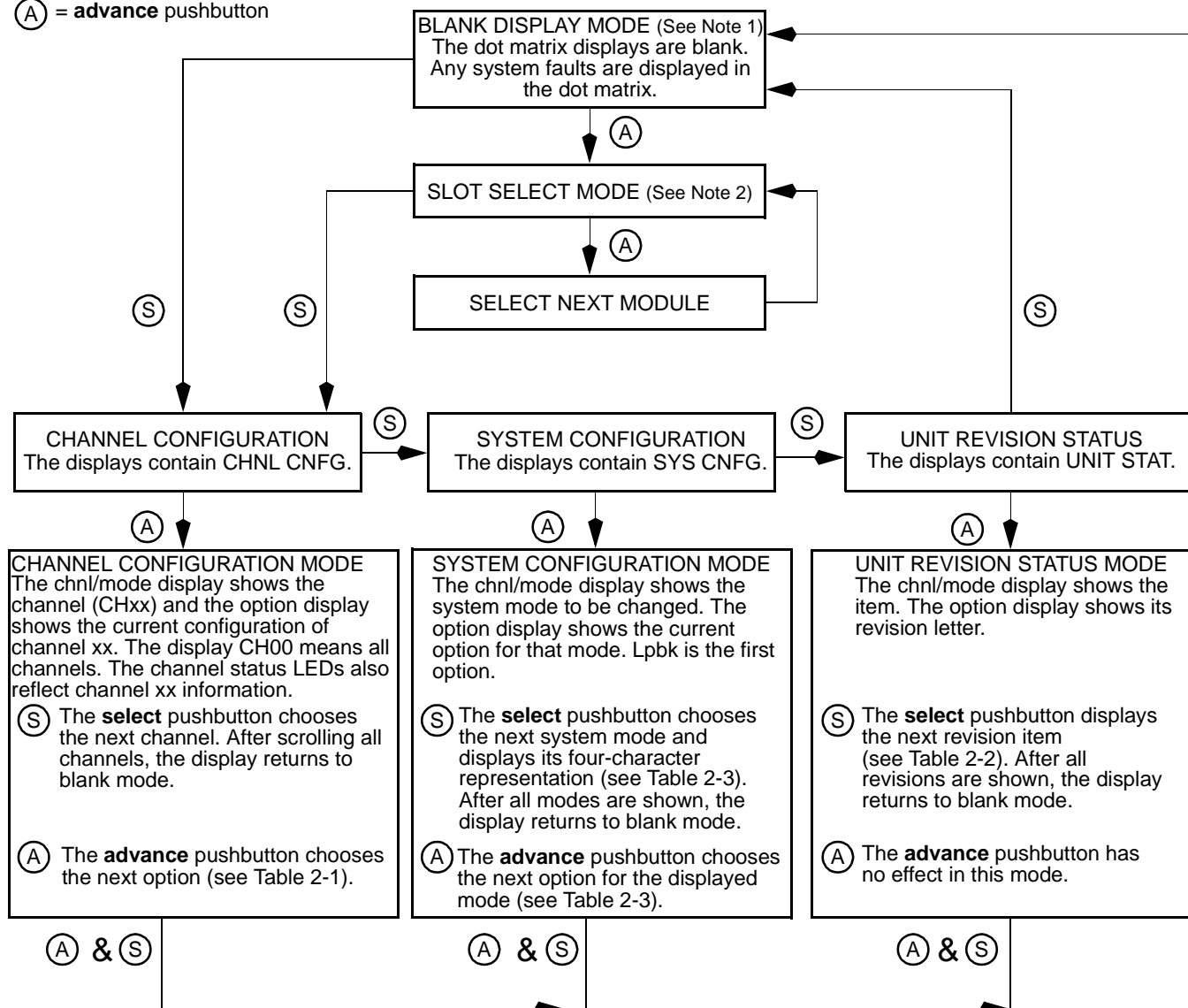
2.2 The 258XMC front panel contains five modes . . .

- blank display mode
- slot select mode
- channel configuration mode
- system configuration mode
- unit revision status mode

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

(S) = **select** pushbutton

(A) = **advance** pushbutton



### Notes:

1. Pushing both **select** and **advance** in any option returns you to the **BLANK DISPLAY MODE**.

2. This mode is only available while the master canceller is installed in slots 16 and 17 of the 258 mounting assembly.

Figure 2-3 Front panel mode states

## Slot Select Mode

- 2.4 The slot select mode is used to select the canceller that the 258XMC module will communicate with. Upon power-up, the slot is set to 15. The first press of the **advance** pushbutton from the BLANK DISPLAY MODE displays the currently selected canceller. Additional presses of the **advance** pushbutton will increment the slot addressed. The slot selected remains set even if the front panel returns to the blank mode. Once the slot is selected, pressing the **select** pushbutton causes the 258XMC module to enter the configuration modes. The **V.24 active** LED lights on both the canceller being controlled by the 258XMC module and the 258XMC module itself.

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**Note:** The slot select mode is only accessible when the 258XMC module occupies slots 16 and 17 of a 258 mounting assembly. If mounted in any slot other than slot 16, front panel control is limited to the 258XMC module itself.

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- 2.5 The slot ALL is a special case where all cancellers currently mounted in the mounting assembly can be configured at the same time. Note that the status displayed in the ALL mode is the status of the 258XMC module, and it is possible that all cancellers are not configured the same. To ensure that all cancellers are configured the same, the option must be chosen using the **advance** pushbutton.

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**Note:** For the ALL mode to work correctly, all modules installed in the mounting, including the 258XMC module, should be equipped with the same optional subassemblies.

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chnl/mode display	option display	description
CHxx	Norm	normal busy/idle control
	FByP	force channels bypassed
	FAct	force channels active
	Mix	not all channels configured the same

**Table 2-1 Channel configurations**

chnl/mode display	option display	description
Flsh	3.22	system code revision level
Boot	A	boot code
'8YZ	81.y	main PC board assy
'63Y	82.y	2563A/B/C subassembly (if used)
'84Y	81.y	2584G/H subassembly (if used)
'VXY	81.y	25VX subassembly (if used)

**Table 2-2 Unit revision states**

## System Configuration Table

2.6 Table 2-3 provides the configurations available in the system configuration mode. They are listed in the order displayed on the 258XMC master canceller. Factory defaults are in **bold**. (Numbers in ( ) after option names or settings indicate a reference to Notes located at the end of the table.)

function	chnl/mode	option	option description
Loopback Operation	Lpbk	<b>Off</b> On	in service loopback
Baud Rate for Control Port (4)	v24c	0.3 0.6 1.2 2.4 <b>4.8</b> 9.6 19.2 38.4	300 baud 600 baud 1200 baud 2400 baud 4800 baud 9600 baud 19200 baud 38400 baud
Baud Rate for Maintenance Port (4)	v24m	0.3 0.6 1.2 2.4 <b>4.8</b> 9.6 19.2 38.4	300 baud 600 baud 1200 baud 2400 baud 4800 baud 9600 baud 19200 baud 38400 baud
V.24 Module Address	SUN	XX y	XX=module address number; y=equivalent letter address (based on shelf position)
Nonlinear Processing	NLP	Off <b>On</b> ITUT	canceller only normal — NLP always on ITU-T (off during doubletalk)
Dynamic Signal Transfer™	DST	Off <b>On</b>	hard NLP background signal transparency
Echo Return Loss	ERL	0dB 3dB <b>6dB</b>	0 dB ERL in endpath 3 dB ERL in endpath 6 dB ERL in endpath
Endpath Delay Note: Defaults to longest endpath available.	Path	32ms 64ms 96ms (2) 128ms (2)	32ms endpath 64ms endpath 96ms endpath 128ms endpath
PCM Delay Through Send Side	Dlay	1Frm <b>2Frm</b>	1+ frame of delay through Send side 2+ frames of delay through Send side
continued . . .			

**Table 2-3 System configuration options**

function	chnl/mode	option	option description
Busy/Idle Control Mode	PCM	<b>IC30</b>	30 channel idlecode
		IC31	31 channel idlecode
		A Hi	A bit-high polarity
		A Lo	A bit-low polarity
		B Hi	B bit-high polarity
		B Lo	B bit-low polarity
		C Hi	C bit-high polarity
		C Lo	C bit-low polarity
		D Hi	D bit-high polarity timeslot 16
		D Lo	D bit-low polarity timeslot 16
		ICMF	30 channel idlecode with multiframe alarms
		ISDN (2, 5)	ISDN, 3.1K call type — disabled
		ISD3 (2, 5)	ISDN, 3.1K call type — enabled
Idlecode Pattern (Send) (1)	IC-S	<b>54H</b> xxH	hex 54 pattern user-defined via V.24 port
Idlecode Pattern (Receive) (1)	IC-R	<b>54H</b> xxH	hex 54 pattern user-defined via V.24 port
TS16 Control Side (1)	TS16	<b>Send</b> Recv AND	control bits on Send side control bits on Receive side control bits on Send AND Receive sides
CRC-4 Configuration	CRC4	<b>Off</b> Line Drop Both	off ONLY line side enabled ONLY drop side enabled both line and drop enabled
Alarm Indication Signal (AIS) Generation on Local Alarm	AIS	Disa <b>Enab</b>	off on
High-Level Compensation (2)	HLC	Disa <b>Enab</b>	off on
Data Tone Disabler	DTD	Off 2100 <b>PhRv</b>	off G.164 (2100Hz tone) G.165 (2100Hz + phase reversal)
Signaling Tone Disabler	STD	<b>Off</b> C5 2280 2600 C6C7	off ITU-T #5 (2400/2600Hz) 2280Hz AC15/SF SF (2600Hz) ITU-T #6,#7 (2000Hz)
Optional Signaling Tone Disabler (2)	OSTD	Off <b>C5</b> 2280 2600 6667	off ITU-T #5 (2400/2600Hz) 2280Hz AC15/SF SF (2600Hz) ITU-T #6, #7 (2000Hz)
continued . . .			

Table 2-3 System configuration options

function	chnl/mode	option	option description
Automatic Level Control (2, 7)	ALC	<b>Off</b> Recv Send S&R	off Receive side only Send side only Send and Receive sides Note: S&R requires 25VX2 or higher
Acoustic Coupling Elimination and Long-Distance Processor (6)	ACE	<b>Off</b> On	disable ACE enable ACE
PCM Encoding Scheme	Enc	<b>Alaw</b> Mlaw	A-Law encoding of PCM μ-Law encoding of PCM
FLEXWARE™	FLX	<b>Univ</b> Mobl Gtwy	universal applications mobile applications gateway applications
Default Parameters (3)	Dflt	<b>Off</b> <b>On</b>	default off default on (cannot toggle back to off)
Front Panel Access	FPnl	<b>Unlk</b> Lock	control mode view only mode

**Notes:**

1. These configurations are only available when associated busy/idle control mode is selected.
2. These configuration menus are only available when the associated optional hardware is present (see 25VX compatibility chart in the *258 E1 Echo Canceller System Release Notes*).
3. The autobaud command (<break> <CR>) can be used to easily configure all 258XMC modules on the serial port to the controlling terminal's baud rate. This is especially useful after issuing the set defaults command.
4. Ports should be inactive when baud rates are being changed.
5. These settings only appear if the Integrated Services Digital Network (ISDN) feature is available (25VX2 installed with ALC off [see 25VX compatibility chart in the *258 E1 Echo Canceller System Release Notes* document]).
6. Far end echo path delay and Acoustic Echo Path Loss (AEPL) parameters cannot be accessed from the front panel.
7. ALC Target Audio Level (TAL) and ALC Step-Size (SS) cannot be accessed from the front panel.

**Table 2-3 System configuration options**

### 3. Menu Screens

- 3.1 Menu screens are available from either the control or maintenance port on the 258X mounting assembly by connecting a terminal with the proper configuration (even parity, seven data bits, one stop bit) and baud rate to the shelf RS-232 port (see baud rate in Table 2-3) and issuing the two-character command @X, where X represents the 258X module shelf position. For example, the first 258X module in the shelf is 1, so the command @1 would return the function menu (1-0) for the first 258X module.
- 3.2 The system status **V.24 active** LED remains on for as long as that 258X module is in menu mode or for as long as the master canceller is controlling it. Exit all menus to turn the LED off.
- 3.3 The autobaud feature (<break><cr>) can be used to quickly synchronize the 258X module baud rate with the controlling terminal's baud rate (see paragraph 4.16).

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

menu description	menu number	figure
Function	1-0	3-1
Module Status	1-1	3-2
Module Identification	1-1-1	3-3
Module V.24 Statistics	1-1-2	3-4
Module Configuration	1-2	3-5
NLP Mode	1-2-5	3-6
Echo Return Loss	1-2-6	3-7
Endpath Delay	1-2-7	3-8
G.164/G.165 Tone Disabler	1-2-9	3-9
Signaling Tone Disabler	1-2-10	3-10
Optional Signaling Tone Disabler	1-2-11*	3-11
Busy/Idle Signaling Control	1-2-12	3-12
CAS/Idlecode Cancellor Control	1-2-12-1	3-13
TS16 Signaling Control Side	1-2-12-2	3-14
ISDN Signaling Control	1-2-12-6	3-15
Serial Interface Configuration	1-2-14	3-16
Control Port Baud Rate Selection	1-2-14-1	3-17
Maintenance Port Baud Rate Selection	1-2-14-2	3-18
CLEARCALL Enhancements	1-2-16	3-19
HLC Subassembly Configuration	1-2-16-1*	3-20
HLC Signal High Threshold	1-2-16-1-2*	3-21
HLC Signal Low Threshold	1-2-16-1-3*	3-22
HLC Hold-Over Time	1-2-16-1-4*	3-23
HLC Signal Attenuation	1-2-16-1-5*	3-24
ALC	1-2-16-4*	3-25
ALC Target Audio Level	1-2-16-4-3*	3-26
ACE (and LDP) Options	1-2-16-5*	3-27
ACE Minimum AEPL (LDP Option)	1-2-16-5-2*	3-28
ACE Far End Echo Path Delay (LDP Option)	1-2-16-5-3*	3-29
FLEXWARE Optioning	1-2-17	3-30
Channel Configuration	1-3	3-31
Single Channel Configuration	1-3-1	3-32
Channel Mode Configuration	1-3-1-1	3-33
Channel Status	1-3-2	3-34
PCM Performance Statistics	1-4	3-35
*Configuration items are dependent upon the presence of the optional subassembly.		

**Table 3-1 Menu summary**

- 3.5 The following figures display the contents of each menu screen. Some menu screens are only available if the optional hardware exists.

```
TELLABS OPERATIONS, INC. 2582 ECHO CANCELLER MENUS

Use carriage return to refresh a menu screen.
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 CAPITALS only.

FUNCTION (1-0):

1) Module Status Menu
2) Module Configuration Menu
3) Channel Status/Configuration Menu
4) PCM Performance Statistics Menu
E) Exit Menus

FLEXWARE and Dynamic Signal Transfer are trademarks of
    Tellabs Operations, Inc.

[CANCELLER 01] Enter Option > 1
```

**Figure 3-1**     **Function Menu**

```
MODULE STATUS (1-1):

Module Status ..... In Service

Module Alarm State ..... NONE
Send Alarms ..... NONE
Receive Alarms ..... NONE
Alarm Cutoff ..... Inactive

Power Supply #1 ..... OK
Power Supply #2 ..... NOT PRESENT

1) Display Module Identification Menu
2) Display V24 Statistics Menu
3) Activate Alarm Cutoff
E) End

[CANCELLER 01] Enter Option > 1
```

**Figure 3-2**     **Module Status Menu**

see Note below →

```

MODULE IDENTIFICATION (1-1-1):

64ms 258 CEPT/E1 Echo Canceller
Consisting of:
    81.2582 64ms Main Assembly ..... PCB Rev A
    82.25VXn ..... PCB Rev B

Main Assembly Details:
    Issue Level ..... 1
    Product Revision ..... A

    Main Software Revision ..... 3.22
    Boot Software Revision ..... A

    Serial Number ..... BB23456789
    Date Module Tested ..... 5/11/98
    Manufacturing Test Set Number ..... CEPT01
    Test Software Revision ..... TE03

E) End

[CANCELLER 01] Enter Option > E

```

**Note:** A subassembly identification line is added in the first section of the menu if an echo canceller is equipped with an 82.25VXn subassembly. The value of *n* will be specified.

**Figure 3-3**    *Module Identification Menu*

```

MODULE V24 STATISTICS (1-1-2):

                                     Control      Maintenance

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

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

Characters Received                  0           11
Characters Transmitted               0          2415

NOTE: Statistics in this menu are totals since last serial port
      reconfiguration (i.e. baud rate change or system reset).

E) End

[CANCELLER 01] Enter Option > E

```

**Figure 3-4**    *Module V.24 Statistics Menu*

```

MODULE CONFIGURATION (1-2):
Warning: Changing any configuration in this menu may disrupt service.
1) Loopback ..... Off
2) AIS Generation ..... Enabled
3) Line side CRC ..... Disabled
4) Drop side CRC ..... Disabled
5) Non-linear Processor Mode Menu ..... Enabled Always
6) Echo Return Loss Menu ..... 6 dB
7) Endpath Delay Menu ..... 64 Milliseconds
8) Send Side Delay ..... 2 Frames
9) Data Tone Disabler Menu ..... 2100 Hz w/Phase Reversal (G.165)
10) Signalling Tone Disabler Menu ..... Off
11) Optional Signalling Tone Disabler Menu . Not Available
12) PCM CAS/Idlecode/ISDN Control Menu .... Idlecode 30 Ch Send-54 Rcv-54
13) Front Panel Optioning ..... Enabled
14) Serial Port Parameters Menu ..... CTL-4800 MAINT-4800
15) PCM Encoding Parameters ..... A-Law
16) CLEARCALL Enhancement Menu ..... DST On,ALC Off,ACE Off
17) FLEXWARE(TM) Option ..... Universal
D) Default ALL Parameters ..... OFF
R) System RESET
E) End
[CANCELLER 01] Enter Option > 5

```

**Figure 3-5 Module Configuration Menu**

```

NLP MODE (1-2-5): Enabled Always

1) Disabled
2) Enabled Always
3) Enabled ITU-T
E) End

[CANCELLER 01] Enter Option > E

```

**Figure 3-6 NLP Mode Menu**

```

ECHO RETURN LOSS (1-2-6): 6 dB

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

[CANCELLER 01] Enter Option > E

```

**Figure 3-7 Echo Return Loss Menu**

```

ENDPATH DELAY (1-2-7): 64 Milliseconds

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

[CANCELLER 01] Enter Option > E

```

**Figure 3-8 Endpath Delay Menu**

```
G.164/G.165 TONE DISABLER (1-2-9): 2100 Hz w/Phase Reversal (G.165)

1) 2100 Hz (G.164)
2) 2100 Hz With Phase Reversal (G.165)
3) Off
E) End

[CANCELLER 01] Enter Option > E
```

**Figure 3-9 G.164/G.165 Tone Disabler Menu**

```
SIGNALLING TONE DISABLER (1-2-10): Off

1) C5 (2400/2600 Hz)
2) AC15/SF (2280 Hz)
3) R1/SF (2600 Hz)
4) C6/C7 (2000 Hz)
5) Off
E) End

[CANCELLER 01] Enter Option > E
```

**Figure 3-10 Signaling Tone Disabler Menu**

```
OPTIONAL SIGNALLING TONE DISABLER (1-2-11): C5 (2400/2600 Hz)

1) C5 (2400/2600 Hz)
2) AC15/SF (2280 Hz)
3) R1/SF (2600 Hz)
4) C6/C7 (2000 Hz)
5) Off
E) End

[CANCELLER 01] Enter Option > E
```

**Figure 3-11 Optional Signaling Tone Disabler Menu**

```
BUSY/IDLE SIGNALLING CONTROL (1-2-12): Idlecode 30 CH Send-54 Rcv-54

1) TS16(CAS)/Idlecode Menu ..... Idlecode 30 Ch
* 2) TS16 Signalling Control Side ..... Send
* 3) Send Side Idlecode Pattern ..... 54
* 4) Receive Side Idlecode Pattern ..... 54
* 5) Set Idlecode Patterns to default
6) ISDN .....Disabled
E) End

* Menu option 2 is not accessible unless a TS16 mode is selected
  under option 1 of this sub-menu.

* Menu options 3-5 are not accessible unless an idlecode mode is
  selected under option 1 of this sub-menu.

[CANCELLER 01] Enter Option > E
```

**Figure 3-12 Busy/Idle Signaling Control Menu**

CAS/IDLECODE CANCELLER CONTROL (1-2-12-1): Idlecode 30 Ch

- 1) Idlecode 30 Channel
- 2) Idlecode 31 Channel
- 3) TS16 A High
- 4) TS16 A Low
- 5) TS16 B High
- 6) TS16 B Low
- 7) TS16 C High
- 8) TS16 C Low
- 9) TS16 D High
- 10) TS16 D Low
- 11) Idlecode/MFSYNC 30 Channel
- E) End

[CANCELLER 01] Enter Option > E

**Figure 3-13 CAS/Idlecode Cancellor Control Menu**

TS16 SIGNALLING CONTROL SIDE (1-2-12-2): AND

- 1) Send only
- 2) Receive only
- 3) Send AND Receive
- E) End

[CANCELLER 01] Enter Option > 1

**Figure 3-14 TS16 Signaling Control Side Menu**

ISDN SIGNALLING CONTROL (1-2-12-6): 3.1K, D-TS16

- 1) Cancellation on 3.1KHz call type.....Enabled
- 2) ISDN Channel to timeslot mapping.....Disabled
- E) End

[CANCELLER 01] Enter Option > E

**Note:** Option 2 is not currently available.

**Figure 3-15 ISDN Signaling Control Menu**

SERIAL INTERFACE CONFIGURATION (1-2-14):

- 1) Control Port Baud Rate Menu ..... 4800
- 2) Maintenance Port Baud Rate Menu ..... 4800
- 3) System Unit Number ..... 1
- 4) Auto-baud Determination ..... Enabled
- E) End

[CANCELLER 01] Enter Option > 1

**Figure 3-16 Serial Interface Configuration Menu**

```
CONTROL PORT BAUD RATE SELECTION (1-2-14-1): 4800

1) 300
2) 600
3) 1200
4) 2400
5) 4800
6) 9600
7) 19200
8) 38400
E) End

[CANCELLER 01] Enter Option > E
```

**Figure 3-17 Control Port Baud Rate Selection Menu**

```
MAINTENANCE PORT BAUD RATE SELECTION (1-2-14-2): 4800

1) 300
2) 600
3) 1200
4) 2400
5) 4800
6) 9600
7) 19200
8) 38400
E) End

[CANCELLER 01] Enter Option > E
```

**Figure 3-18 Maintenance Port Baud Rate Selection Menu**

```
CLEARCALL Enhancement (1-2-16): DST On,ALC Off,ACE Off

* 1) HLC Configuration Menu ..... Not Available
  2) Dynamic Signal Transfer(TM) ..... On
* 3) Dynamic Noise Substitution ..... Not Available
  4) Automatic Level Control ..... Off, -18dBm, 6dB
  5) Acoustic Coupling Elimination ..... Enabled, 25dB, 180-360ms
  E) End

* THIS FEATURE NOT CURRENTLY SELECTABLE (SEE TECHNICAL MANUAL)

[CANCELLER 01] Enter Option > 2
```

**Figure 3-19 CLEARCALL Enhancements Menu**

```
HLC SUBASSEMBLY CONFIGURATION (1-2-16-1):

1) Enable/Disable ..... Enabled
2) Signal High Threshold Level Menu ..... +2.5 dBm0
3) Signal Low Threshold Level Menu ..... -10 dBm0
4) HLC Hold-over Time Menu ..... 8 Seconds
5) Signal Attenuation Level Menu ..... 10 dB
E) End

[CANCELLER 01] Enter Option > 2
```

**Figure 3-20 HLC Subassembly Configuration Menu**

```
HLC SIGNAL HIGH THRESHOLD (1-2-16-1-2): +2.5 dBm0

1) 0 dBm0
2) +2.5 dBm0
3) -3 dBm0
E) End

[CANCELLER 01] Enter Option > E
```

**Figure 3-21 HLC Signal High Threshold Menu**

```
HLC SIGNAL LOW THRESHOLD (1-2-16-1-3): -10 dBm0

1) -6 dBm0
2) -10 dBm0
3) -16 dBm0
4) -20 dBm0
E) End

[CANCELLER 01] Enter Option > E
```

**Figure 3-22 HLC Signal Low Threshold Menu**

```
HLC HOLD-OVER TIME (1-2-16-1-4): 8 Seconds

1) 1 Second
2) 2 Seconds
3) 4 Seconds
4) 8 Seconds
E) End

[CANCELLER 01] Enter Option > E
```

**Figure 3-23 HLC Hold-Over Time Menu**

```
HLC SIGNAL ATTENUATION (1-2-16-1-5): 10 dB

1) 6 dB
2) 8 dB
3) 10 dB
4) 12 dB
E) End

[CANCELLER 01] Enter Option > E
```

**Figure 3-24 HLC Signal Attenuation Menu**

```
ALC MENU (1-2-16-4): Off, -18dBm, 6dB

1) Send-side ..... Off
2) Receive-side ..... Off
3) Target Audio Level ..... -18dBm
4) Step Size ..... 6dB steps
D) Set to factory defaults
E) End

[CANCELLER 01] Enter Option > 3
```

**Figure 3-25 ALC Menu**

```

ALC Target Audio Level Menu (1-2-16-4-3): Off, -18dBm, 6dB

1) -15dBm Target Audio Level
2) -18dBm Target Audio Level (Default)
3) -21dBm Target Audio Level
4) -24dBm Target Audio Level
E) End

[CANCELLER 01] Enter Option > E

```

**Figure 3-26 ALC Target Audio Level Menu**

```

ACE Menu (1-2-16-5): Enabled, 25dB, 180-360ms

1) Enable/Disable ..... Enabled
2) Minimum AEPL ..... 25dB
3) Far end echo path delay ..... 180-360ms
D) Set to factory defaults: ACE Off, AEPL = 35dB, Echo path delay = 180-360ms
E) End

[CANCELLER 01] Enter Option > 3

```

**Figure 3-27 ACE Options Menu (see Note below)**

```

ACE Minimum AEPL Menu (1-2-16-5-2): Enabled, 25dB, 180-360ms

1) 25dB Minimum AEPL
2) 35dB Minimum AEPL (Default)
3) 45dB Minimum AEPL
E) End

[CANCELLER 01] Enter Option > 3

```

**Figure 3-28 ACE Minimum AEPL Menu (see Note below)**

```

ACE Far end echo path delay Menu (1-2-16-5-3): Enabled, 25dB, 180-360ms

1) 0ms to 180ms
2) 180ms to 360ms
3) 500ms to 600ms
E) End

[CANCELLER 01] Enter Option > 3

```

**Figure 3-29 ACE Far End Echo Path Delay Menu (see Note below)**

```

FLEXWARE(TM) OPTIONING (1-2-17): Universal

1) Universal
2) Mobile
3) Gateway
E) End

[CANCELLER 01] Enter Option > 3

```

**Figure 3-30 FLEXWARE Optioning Menu**


---

**Note:** The LDP feature is activated by enabling ACE and selecting the appropriate endpath loss and far end echo delay.

---

## CHANNEL CONFIGURATION (1-3):

- 1) Single Channel Configuration Menu
- 2) All Channel Status Menu
- 3) All Channels Forced Active
- 4) All Channels Forced Bypass
- 5) All Channels Normal
- 6) All Channels H-RESET On
- 7) All Channels H-RESET Off
- 8) All Channels H-HOLD On
- 9) All Channels H-HOLD Off
- 10) All Channels Selftest Log Reset
- 11) All Channels CLEARCALL Enhancements On
- 12) All Channels CLEARCALL Enhancements Off
- E) End

[CANCELLER 01] Enter Option > 1  
 [CANCELLER 01] Channel Number > 1

**Figure 3-31 Channel Configuration Menu (see Important statement below)**

**Important:** The Forced Active Mode (option 3 in Figure 3-31) is to be used for diagnostic purposes only. Using the Forced Active Mode during normal operation allows echo at the beginning of the call. It also causes the CLEARCALL features to be bypassed.

## SINGLE CHANNEL CONFIGURATION (1-3-1): Channel-1

Warning: Changing any configuration in this menu may disrupt service.

Selftest History Fail Count ..... 0 Failure(s)  
 Current Status ..... Cancellation Active

## Active/Bypass Decision Hierarchy (high to low priority):

PCM Rcv/Send Alarms ..... None  
 Last Selftest Run ..... Passed  
 Data Tone Disabler Status ..... No Tone Detected  
 Signalling Tone Disabler Status .... No Tone Detected  
 Channel Mode ..... Normal  
 CCS Command Status ..... Inactive  
 ISDN Signaling Status ..... Channel Busy

- 1) Channel Mode Menu ..... Normal
- 2) H Register Hold..... Inactive
- 3) H Register Reset ..... Inactive
- 4) Reset Selftest History Fail Count
- 5) CLEARCALL Enhancements ..... On
- E) End

**Figure 3-32 Single Channel Configuration Menu**

## CHANNEL MODE CONFIGURATION (1-3-1-1): Normal

- 1) Forced Active
- 2) Forced Bypass
- 3) Normal
- E) End

[CANCELLER 01] Enter Option > E

**Figure 3-33 Channel Mode Configuration Menu (see Important statement below Figure 3-31)**

## CHANNEL STATUS (1-3-2):

CH	A/B	DTD	STD	OSTD	CFG	CCS	****	MISC	CH	A/B	DTD	STD	OSTD	CFG	CCS	****	MISC
1	+						+	1	16	-						-	1
2	-						-	1	17	+						+	1
3	+						+	1	18	-						-	1
4	-						-	1	19	+						+	1
5	+						+	1	20	-						-	1
6	-						-	1	21	+						+	1
7	+						+	1	22	-						-	1
8	-						-	1	23	+						+	1
9	+						+	1	24	-						-	1
10	-						-	1	25	+						+	1
11	+						+	1	26	-						-	1
12	-						-	1	27	+						+	1
13	+						+	1	28	-						-	1
14	-						-	1	29	+						+	1
15	+						+	1	30	-						-	1
+ Indicates Active, - Indicates Bypass									31	-						D	1

E) End

[CANCELLER 01] Enter Option &gt;

\*\*\*\*Either IDLE, TS16, or ISDN will display, depending on the current configuration mode.

Figure 3-34 Channel Status Menu

**Channel Status Menu (1-3-2) legend:**

A/B: overall canceller status

(-) canceller is bypassed

(+) canceller is active

CH: channel number

DTD: Data Tone Disabler status

(-) tone detected

( ) no tone detected

STD: Signalling Tone Disabler status

(-) tone detected

( ) no tone detected

OSTD: Optional Signaling Tone Disabler status

(-) tone detected

( ) no tone detected

CFG: forced configuration control

(-) forced bypass

(-) forced active

( ) no forced configuration control

CCS: channel control status

(-) CCS bypass ("W" ASCII command)

(+) CCS busy ("U" ASCII command)

( ) no CCS control ("V" ASCII command)

\*IDLE: idlecode indication

(-) idlecodes being detected

(+) no idlecodes present

\*ISDN: ISDN indication

(-) ISDN being detected

(+) no ISDN present

\*TS16: Timeslot 16 control

(-) TS16 detected bypass

(+) TS16 detected active

MISC: miscellaneous

1st Char: CLEARCALL per-channel control

(0) per-channel off for this channel

(1) per-channel on for this channel

2nd char: H-reset indication

(R) H-reset asserted

( ) H-reset not asserted

3rd char: H-hold indication

(H) H-hold asserted

( ) H-hold not asserted

4th char: self-test failure indication

(F) channel failed last self-test

( ) channel passed last self-test

5th char: alarm indication

(A) Send or Receive alarm received

( ) no alarms received

\*Either IDLE, TS16, or ISDN will display, depending on the current configuration mode.

**Note:** The overall canceller status is determined with the order of precedence being from left to right (DTD has highest priority).

3.6 B-channel to timeslot mapping settings are as shown in Table 3-2.

B-channel	timeslot number
1	1
2	2
:	:
:	:
15	15
D-channel	16
16	17
17	18
:	:
:	:
29	30
30	31

**Table 3-2 B-channel to timeslot mapping settings**

PCM PERFORMANCE STATISTICS (1-4):

	Receive-in	Send-in
CRC-4 Block Errors:		
In Last Second	0	0
In Second Previous to Last	0	0
Total Since Regs. Reset	0	0
Errors in Frame Alignment	0	3
Errored Seconds	0	1
Severely Errored Seconds	0	0
Time Since Reset (DDD+HH:MM:SS)	000+00:11:33	000+00:11:33
Frameslip counts	0 skip(s)	
	0 repeat(s)	
1) Reset Receive-in Performance Registers		
2) Reset Send-in Performance Registers		
3) Reset All Performance Registers		
E) End		
[CANCELLER 01] Enter Option > 1		

**Figure 3-35 PCM Performance Statistics Menu**

## 4. V.24 ASCII Character Command Set

---

### Command Availability

- 4.1 The 258X module has three states of operation . . .
  - normal mode
  - responsive failure mode
  - critical failure mode
- 4.2 This section defines the V.24 ASCII command set that is available during the canceller's normal operation mode. The module responds to a limited subset of the V.24 command set in responsive failure mode — i.e., **fault** LED on and communications still open — and does not respond to any command when in critical failure mode. If the module transitions to either failure mode, record the failure code and contact Tellabs, as directed in Section 6.

### Dual V.24 Port Descriptions

- 4.3 The 258 Echo Cancellor System has two V.24 Electronic Industries Association (EIA) RS-232D compatible, full duplex asynchronous serial ports, the control port and the maintenance port.
- 4.4 The control port is a high-speed signaling interface that allows direct per-call control of a 258X module by a switch. The firmware task associated with this port has a high priority so that requests can be handled quickly. The port processes up to 50 four-character commands per second. This data rate is only valid if the switch waits for the 258X module to respond before issuing another command. Proper operation of the canceller is not guaranteed if this command/response protocol is not strictly adhered to.
- 4.5 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 canceller on the same port can handle. Therefore, applications that require high-speed communications to individual 258X modules should design their serial ports to minimize the number of modules per port.
- 4.6 The maintenance port is used for configuration and monitoring the module's performance. Maintenance is inactive when the master canceller is configuring another canceller.

### V.24 Port Specifics

- 4.7 Protocol:
  - full duplex asynchronous
  - seven data bits
  - one start bit
  - one stop bit
  - even parity
  - remote echoplex operation
  - 300, 600, 1200, 2400, 4800, 9600, 19200, 38400 baud rate (rate can be optioned uniquely for each port, with 4800 as the default)
  - 80 columns by 24 rows
  - Data Terminal Ready (DTR) handshake (control port only)

## 4.8 Signals:


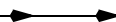






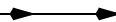
DTE side		cable wiring	258 side (DCE)	
signal	pin no.		pin no.	signal
FRAME GND	1		1	FRAME GND
TXD	2		2	TXD
RXD	3		3	RXD
RTS	4		4	RTS
CTS	5		5	CTS
DSR	6		6	DSR
GND	7		7	GND
DCD	8		8	DCD
*DTR	20		20	*DTR
Note: *This signal is only available on the control port. It is a no-connect on the maintenance port.				

Table 4-1 First (or only) cable in daisy chain





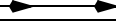
from 258 daisy chain (DCE)		cable wiring	to 258 daisy chain (DCE)	
signal	pin no.		pin no.	signal
FRAME GND	1		1	FRAME GND
TXD	2		2	TXD
RXD	3		3	RXD
GND	7		7	GND
*DTR	20		20	*DTR
Note: *This signal is only available on the control port. It is a no-connect on the maintenance port.				

Table 4-2 All other cables in daisy chain

## Commands

- 4.9 Table 4-3 provides a summary of all the serial port commands and their corresponding characters and hex representations, as well as a list of the paragraphs where their descriptions can be found. (Numbers in ( ) after command names indicate a reference to Notes located at the end of the table.)

command	char	hex	paragraphs
Set Default (1)	!	21	4.14
Alarm Cut Off (1)	"	22	4.15
Select Baud Rate (2, 3)	#	23	4.16
Per-Channel Self-Test Failure History (2)	\$	24	4.17
PCM Alarm History (2)	%	25	4.18
NLP Control (2)	&	26	4.19
HLC Control (2)	'	27	4.20
AIS Generation On/Off (2)	(	28	4.21
Module Select (2, 3)	)	29	4.22
Short Alarm Status (3)	*	2A	4.23
DST Control	+	2B	4.24
TS16/Idlecode/ISDN Control (2)	,	2C	4.25
Endpath Delay Control (2)	—	2D	4.26
Network Performance Summary (2)	.	2E	4.27
Extended Command Set	6	36	4.28
• Automatic Level Control	ALC	—	4.29
• CLEARCALL Enhancement Per-Channel Control	CCE	—	4.30
• FLEXWARE Control	FLX	—	4.31
• ACE (and LDP) Control	ACE	—	4.32
Send Side Delay Control (2)	7	37	4.33
PCM Encoding Scheme	8	38	4.34
HLC Configuration Control (2)	9	39	4.35
Tone Disabler Status (2)	:	3A	4.36
Idlecode Pattern Control (Send) (2)	;	3B	4.37
Tone Detector Disable (2)	<	3C	4.38
System ID (2, 3)	=	3D	4.39
Tone Detector Enable (2)	>	3E	4.40
Front Panel Access Control Mode (Unlk)	?	3F	4.41
Front Panel Access View Only Mode (Lock)	@	40	4.42
Normal Mode	A	41	4.43
Forced Bypass Mode	B	42	4.44
NLP Disable (1)	C	43	4.45
NLP Enable (1)	D	44	4.46
Bypass Status (2)	E	45	4.47
PCM Loopback On (1)	F	46	4.48
PCM Loopback Off (1)	G	47	4.49
H-Hold On (1)	H	48	4.50
continued . . .			

**Table 4-3** Summary of all serial port commands

command	char	hex	paragraphs
H-Hold Off (1)	I	49	4.51
Signaling Busy/Idle Status (1)	J	4A	4.52
Forced Active (4)/Bypass Status (2)	K	4B	4.53
Idlecode Pattern Control (Receive) (2)	L	4C	4.54
Alarm Status	M	4D	4.55
Forced Active Mode (4)	N	4E	4.56
Select Timeslot 16 Control Side (2)	O	4F	4.57
Re-Run Power-Up Diagnostics (1, 3)	P	50	4.58
H-Reset Off	Q	51	4.59
H-Reset On	R	52	4.60
Single Channel Status	S	53	4.61
Per-Channel Self-Test Status	T	54	4.62
CCS Busy	U	55	4.63
Clear CCS Busy/Idle	V	56	4.64
CCS Idle	W	57	4.65
Tone Disabler Select (2)	X	58	4.66
CCS Busy/Idle Status	Y	59	4.67
System Configuration Status (2)	Z	5A	4.68
ERL Configuration (2)	[	5B	4.69
CRC-4 Configuration (2)	]	5D	4.70
Global SUN	^	5E	4.71
Tone Disabled Status	_	5F	4.72
Notes: 1. Channel number field must equal 00 2. Channel number field has alternate meaning 3. Command available in responsive failure mode 4. See <b>Important</b> statement below Figure 3-31			

Table 4-3 Summary of all serial port commands

## Command Definitions

- 4.10 Each command definition is in the format shown in Table 4-4. The first field is the command's ASCII value. 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 V.24 only or from either the V.24 or front panel. The fifth field is the command description.
- 4.11 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 first 24 units' SUNs have an ASCII equivalent, as shown in Table 4-5. Units with a SUN above 24 must be addressed with the global addressing scheme defined in the Command Descriptions section of this document. The second and third characters represent either a channel number (01 to 32, with 00 being all channels) or a special command parameter. For example, SS is used as the second and third characters for most system configuration commands as a parameter status request. The fourth character specifies the command to be executed, except when the extended command set is used. To help with programming, an ASCII-to-hex conversion chart is given in Table 4-6.

**Note:** The Extended Command Set allows longer commands.

ASCII	hex	syntax	executed from
Description			

**Table 4-4** Command definition format

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

**Table 4-5** SUN 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 conversion chart**

4.12 Special command responses are as follows . . .

output:		
ACK (hex 06)	command acknowledged	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.
BEL (hex 07)	command received but not available	The module only responds with a BEL character when it is in the responsive failure mode. A BEL is returned when a command is received error free but is not available because of a module failure.

**Table 4-7 Special command responses**

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

a00XXXXXXXX, where **a** is the V.24 address of the 258 being targeted; **00** are two ASCII characters designating all channels; and **XXXXXXXX** is a string of eight hexadecimal characters. These hex characters, when translated into binary, produce 32 bits, each of which designates a yes or no status for one of the 31 channels with one unused bit. Table 4-8 shows how this eight-character string translates into channel numbers and their status.

**Note:** Status information is returned for 31 channels even when timeslot 16 (channel 31) is used for signaling.

hex character	1st	2nd	3rd	4th	5th	6th	7th	8th
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	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	28 27 26 25	X 31 30 29
logic 1 — affirmative, logic 0 — negative								

**Table 4-8 All-channel-status reply bit map**

## Command Descriptions

### 4.14 Set Default

!	21	axx!	V.24 and front panel
<p>xx=MR Reset all parameters. Response: acknowledge/not acknowledge (ACK/NAK)</p> <p>xx=MS Show if unit is in the default mode for all parameter configurations. Response: aMS0 all parameters not set to default. aMS1 all parameters set to default.</p> <p>xx=02 Resets all 3.50 code load (ACE) and earlier parameters. Response: ACK/NAK</p> <p>xx=01 Resets all 3.20 code load (ALC and FLEXWARE) and earlier parameters. Response: ACK/NAK</p> <p>xx=S2 Status of all parameters for 3.50 code load. Response: aS20 3.50 code load parameters not set to default. aS21 3.50 code load parameters set to default.</p> <p>xx=S1 Status of all parameters for 3.20 code load. Response: aS10 3.20 code load parameters not set to default. aS11 3.2 0 code load parameters set to default.</p> <p>xx=00 Reset all 3.00 code load parameters. Response: ACK/NAK</p> <p>xx=SS Show if 3.00 code load parameters are in default mode. Response: aSS0 all 3.00 code load parameters are NOT set to default value. aSS1 all 3.00 code load parameters are set to default value.</p> <p>Note: The baud rate also returns to the default setting. If the controlling terminal is not at the default setting, then the autobaud feature (&lt;break&gt;&lt;cr&gt;) can be used to quickly return all cancellers on the serial port back to the controlling equipment's original baud rate. See the select baud rate command (paragraph 4.16) for further details on autobaud.</p>			

### 4.15 Alarm Cut Off

"	22	a00"	V.24 and front panel
<p>Cut off external alarm indicators. After this command is issued the front panel <b>ACO</b> LED remains on until the alarm status changes on either port. Response: ACK/NAK</p>			

#### 4.16 Select Baud Rate

#	23	apx#	V.24 and front panel
Select V.24 baud rate for a particular RS-232 port. The # or < prefix indicates which port to change the baud rate on. Baud rate status is provided via the Z command's LC option.			
<p>p=# change baud rate on the control port</p> <p>&lt; change baud rate on the maintenance port</p>			
<p>x = "1" — 300</p> <p>"2" — 600</p> <p>"3" — 1200</p> <p>"4" — 2400</p> <p>"5" — 4800 (default)</p> <p>"6" — 9600</p> <p>"7" — 19200</p> <p>"8" — 38400</p>			
Response: ACK/NAK			
<p>px=AN Disable the autobaud feature for both serial ports.</p> <p>AY Enable the autobaud feature for both serial ports. (default)</p>			
Response: ACK/NAK			
<p>&lt;break&gt;&lt;cr&gt; autobaud</p> <p>A break character followed by a carriage return allows all modules on the port to automatically synchronize to the controlling terminal's baud rate. This makes autobaud a convenient way to return all cancellers on a port back to a nondefault baud rate after the set default command (!) is executed. Autobaud MUST be disabled if different baud rates are used on the same port. There is a six-second timeout period that the &lt;cr&gt; must be received within after the &lt;break&gt; character.</p>			

#### 4.17 Per-Channel Self-Test Failure History

\$	24	axx\$	V.24 only
Request the number of channel self-test failures for a specified channel.			
xx=channel number 01-31			
Response: axxYYZZ, where YY is the number of failures for the channel and ZZ is the number of tests performed on the channel. The counters for this channel are cleared after the response is sent back.			
xx=00 Return the number of self-test failures for all channels. All counters are cleared after the response is sent back.			
Response: a00zzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzz, where z represents the number of failures (0 to F).			
xx=RD Return the number of self-test failures for all channels without clearing the counters afterward.			
Response: Same as a00\$ command.			
xx=CL Clear the self-test failure counters for all channels.			
Response: ACK/NAK			

## 4.18 PCM Alarm History

%	25	axx%	V.24 and front panel
Request the contents of the PCM alarm history register. Indications for errored seconds are not included here because they do not cause alarms; they are only signal conditions on the line.			
xx=00 Read then clear counters.			
Response: a00rs, where r represents the last alarm to occur at the Receive-in port and s represents the last PCM alarm to occur at the Send-in port.			
r or s="0" — no alarm			
"1" — carrier loss			
"2" — framing loss			
"3" — excessive Bit Error Rate (BER)			
"4" — AIS			
"5" — remote			
"6" — Multiframe (MF) alarm			
"7" — CRC-4 framing loss			
xx=RD Read the alarm history without clearing it.			
Response: aRDrs, where r and s are defined as above.			
xx=CL Clear the alarm history counters.			
Response: ACK/NAK			

## 4.19 NLP Control

&	26	ayy&	V.24 and front panel
Select whether the non-linear processor is always on or off during doubletalk, ITU-T spec.			
yy="#1" — ITU-T mode (off during doubletalk)			
"#2" — continuously on (default)			
Response: ACK/NAK			

## 4.20 HLC Control

'	27	ayy'	V.24 and front panel
Enable or disable the HLC function, if the optional hardware is present.			
yy="#1" — Disable HLC			
"#2" — Enable HLC (default)			
Response: ACK/NAK			

## 4.21 AIS Generation On/Off

(	28	ayy(	V.24 and front panel
Enable or disable transmission of AIS upon local alarm.			
yy="#1" — Off			
"#2" — On (default)			
Response: ACK/NAK			

## 4.22 Module Select

)	29	^xx)	V.24 only
<p>Select a specific canceller to become part of the active group of units that responds to global commands. This command enhances the new canceller capability to allow more than 32 units on the configuration RS-232 port and to configure multiple units concurrently.</p> <p>xx=00-7F hex Select 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/NAK</p> <p>xx=80-FF hex Add 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/NAK</p> <p>xx=SA Select all. Put all units on the port into a group.</p> <p>SN Select none. Reset the group selection for all units.</p> <p>Response: No response</p> <p>Examples:</p> <p>^05)^00! Set unit 6 to default parameters.</p> <p>^3F)^DD: Return data tone disabler status for unit 64.</p> <p>^D0)^D1)^D2)^D3)^D4)^D5)^D6)^D7)^00" Perform an ACO on units 81-88. These units remain selected until another group ")" command is issued, with xx in the 00 to 7F range.</p> <p>Note: 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>			

## 4.23 Short Alarm Status

*	2A	a*	V.24 only
<p>Request the status of current or remembered urgent or deferred alarms.</p> <p>Response: axy The x response character indicates the presence of a remembered urgent or deferred alarm. A remembered alarm indicates whether an alarm has occurred since the last time the alarms were cleared. The y response character indicates the current presence of an urgent or deferred alarm.</p> <p>x="0" — No alarms</p> <p>  "1" — Remembered deferred alarm</p> <p>  "2" — Remembered urgent alarm</p> <p>  "3" — Remembered urgent and deferred alarms</p> <p>y="0" — No alarms</p> <p>  "1" — Deferred alarm present</p> <p>  "2" — Urgent alarm present</p> <p>  "3" — Urgent and deferred alarms present</p> <p>This command also responds during power-up diagnostics. If power-up diagnostics are in progress, the command responds with IN PROGRESS. If power-up diagnostics have failed, the command responds with "PXXXXYYYY000", where XXXX is one of the module's four hex digit failure codes.</p>			

## 4.24 DST Control

+	2B	ayy+	V.24 and front panel
<p>Select whether the DST function is enabled or disabled.</p> <p>yy="#1" — Disable DST  "#2" — Enable DST (default)</p> <p>Response: ACK/NAK</p>			

## 4.25 TS16/Idlecode/ISDN Control

,	2C	ayy,	V.24 and front panel
<p>Select the signaling mode for all channels. The stated polarity indicates the call's busy state, referencing the module's active state.</p> <p>yy="#1" — idlecode, 30 channels (default)  "#2" — idlecode, 31 channels  "#3" — TS16, A bit, high polarity  "#4" — TS16, A bit, low polarity  "#5" — TS16, B bit, high polarity  "#6" — TS16, B bit, low polarity  "#7" — TS16, C bit, high polarity  "#8" — TS16, C bit, low polarity  "#9" — TS16, D bit, high polarity  "#A" — TS16, D bit, low polarity  "#B" — idlecode, 30 channels, sync on MFAW and monitor MF alarms  "#C" — ISDN, 3.1K call type — disabled  "#D" — ISDN, 3.1K call type — enabled</p> <p>Response: ACK/NAK</p>			

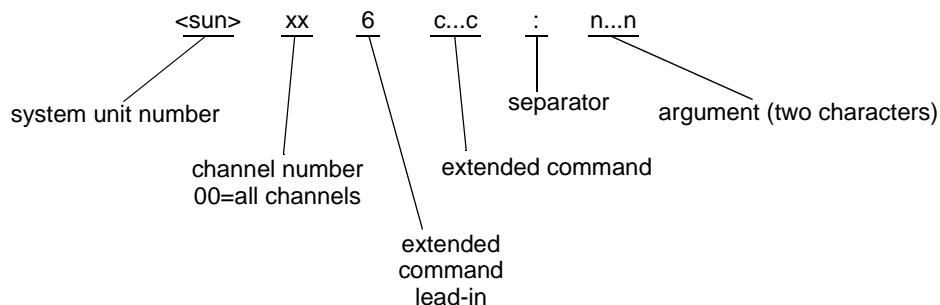
## 4.26 Endpath Delay Control

–	2D	ayy–	V.24 and front panel
<p>Select the canceller's endpath delay (defaults to longest endpath module is capable of).</p> <p>yy="#2" — 32 milliseconds  "#4" — 64 milliseconds  "#6" — 96 milliseconds  "#8" — 128 milliseconds</p> <p>Response: ACK/NAK</p> <p>y=SS responds with:  "32" — for 32ms  "64" — for 64ms  "96" — for 96ms  "128" — for 128ms</p>			

## 4.27 Network Performance Summary

.	2E	axx.	V.24 only
<p>Request a summary of network performance at both the Send-in and Receive-in ports. All performance monitoring registers are set to "00" upon power up and are not stored in the system EEPROM. When "a00." is executed, the registers are read and then cleared. Subsequent counts are from the last time an "a00." was executed. The maximum count for any register in the "00" command is FF hex (256). All counters freeze at a maximum until cleared.</p> <p>xx=00 Network performance summary. Read then clear the counters. Response: a00AABBCCDD0000 decoded as follows: AA=frameslip (overflow) counter BB=frameslip (underflow) counter CC=Send side frame alignment word errors DD=Receive side frame alignment word errors 0000=unused</p> <p>xx=CS Read then clear the Send side counters.* Response: aCSAABBCCDDDDDEEEEEFFFFGGGGTTTTTTTTT decoded as follows: AA=frameslip (overflow) counter (FF hex max.) BB=frameslip (underflow) counter (FF hex max.) CC=Send side frame alignment word errors (FF hex max.) DDDD=Send side CRC-4 block error counter (FFFF hex max.) EEEE=Send side errored second count (FFFF hex max.) FFFF=Send side severely-errored second count (FFFF hex max.) GGGG=Send side last two consecutive second CRC error counts (FFFF hex max.) TTTTTTTT=seconds since last clear counter (FFFFFFFF hex max.)</p> <p>xx=RS Read the Send side counters without clearing. Response: Same as above.</p> <p>xx=CR Read then clear the Receive side counters.* Response: Same as above, but for Receive side.</p> <p>xx=RR Read the Receive side counters without clearing. Response: Same as above, but for Receive side.</p> <p>xx=CL Clear all counters. Response: ACK/NAK</p> <p>Note: *The frameslip counters are only cleared with "00" and "CL" options.</p>			

## 4.28 Extended Command Set — ALC, CCE, FLEXWARE, and ACE use the extended command set for configuration, the format of which is shown below.



## 4.29 Automatic Level Control

axx6ALC:yy	V.24, menus, and front panel (per-channel only on V.24 and menus)
<p>Request to change the CLEARCALL ALC feature's configuration.</p> <p>xx="00" for configuration options or both sides, "SO" for changing Send only, and "RO" for changing Receive only</p> <p>yy="00", "01", "03", "06", "15", "18", "21", or "24", or "SS" for xx="00".</p> <p>yy="00", "01", "SS" for xx="RO" or "SO".</p> <p>Response: ACK/NAK, unless the status command "SS" or "ST" is used. "a006ALC:SS" has a response of "006ALC:SSvv,wwdB,-zzdBm", where vv is either the CLEARCALL per-channel control status "00" for off, "01" for on, or "11" for mixed channels; ww is the step size of either "03" or "06"; and zz is the target audio level of either "15", "18", "21", or "24". "aSO6ALC:SS" or "aRO6ALC:SS" respond with "auO6ALC:tt", where u is either "S" or "R", and tt is the CLEARCALL per-channel control status "00" for off, "01" for on, or "11" for mixed channels.</p> <p>"a006ALC:ST" has a response of "006ALC:STv", where v represents the ALC status. v=0 for disabled, 1 for Receive ALC only, 2 for Send ALC only, or 3 for Send and Receive ALC.</p>	

## 4.30 CLEARCALL Enhancement Per-Channel Control

axx6CCE:yy	V.24 and menus
<p>Request to change the CLEARCALL enhancement feature's per-channel configuration.</p> <p>xx=channel number 00-31: 00 is the all-channel selection.</p> <p>yy="00", "01", "SS"</p> <p>Response: ACK/NAK, unless the status command "axx6CCE:SS" is used, which has a response of either "a006CCE:wwwwwww", where wwwwww is a 32-bit hex representation of each channel being either on or off — i.e., 80000001 would indicate channels 4 and 29 are active. The bit pattern follows the all-channel-status reply bit map shown in Table 4-8. "auv6CCE:SS" (uv, not 00) responds with "auv6CCE:tt", where tt is "00" for off or "01" for on.</p>	

## 4.31 FLEXWARE Control

a006FLX:xx	V.24, menus, and front panel
<p>Request to change the FLEXWARE feature's configuration and display its status.</p> <p>xx="01" to set to universal option  "02" to set to mobile option  "03" to set to gateway option</p> <p>xx="SS" to display the FLEXWARE feature's status.</p> <p>Response: 006FLXyy, where yy=</p> <p>"01" — universal option  "02" — mobile option  "03" — gateway option</p>	

## 4.32 Acoustic Coupling Elimination and Long-Distance Processor Control

axx6ACE:yy	extended ASCII mode for remote terminal communication
xx="00" — (always) yy="00" — Disables ACE yy="01" — Enables ACE yy="25" — Sets AEPL for 25 dB yy="35" — Sets AEPL for 35 dB yy="45" — Sets AEPL for 45 dB yy="D1" — Adjusts for far end echo path delay of 0-180ms yy="D3" — Adjusts for far end echo path delay of 180-360ms yy="D6" — Adjusts for far end echo path delay of 500-600ms Response: ACK or NAK  yy=SS Requests ACE configuration status SS response: axx6ACE:SStt,vvDB, zzz decoded as follows: tt = "00" for off or "01" for on, vvDB = "45DB" or "35DB" or "25DB" for minimum AEPL, zzz-zzzms = "000-180MS", "180-360MS", or "500-600MS" for far end echo path delay.  If ACE is not available, the SS response is NAK.	

## 4.33 Send Side Delay Control

7	37	axx7	V.24 and front panel
Select the amount of delay to insert into the Send side.  xx="#1" — Insert one (1) frame of delay. "#2" — Insert two (2) frames of delay (default). Response: ACK/NAK  xx=SS Return the current Send side delay selection. Response: aSSYY, where YY is as follows:  YY="#1" — one frame of Send side delay. "#2" — two frames of Send side delay.			

## 4.34 PCM Encoding Scheme

8	38	axx8	V.24 and front panel
Select the PCM coding scheme for data.  xx="AL" — A-Law encoding data "ML" — $\mu$ -Law encoding data Response: ACK/NAK  xx=SS Show encoding status. Response: aSSAL encoding is A-Law aSSML encoding is $\mu$ -Law			

## 4.35 HLC Configuration Control

9	39	ahx9	V.24 only
<p>Configure the Receive-in port's HLC circuitry (if 2563B or 2563C subassembly is present). This command responds with NAK if the 2563B/C HLC subassembly is not present.</p> <p>h="H" high-level signal threshold (1010Hz tone)</p> <p>x="0" 0.0 dBm0</p> <p>"1" +2.5 dBm0 (default)</p> <p>"2" -3.0 dBm0</p> <p>h="L" low-level signal threshold (1010Hz tone)</p> <p>x="0" -6.0 dBm0</p> <p>"1" -10.0 dBm0 (default)</p> <p>"2" -16.0 dBm0</p> <p>"3" -20.0 dBm0</p> <p>h="P" holdover period (time added)</p> <p>x="0" 8.0 seconds (default)</p> <p>"1" 4.0 seconds</p> <p>"2" 2.0 seconds</p> <p>"3" 1.0 seconds</p> <p>h="A" digital attenuation levels</p> <p>x="0" 6 dB</p> <p>"1" 8 dB</p> <p>"2" 10 dB (default)</p> <p>"3" 12 dB</p> <p>Response: ACK/NAK</p>			

## 4.36 Tone Disabler Status

:	3A	axx:	V.24 and front panel
<p>Request the tone disablers' enable/disable configuration status.</p> <p>xx=00 Combine the status from all disablers.</p> <p>Response: a00xxxxxxx, where the channel x's are either all ones or all zeros, depending on the current tone disabler configuration. All logic ones indicate that either the DTD, STD, or OSTD has been enabled.</p> <p>xx=DD DTD status.</p> <p>Response: aDDxxxxxxx, where the channel x's are either all ones or all zeros, depending on the current tone disabler configuration. All logic ones indicate that the selected DTD has been enabled.</p> <p>xx=SD STD status.</p> <p>Response: aSDxxxxxxx, where the channel x's are either all ones or all zeros, depending on the current tone disabler configuration. All logic ones indicate that the selected STD has been enabled.</p> <p>xx=OD OSTD status.</p> <p>Response: aSDxxxxxxx, where the channel x's are either all ones or all zeros, depending on the current tone disabler configuration. All logic ones indicate that the selected OSTD has been enabled.</p> <p>Note: See Table 4-8 for mapping of response to channel numbers.</p>			

## 4.37 Idlecode Pattern Control (Send)

;	3B	axx;	V.24 and front panel
<p>The 258 can monitor any user-defined 8-bit hex pattern on either the Send or Receive side. The idlecode patterns can even be different. The “;” command defines the Send side idlecode pattern, while the “L” command defines the Receive side idlecode pattern. The default pattern is 54 hex.</p> <p>xx=two ASCII hex digits (uppercase) are assigned to the Send side user and current Idlecode Detection pattern.</p> <p>xx=#0 Assign both Send and Receive idlecode patterns to 54H.*</p> <p>xx=#1 Assign both Send and Receive idlecode patterns to 55H.*</p> <p>*When these commands are implemented, they are saved as user patterns.</p> <p>XX=SD Set default value for Send side current pattern (which is 54H). The previously saved user pattern remains unaffected.</p> <p>XX=SU Enable previously saved user Send side pattern and copy it into current pattern.</p> <p>Response: ACK/NAK</p> <p>Note: See paragraph 4.54 for Idlecode Pattern Control (Receive).</p>			

## 4.38 Tone Detector Disable

<	3C	axx<	V.24 and front panel
<p>Disable the selected tone disabler for all channels.</p> <p>xx=“00” — Disable the DTD and OSTD for all channels.</p> <p>xx=“01-31” — This command ACKs these requests.</p> <p>xx=“DD” — Disable the DTD for all channels.</p> <p>xx=“SD” — Disable the on-board STD for all channels.</p> <p>xx=“OD” — Disable the OSTD for all channels.</p> <p>Response: ACK/NAK</p>			

## 4.39 System ID

=	3D	ayy=	V.24 only
<p>Request the system identification from the module.</p> <p>yy="00" — Responds with 83-254 REV A</p> <p>yy="MN" — Model number</p> <p>Response: 81-258M REVX.YZ, where 1 is the product issue number, M is the module model number — i.e., M for master canceller, " " for regular module — and REVX.YZ is the system firmware revision.</p> <p>yy="PR" — Produced revision level. The original manufactured revision level.</p> <p>Response: 81.258M REV XX, where M is the module's model number and XX is the produced revision.</p> <p>yy="#0" — Request main PCB revision level.</p> <p>Response: 81.258M REV X, where M is the module's model number and X is the main PCB revision level.</p> <p>yy="#1" — 80.5684 REV E (254-compatible response)</p> <p>yy="#2" — 80.5650 REV D (254-compatible response)</p> <p>yy="P1" — Subassembly on port 1</p> <p>Response: NOT PRESENT (if no subassembly present)</p> <p>81.2584H REV C (if echo expansion subassembly is present)</p> <p>yy="P2" — Subassembly on port 2</p> <p>Response: NOT PRESENT (if no subassembly present)</p> <p>81.2563X REV Y (if 2563 subassembly is present ["X" is product model and "Y" is product rev])</p> <p>81.25VXY REV Z (if 25VX subassembly is present ["Y" is product model and "Z" is product rev])</p> <p>yy="FR" — Firmware revision level (flash memory).</p> <p>Response: XXy, where XX is the feature package number.</p> <p>y is the feature package revision level.</p> <p>yy="SN" — Module serial number.</p> <p>Response: XXXXXXXXXX ten alphanumeric digits that represent the bar code serial number.</p> <p>yy="DA" — Date tested by manufacturing.</p> <p>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.</p> <p>Response: XXXXXX six alphanumeric digits that represent the test set cell number.</p> <p>yy="SW" — Manufacturing test set software revision level.</p> <p>Response: VV.RR, where VV is the software version and RR is the revision of that version of software.</p>			

## 4.40 Tone Detector Enable

>	3E	axx>	V.24 and front panel
<p>Enable the selected tone disabler for all channels. This command returns a NAK to the user for any "xx" not specified below.</p> <p>xx="00" — Enable the DTD and OSTD for all channels.  xx="01-31" — This command ACKs these requests.  xx="DD" — Enable DTD for all channels.  xx="SD" — Enable the STD for all channels.  xx="OD" — Enable the OSTD for all channels.</p> <p>Response: ACK/NAK</p>			

## 4.41 Front Access Control Mode (Unlk)

?	3F	a00?	V.24 and front panel
<p>This command unlocks the front panel.</p> <p>Response: ACK/NAK</p>			

## 4.42 Front Panel Access View Only Mode (Lock)

@	40	a00@	V.24 and front panel
<p>This command locks the front panel.</p> <p>Response: ACK/NAK</p>			

## 4.43 Normal Mode

A	41	axxA	V.24 only
<p>Resets any one or all channels to the previously selected busy/idle control mode. This command is used when certain channels were inadvertently set to either forced active* or forced bypass mode.</p> <p>Response: ACK/NAK</p> <p>*See <b>Important</b> statement below Figure 3-31.</p>			

## 4.44 Forced Bypass Mode

B	42	axxB	V.24 and front panel
<p>Force echo cancellation off for the channel specified by "xx".</p> <p>Response: ACK/NAK</p>			

## 4.45 NLP Disable

C	43	a00C	V.24 and front panel
<p>Disable the NLP.</p> <p>Response: ACK/NAK</p>			

## 4.46 NLP Enable

D	44	a00D	V.24 and front panel
Enable the NLP. Response: ACK/NAK			

## 4.47 Bypass Status

E	45	a00E	V.24 and front panel
Request a summary list of the channels that are in the bypassed state.  xx="00" — Lists channels that do not have cancellation active. xx="FB" — Lists channels that have been forced bypass. Response: a00xxxxxxx, 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.			

## 4.48 PCM Loopback On

F	46	a00F	V.24 and front panel
Enter line and drop PCM loopback mode. The loopback mode passes the Receive data out the Send port and shows the proper alarms on the front panel (and V.24), but does not send AIS downstream. Response: ACK/NAK			

## 4.49 PCM Loopback Off

G	47	a00G	V.24 and front panel
Exit line and drop PCM loopback mode and return to service. Response: ACK/NAK			

## 4.50 H-Hold On

H	48	axxH	V.24 only
Freeze the specified channel's near end circuit path model by disabling updates to the convolution processor's memory for that channel. Issuing this command causes self-test failure for the channel specified. An "xx" of 00 controls all channels. Response: ACK/NAK Note: Changing the canceller's endpath option turns off the H-Hold for all channels.			

## 4.51 H-Hold Off

I	49	axxI	V.24 only
Restore the specified channel's convolution processors' updating by "xx". An "xx" of 00 controls all channels. Response: ACK/NAK			

## 4.52 Signaling Busy/Idle Status

J	4A	a00J	V.24 only
<p>Request a signaling busy/idle status list for all channels. Logic 1 indicates that the channel is busy and logic 0 indicates that the channel is idle. Signaling busy/idle status is determined only by the presence of the idlecode pattern or the signaling bit status selected when TS16 signaling is used. The following does not result in a change in busy/idle status:</p> <ul style="list-style-type: none"> <li>• forced active or forced bypass commands</li> <li>• CCS channel control commands</li> <li>• tone disabler tone detection</li> </ul> <p>Response: a00xxxxxxx, 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>			

4.53 Forced Active\*/Bypass Status (\*see **Important** statement below Figure 3-31)

K	4B	axxK	V.24 only
<p>Request a list of all channels identifying those with echo cancellation forced active or bypassed.</p> <p>xx="00" — Return the channels that are currently forced active.</p> <p>Response: a00xxxxxxx, where the x's represent the bit encoded all-channel reply. A logic 1 indicates that the channel has been forced active.</p> <p>xx="FB" — Return the channels that are currently forced bypass.</p> <p>Response: aFBxxxxxxx, where the x's represent the bit encoded all-channel status reply. A logic 1 indicates that the channel has been forced bypass.</p> <p>Note: See Table 4-8 for mapping of bit encoded channel numbers.</p>			

## 4.54 Idlecode Pattern Control (Receive)

L	4C	axxL	V.24 and front panel
<p>The 258 can monitor any user-defined eight-bit hex pattern on either the Send or Receive side. The idlecode patterns can even be different. The ";" command defines the Send side user and current idlecode pattern, while the "L" command defines the Receive side idlecode pattern. The default pattern is 54 hex.</p> <p>xx=two ASCII hex digits (uppercase).</p> <p>XX="SD" — Set default value for Send side current pattern (which is 54H). The previously saved user pattern remains unaffected.</p> <p>XX="SU" — Enable previously saved user Send side pattern and copy it into current pattern.</p> <p>Response: ACK/NAK</p> <p>Note: See paragraph 4.37 for Idlecode Pattern Control (Send).</p>			

## 4.55 Alarm Status

M	4D	ayyM	V.24 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.</p> <p>yy=00 Request a summary of all alarm conditions for standard framing conditions. Response: a00bbbbbbbbb, where the b's are bit encoded as in Table 4-9.</p>			

alarm type	char	bit pos	status indication
Send-in	1st	4th	LOS
		3rd	loss of CRC-4 framing (drop side)
		2nd	local alarm
		1st	remote alarm
	2nd	4th	FFL (frame fault)
		3rd	BFL (excessive bit error ratio)
		2nd	AIS
		1st	B3R
Receive-in	3rd	4th	LOS
		3rd	loss of CRC-4 framing (line side)
		2nd	local alarm
		1st	remote alarm
	4th	4th	FFL (frame fault)
		3rd	BFL (excessive bit error ratio)
		2nd	AIS
		1st	B3R
system	5th	4th	unused
		3rd	unused
		2nd	always 0
		1st	always 0
	6th	4th	ACO on
		3rd	deferred alarm
		2nd	urgent alarm
		1st	service alarm
	7th	4th	single channel failure
		3rd	multiple channel failure
		2nd	unused
		1st	unused
	8th	4th	power supply failure
		3rd	unused
		2nd	microprocessor failure
		1st	unused
	9th	4th	phase-locked-loop failure
		3rd	unused
		2nd	network interface subassembly failure
		1st	module subassembly failure

Table 4-9 Alarm status a00M

yy=#2 Request an MF alarm condition summary.  
Response: a#2bbbb, where the b's are bit encoded as in Table 4-10.

alarm type	char	bit pos	status indication
Send-in	1st	4th	unused
		3rd	unused
		2nd	MF local alarm (urgent)
		1st	MF remote alarm (deferred)
	2nd	4th	unused
		3rd	MF FFL (frame fault)
		2nd	MF B6R (bit 6)
		1st	MF AIS
Receive-in	3rd	4th	unused
		3rd	unused
		2nd	MF local alarm (urgent)
		1st	MF remote alarm (deferred)
	4th	4th	unused
		3rd	MF FFL (frame fault)
		2nd	MF B6R (bit 6)
		1st	MF AIS

Table 4-10 Alarm status a#2M

4.56 Forced Active Mode\* (\*see **Important** statement below Figure 3-31)

N	4E	axxN	V.24 and front panel
Force echo cancellation active for the specified channel. An "xx" of 00 controls all channels. Response: ACK/NAK			

## 4.57 Select Timeslot 16 Control Side

O	4F	axxO	V.24 and front panel
<p>Select which side to monitor for timeslot 16 signaling.</p> <p>xx="SO" — Set timeslot 16 control to Send side only.  "RO" — Set timeslot 16 control to Receive side only.  "SR" — Set timeslot 16 control to Send AND Receive sides.  Response: ACK/NAK</p> <p>xx="SS" — Returns timeslot 16 control current status.  Response: aSSyy, where "yy" represents the side selected.</p> <p>yy="SO" — Send side monitoring selected.  "RO" — Receive side monitoring selected.  "SR" — Send AND Receive side monitoring selected.</p>			

## 4.58 Re-Run Power-Up Diagnostics

P	50	a00P	V.24 only
<p>Re-run the power-up diagnostics.</p> <p><b>WARNING: Only perform this command when the canceller is not carrying traffic.</b>  Response: ACK/NAK</p>			

## 4.59 H-Reset Off

Q	51	axxQ	V.24 only
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. Response: ACK/NAK			

## 4.60 H-Reset On

R	52	axxR	V.24 only
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 occurring on 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. Response: ACK/NAK			

## 4.61 Single Channel Status

S	53	axxS	V.24 only
Report the operational status for the channel specified by "xx". The all-channel status (xx=00) option is not available for this command. Response: axxXX, where "XX" is bit encoded as in Table 4-11.			

char	bit pos	status indication
1st	4th	H-Reset on
	3rd	canceller only
	2nd	H-Hold on
	1st	cancellation inactive
2nd	4th	self-test failure
	3rd	signaling busy indication (no idlecode present)
	2nd	forced active — control on
	1st	clear channel — control on
(logic 1 = true, logic 0 = false)		

**Table 4-11 Single channel status axxS**

## 4.62 Per-Channel Self-Test Status

T	54	axxT	V.24 and front panel
Request the result of the last channel self-test performed and the specified or all channels.  xx=channel number Response: axxP indicates that an individual channel passed. axxF indicates that an individual channel failed.  xx=00 Request results for all channels. Response: a00xxxxxxx, where the x's represent the bit encoded all-channel status. A logic 1 indicates test failure and logic 0 indicates no failure.  Note: See Table 4-8 for mapping of bit encoded channel numbers.			

## 4.63 CCS Busy

U	55	axxU	V.24 only
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 modes. Response: ACK/NAK			

## 4.64 Clear CCS Busy/Idle

V	56	axxV	V.24 only
Negate the CCS busy or CCS idle command and restore the channel to optioned busy/idle signaling detection mode. Response: ACK/NAK			

## 4.65 CCS Idle

W	57	axxW	V.24 only
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. Response: ACK/NAK			

## 4.66 Tone Disabler Select

	X	58	axyX	V.24 and front panel
	Select which tone the DTD and STD will use for active/bypass and busy/idle control.			
number zero →	DTD select: x="0" — off "1" — 2100Hz without phase reversal (default) "2" — 2100Hz with phase reversal "3" — DO NOT CHANGE selected disabler			
number zero →	STD select: y="0" — off "1" — ITU-T#5 tone disabler (default) "2" — 2280Hz tone disabler "3" — 2600Hz tone disabler "4" — C6C7 tone disabler (2000Hz) "5" — DO NOT CHANGE selected disabler			
letter O →	OSTD select: xy="O" — off "O1" — ITU-T#5 tone disabler (default) "O2" — 2280Hz tone disabler "O3" — 2600Hz tone disabler "O4" — C6C7 tone disabler (2000Hz) "O5" — DO NOT CHANGE selected disabler Response: ACK/NAK  Note: The response is NAK if there is no 2563A or 2563C subassembly installed.			

## 4.67 CCS Busy/Idle Status

Y	59	axxY	V.24 only
<p>Query whether a specified channel is CCS busy, CCS idle, or neither.  Response: axxL indicates that echo cancellation is CCS idle.  axxM indicates that echo cancellation is CCS busy.  axxE indicates that no CCS command has been received for the channel.  The "00" all channel status option is not available for this command.</p>			

## 4.68 System Configuration Status

Z	5A	axxZ	V.24 only
<p>Request a summary of the configuration for a particular unit.  xx=00 request the default system configuration status.  Response: xxxx, where "xxxx" is a string of bit encoded hex characters, as in Tables 4-12 through 4-14.</p>			

char	bit pos	status indication
1st	4th	NLP off
	3rd	H-Hold on
	2nd	PCM loopback on
	1st	power-up diagnostics complete (cleared after first request)
2nd	4th	view only on
	3rd	2581 (32ms) main assembly present
	2nd	AIS transmitted upon local alarm on
	1st	31 channel mode on
3rd	4th	EPS1 (see Table 4-13)
	3rd	EPS0 (see Table 4-13)
	2nd	HLC or ALC enabled on the Receive side
	1st	HLC present
4th	4th	always equal 1
	3rd	DST enabled
	2nd	HLC on board
	1st	ITU-T NLP (off during doubletalk)

**Table 4-12 System configuration status a00Z**

EPS1	EPS0	description
0	0	96 or 128 milliseconds
0	1	32 milliseconds
1	1	64 milliseconds

**Table 4-13 System configuration status a00Z**

xx=#2 request the signaling mode selected for a specific unit.  
Response: y, where "y" indicates the signaling mode status, as in Table 4-14.

y	signal mode
0	idlecode, 30 channel
1	idlecode, 31 channel
2	Timeslot 16, A bit, high polarity
3	Timeslot 16, A bit, low polarity
4	Timeslot 16, B bit, high polarity
5	Timeslot 16, B bit, low polarity
6	Timeslot 16, C bit, high polarity
7	Timeslot 16, C bit, low polarity
8	Timeslot 16, D bit, high polarity
9	Timeslot 16, D bit, low polarity
A	idlecode, 30 channel, sync on MFAW and monitor MF alarms
C	ISDN, 3.1K call type — disabled
D	ISDN, 3.1K call type — enabled

**Table 4-14 System configuration status a#2Z**

xx=#3 request the 81.258X features' system configuration.

Response: a#3ssrryyyyyyy, which is decoded as follows:

ss= two ASCII hex digits that represent the Send side user-defined idlecode pattern.

rr= two ASCII hex digits that represent the Receive side user-defined idlecode pattern.

yyyyyyy= bit encoded information as in Table 4-15.

char	bit(s)	information
1st	4 & 3	Echo Return Loss (ERL)
		0 0 = 0 dB
		0 1 = 3 dB
		1 0 = 6 dB
	2 & 1	DTD selected
		0 0 = off
		0 1 = 2100Hz
		1 0 = 2100Hz with phase reversal
2nd	all	STD selected
		0 0 0 0 = off
		0 0 1 0 = ITU-T#5
		0 1 0 0 = 2280Hz tone
		0 1 1 0 = 2600Hz tone
		1 0 0 0 = C6C7
		1 1 1 0 = option not available
3rd	all	CRC-4 configuration
		0 0 0 0 = line side enabled
		0 1 0 0 = drop side enabled
		1 0 0 0 = both sides enabled
		1 1 0 0 = CRC-4 disabled
continued . . .		

**Table 4-15 System configuration status a#3Z**

char	bit(s)	information
4th	4 & 3	HLC location
		0 0 = option not available
		0 1 = off-board HLC in use
		1 0 = on-board HLC in use
		1 1 = not used
	2 & 1	HLC high-level signal threshold
		0 0 = 0.0 dBm0
		0 1 = +2.5 dBm0
		1 0 = -3.0 dBm0
		1 1 = option not available
5th	all	HLC low-level signal threshold
		0 0 0 0 = option not available
		0 0 0 1 = -6.0 dBm0
		0 0 1 0 = -10.0 dBm0
		0 0 1 1 = -16.0 dBm0
		0 1 0 0 = -20 dBm0
6th	all	HLC hold-over period
		0 0 0 0 = option not available
		0 0 0 1 = 8.0 seconds
		0 0 1 0 = 4.0 seconds
		0 0 1 1 = 2.0 seconds
		0 1 0 0 = 1.0 seconds
7th	all	HLC digital attenuation levels
		0 0 0 0 = option not available
		0 0 0 1 = 6 dB
		0 0 1 0 = 8 dB
		0 0 1 1 = 10 dB
		1 1 0 0 = 12 dB

**Table 4-15 System configuration status a#3Z**

xx=LC request information on serial port configuration. (This command option is available in the responsive failure mode.)

Response: aLCyyyy decoded as in Table 4-16.

char	bit(s)	information
1st	4 (msb)	unit mode
		0 = normal
		1 = fail
	3	port connected
		0 = control
		1 = configuration
	2 & 1	shelf configuration
		0 0 = 254
		0 1 = 256
		1 0 = 258
		1 1 = 452
2nd	all	control port baud rate
	0 0 0 0	port not available
	0 0 0 1	300
	0 0 1 0	600
	0 0 1 1	1200
	0 1 0 0	2400
	0 1 0 1	4800
	0 1 1 0	9600
	0 1 1 1	19200
	1 0 0 0	38400
3rd	all	maintenance port baud rate
	0 0 0 0	port not available
	0 0 0 1	300
	0 0 1 0	600
	0 0 1 1	1200
	0 1 0 0	2400
	0 1 0 1	4800
	0 1 1 0	9600
	0 1 1 1	19200
	1 0 0 0	38400
4th	4 (msb)	autobaud status
		0 = off
		1 = on
	3, 2, 1	unused

Table 4-16 System configuration aLCZ

## 4.69 ERL Configuration

[	5B	axx[	V.24 and front panel
<p>Select or show the minimum endpath ERL configuration.</p> <p>xx="00" — 0 dB select ERL  "03" — 3 dB select ERL  "06" — 6 dB select ERL (default)</p> <p>Response: ACK/NAK</p> <p>xx="SS" — Show the ERL selection.  Response: aSSxDB, where "x" is either 0, 3, or 6.</p>			

## 4.70 CRC-4 Configuration

]	5D	axx]	V.24 and front panel
<p>Enable/disable or show configuration of CRC-4 error detection.</p> <p>xx="EL" — Enable line side CRC-4 error detection.  "ED" — Enable drop side CRC-4 error detection.  "EB" — Enable CRC-4 error detection for both sides.  "DB" — Disable CRC-4 error detection for both sides.</p> <p>Response: ACK/NAK</p> <p>xx="SS" — return CRC-4 selection  Response: aSSxx, where "xx" is decoded as follows:</p> <p>xx="EL" — (line enabled)  "ED" — (drop enabled)  "EB" — (both enabled)  "DB" — (CRC-4 is not enabled for either port) (default)</p>			

## 4.71 Global SUN

^	5E	^xxy	V.24 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 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.</p> <p>xx=Channel number or system parameter selection.</p> <p>y=Any command character. The ASCII response is deleted.</p> <p>Response: Responds with ACK/NAK if one unit is in group, otherwise there is no response.</p>			

## 4.72 Tone Disabled Status

_	5F	axx_	V.24 and front panel
<p>Request a list of channels that are currently tone disabled.</p> <p>xx="00" — Combine the status from all disablers. Response: a00xxxxxxx, 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>xx="DD" — Provide DTD status. Response: aDDxxxxxxx, 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 DTD.</p> <p>xx="SD" — Provide STD status. Response: aSDxxxxxxx, 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 STD.</p> <p>xx="OD" — Provide OSTD status. Response: aODxxxxxxx, 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 STD.</p> <p>Note: See Table 4-8 for mapping of bit encoded channel numbers.</p>			

## 5. Acronyms

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ACE	Acoustic Coupling Elimination
ACK	Acknowledge (ASCII hex 06)
ACO	Alarm Cut Off
AEPL	Acoustic Echo Path Loss
AIS	Alarm Indication Signal
ALC	Automatic Level Control
ASCII	American Standard Code for Information Interchange
BEL	ASCII character set, bell alarm (ASCII hex 7)
BER	Bit Error Rate
CAS	Channel Associated Signaling
CCS	Common Channel Signaling
CEPT	Common European Postal and Telephone
CRC-4	Cyclic Redundancy Check-4 (four-bit number)
DNS	Dynamic Noise Substitution
DST	Dynamic Signal Transfer
DTD	Data Tone Disabler
DTR	Data Terminal Ready
EIA	Electronic Industries Association
ERL	Echo Return Loss
HLC	High-Level Compensation
ISDN	Integrated Services Digital Network
ITU-T	International Telecommunications Union — Telecommunication Standardization Sector
LDP	Long-Distance Processor
MF	Multiframe
msb	Most Significant Bit
NAK	Not Acknowledge (ASCII hex 15)
NLP	Non-Linear Processor
OSTD	Optional Signaling Tone Disabler
PCM	Pulse Code Modulation
STD	Signaling Tone Disabler
SUN	System Unit Number
TSXX	Timeslot Number XX

## 6. Technical Assistance; Repair and Return

### Technical Assistance

6.1 Contact Tellabs Technical Assistance as follows:

location	telephone	FAX
<b>Argentina</b> — Tellabs International, Inc., Sucursal Buenos Aires	+541.393.0764, .0892, or .0835	+541.393.0732
<b>Australia</b> — Tellabs Pty Ltd., Milson's Point NSW, Sydney	+61.2.9966.1043	+61.2.9966.1038
<b>Brazil</b> — Tellabs International, Inc., Rio de Janeiro	+5521.518.2224	+5521.516.7063
<b>Brazil</b> — Tellabs International, Inc., Sao Paulo	+55.11.5505.3009	+55.11.5506.7175
<b>Canada</b> — Tellabs Comm. Canada Ltd., Mississauga, Ontario	905.858.2058	905.858.0418
<b>China</b> — Tellabs International, Inc., Beijing	+86.10.6510.1871	+86.10.6510.1872
<b>Colombia</b> — Tellabs International, Santa Fe de Bogota	+571.623.3162 or .3216	+571.623.3047
<b>England</b> — Tellabs U.K. Ltd., Bucks	+44.1494.555800	+44.1494.555801
<b>Finland</b> — Tellabs Oy, Espoo	+358.9.413.121-main #	+358.9.4131.2815
<b>France</b> — Tellabs SAS, Guyancourt	+33.1.345.20838	+33.1.309.60170
<b>Germany</b> — Tellabs GmbH, Munich	+49.89.54.90.05.+ext. or 0 (switchboard)	+49.89.54.90.05.44
<b>Hong Kong</b> — Tellabs H.K. Ltd.	+852.2866.2983	+852.2866.2965
<b>Hungary</b> — Tellabs GmbH Rep. Office, Budapest	+36.1.2681220	+36.1.2681222
<b>India</b> — Tellabs International, Inc., Bangalore	+91.80.2261807 or .2266850	+91.80.2262170
<b>India</b> — Tellabs International, Inc., New Delhi	+91.11.6859824	+91.11.6859824
<b>Ireland</b> — Tellabs, Ltd., County Clare	+353.61.703000	+353.61.703333
<b>Italy</b> — Tellabs Italia SRL, Roma	+39.6.52207.205	+39.6.52207.206
<b>Japan</b> — Tellabs International, Inc., Tokyo	+81.3.5322.2977	+81.3.5322.2929
<b>Lebanon</b> — Tellabs Oy, Dbayeh	+961.4.525.929	+961.4.525.171
<b>Mexico</b> — Tellabs de Mexico	+525.255.0057	+525.255.0061
<b>Netherlands</b> — Tellabs Netherlands b.v.	+31.30.6004070	+31.30.6004090
<b>Philippines</b> — Tellabs International, Inc., Sucat, Muntinlupa City	+63.2.838.0970	—
<b>Singapore</b> — Tellabs Singapore Pte, Ltd.	+65.3367.611	+65.3367.622
<b>Republic of South Africa</b> — Tellabs Pty Ltd., Hennopsmeer	+27.12.672.8025	+27.12.672.8024
<b>South Korea</b> — Tellabs International, Inc., Seoul	+82.2.589.0667	+82.2.589.0669
<b>Spain</b> — Tellabs Southern Europe s.a., Madrid	+34.91.315.48.56	+34.91.315.77.70
<b>Sweden</b> — Tellabs AB, Stockholm	+46.8.440.4340	+46.8.440.4341
<b>Thailand</b> — Tellabs International, Inc., Bangkok	+662.642.7817	+662.642.7820
<b>USA and Puerto Rico</b>	800.443.5555*	630.512.7097
*All other <b>Caribbean</b> and <b>South American</b> locations, or if the toll-free number is busy, telephone 630.378.8800		

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## Repair and Return

- 6.2 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
<b>Finland</b> — Tellabs Oy, Espoo	+358.9.413.121-main #	+358.9.4131.2815
<b>Canada</b> — Tellabs Comm. Canada Ltd., Mississauga, Ontario	905.858.2058	905.858.0418
<b>Ireland</b> — Tellabs, Ltd., County Clare	+353.61.703000	+353.61.703333
<b>Lisle, IL USA</b> — Tellabs Operations, Inc.	800.443.5555 (USA and Puerto Rico only) 630.378.8800 (other International)	630.512.7097 (both)

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- 6.3 Repair service includes an attempt to remove any permanent markings made by customers on Tellabs equipment. If equipment must be marked, it should be done with nonpermanent materials and in a manner consistent with the correct handling of electrostatically sensitive devices.





